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Research Article

Beyond the counter: Insights into knowledge, access, use, and stigma of emergency contraceptive pills among women in Kosovo

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Abstract

Background: Unintended pregnancy remains a major public health problem worldwide, and access to effective emergency contraception is essential for reducing unsafe abortion and maternal morbidity. Although the World Health Organization recommends emergency contraceptive pills (ECPs) for over-the-counter availability, evidence on women's knowledge, attitudes, and use of ECPs in Kosovo is limited.

Objective: To assess knowledge, attitudes, and practices regarding emergency contraceptive pill use among women in Kosovo and to analyze the influence of sociodemographic and social factors on access and utilization.

Methods: A descriptive cross-sectional study was conducted in Kosovo from June to August 2025. A self-administered questionnaire was distributed online and in community pharmacies to women of reproductive age who had previously used emergency contraceptive pills. The survey collected data on demographics, usage patterns, sources of information, side effects, and attitudes toward ECP use. Participation was voluntary and anonymous.

Results: Most participants were aged 18–30, highly educated, and living in urban areas. The majority used ECPs no more than once per month, and 77% obtained the pill without a prescription. No significant association was found between non-prescription access and frequent use ($p = 0.9181$). Knowledge scores were significantly higher among women who received information from pharmacists (M = 6.02) and doctors or clinics (M = 5.86) than among those who relied on the Internet or Google (M = 3.33) or social media (M = 2.83) ($F = 90.91$, $p < 0.001$). Rural residence was associated with higher odds of shame-related avoidance when requesting ECPs (OR = 2.60, 95% CI: 1.39–4.89) and with a stronger influence of cultural and family norms on ECP use (OR = 4.57, 95% CI: 2.20–9.49). Commonly reported side effects included menstrual irregularities, abdominal pain, headache, and nausea.

Conclusion: Emergency contraceptive pills in Kosovo are generally used responsibly, even when accessed without a prescription. However, major knowledge gaps and social stigma persist, particularly among women in rural areas and those relying on unverified online sources for information. Strengthening professional counseling in pharmacies and clinics, establishing national OTC guidelines, and expanding sexual education programs are essential to improve the safe and informed use of emergency contraception.

Keywords

Access, attitudes, emergency contraceptive pill, knowledge, reproductive health

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PENSOFT

Introduction

Unintended pregnancy remains a major global public health concern, with nearly half of all pregnancies each year occurring unintentionally. More than 60% of these pregnancies end in abortion, often under unsafe conditions that contribute to increased maternal morbidity and mortality (WHO 2019; UNFPA 2022). These patterns underscore the importance of accessible and effective contraceptive options in reducing preventable health risks for women. In this context, emergency contraception (EC) refers to the use of a pill or device to prevent pregnancy after unprotected sexual intercourse (Shen et al. 2019).

Emergency contraceptive pills (ECPs), also called postcoital contraception or the "morning-after pill," are intended for use when contraception was not used, failed, was used improperly, or in situations of sexual assault (Mooney-Somers et al. 2019). These medications are designed for occasional or emergency use and should not be considered a substitute for regular contraceptive methods (Kongnyuy et al. 2007). Since the 1990s, a single-dose 1.5 mg levonorgestrel (LNG) pill has been available and is considered safe and effective when taken within 72 hours after unprotected intercourse. In addition, ulipristal acetate (UPA) provides higher effectiveness and can be used up to 120 hours after unprotected intercourse (Mooney-Somers et al. 2019).

Levonorgestrel primarily prevents fertilization by inhibiting ovulation and thickening cervical mucus, while UPA works by delaying or inhibiting ovulation (Shen et al. 2019). Emergency contraception does not affect future fertility or delay its return after use. Reported side effects are generally mild and similar to those associated with regular oral contraceptives, including nausea, vomiting, irregular bleeding, and fatigue (WHO 2021). Despite their established safety and effectiveness, the appropriate use of ECPs may be limited by gaps in knowledge, cultural barriers, and persistent social stigma (Nappi et al. 2014, Quansah 2025).

Research in different countries indicates that general awareness of ECPs among women and young girls is relatively high (Kongnyuy et al. 2007; Mooney-Somers et al. 2019). However, detailed knowledge regarding the correct timing of use, mechanism of action, access, and potential side effects remains limited (Nappi et al. 2014; Mooney-Somers et al. 2019). In a study conducted across five European countries, 31–43% reported that they did not know how emergency contraception works. Between 24 and 45% believed that EC had an abortifacient effect, and 35–49% incorrectly assumed that it was 100% effective when used within one day after unprotected intercourse (Nappi et al. 2014). Survey data from Australia showed that many women primarily learned about the emergency pill from family and friends (40–51%), while far fewer received information from healthcare professionals (17–20%) (Mooney-Somers et al. 2019). Similarly, research conducted in Europe and the USA reported that up to 40% of women were unaware of how ECPs work (Cameron et al. 2017).

According to the World Health Organization, emergency contraceptive pills are considered an important self-care intervention that can support women in managing their reproductive health without the need for direct medical supervision. WHO recommends their over-the-counter availability to improve accessibility and equity (WHO 2024). However, in many low- and middle-income countries, including Kosovo, women's knowledge, attitudes, and practices concerning emergency contraception remain underexplored. National data from the Multiple Indicator Cluster Surveys (MICS) indicate that withdrawal is the most commonly used contraceptive method in Kosovo, followed by intrauterine devices, male condoms, and oral contraceptive pills among married women or those in union (UNWOMEN 2024).

Levonorgestrel- and ulipristal acetate-based pills are currently available as emergency contraceptive pills in Kosovo (AKPPM 2025). Although the WHO advocates non-prescription access, ECPs in Kosovo are still predominantly dispensed with a medical prescription, highlighting a gap between global recommendations and local practice. To our knowledge, no previous studies have systematically assessed ECP-related use practices, knowledge, barriers, or accessibility in Kosovo, underscoring the novelty and importance of this study in filling a critical regional knowledge gap. Therefore, this study aims to assess the levels of knowledge, attitudes, and practices regarding emergency contraceptive pill use among women in Kosovo and to examine associations with sociodemographic and social factors.

Materials and methods

Study design

A cross-sectional study was conducted to assess practices, knowledge, and attitudes toward emergency contraceptive pills (ECPs) among women of reproductive age in Kosovo for 3 months, from 1 June 2025 to 30 August 2025. Data were collected both in person at various pharmacies and online through social media outreach.

Participants

The target population consisted of women of reproductive age who reported previous use of emergency contraceptive pills at least once. Participants were recruited in person at community pharmacies via simple random sampling and through online platforms.

Data collection

The final questionnaire was distributed in person at different pharmacies and electronically via social media outreach to ensure a diverse sample. A total of 200 women

completed the survey, representing both urban and rural regions. Participants were eligible for inclusion if they met the following criteria: being a woman of reproductive age and having used ECPs at least once in their lifetime. Women were excluded from participation if they were not of reproductive age or had never used ECPs.

Research instrument

Data were collected through a structured, self-administered questionnaire developed based on World Health Organization (WHO) guidance on emergency contraception and previous studies (Kongnyuy et al. 2007; Nappi et al. 2014; Mooney-Somers et al. 2019; WHO 2021). The questionnaire was translated into Albanian and then reviewed by all study authors to ensure that the questions were clear, culturally appropriate, and accurately reflected the intended concepts. The questionnaire consisted of 26 questions divided into four sections:

1. Sociodemographic characteristics of participants;
2. Usage practices of ECPs;
3. Knowledge regarding ECPs;
4. Attitudes, perceived barriers, and side effects experienced.

The first section of the questionnaire collected basic demographic information, including age, education level, employment status, monthly income, and whether participants lived in urban or rural areas. This section provided an understanding of the characteristics of women who use ECPs in Kosovo.

The second section focused on patterns of ECP use. Women were asked whether they used ECPs more than once per month, enabling assessment of potential misuse. Participants also reported the age at first use, type of ECP taken, the occurrence of pill failure, and reasons for using ECPs. To evaluate accessibility and regulatory practices, the questionnaire also included a question about whether ECPs were purchased without a medical prescription. Furthermore, participants identified their sources of information about ECPs (e.g., pharmacists, doctors, the internet, or social media).

The third section evaluated participants' knowledge about ECPs using eight evidence-based questions adapted from WHO guidance and previous studies (Kongnyuy et al. 2007; Mooney-Somers et al. 2019; WHO 2021). Each question had a single correct response. Responses were scored dichotomously, with 1 point for a correct answer and 0 for an incorrect answer, yielding a total knowledge score ranging from 0 to 8. The knowledge score was calculated based on the following questions:

	Question	Correct answer
5.	Correct time to take ECPs	Within 72 h or 120 h
6.	ECPs are intended for occasional use only	Yes
7.	Frequent use of ECP disrupts the menstrual cycle	Yes
8.	ECPs cause infertility	No
9.	ECPs have an abortifacient effect	No
10.	ECPs are 100% effective	No
11.	ECPs are less effective after 24 h	Yes
12.	ECPs can fail even if taken correctly	Yes

A higher score indicated better knowledge of ECPs. For the ANOVA, the knowledge score was analyzed as a continuous variable to compare mean differences across groups by source of information (pharmacist, doctor or clinic, Internet or Google, and social media).

The fourth section explored participants' attitudes and perceptions toward ECP use. Women were asked whether they believed that the use of ECPs without a medical recommendation is dangerous. To assess stigma, participants reported whether they had ever avoided requesting ECPs at a pharmacy because of shame or fear of judgment. Furthermore, this section examined the influence of sociocultural pressures by asking participants whether cultural, family, or social norms shaped their decision to use ECPs. In addition, the questionnaire included an assessment of side effects experienced after ECP use, such as nausea, menstrual irregularities, abdominal pain, headache, or changes in menstrual bleeding patterns. Finally, to identify interventions to improve the appropriate use of ECPs, participants were asked to select from a list of proposed strategies, including free consultations with doctors or clinics, implementation of sex education programs in schools, increased regulatory oversight in pharmacies, and online awareness campaigns.

Data analysis

All statistical analyses were conducted using SPSS Statistics for Windows, version 31. The significance level for the analyses was set at $p < 0.001$. Descriptive statistics (frequencies and percentages) were used to summarize sociodemographic characteristics of the participants, patterns of ECP use, side effects, counseling experiences, and preferred strategies to promote the appropriate use of ECPs. Associations between categorical variables were examined using chi-square tests, including the frequency of ECP use and purchase without a prescription, place of residence, and key attitudes toward ECP use. Differences in mean knowledge scores by source of information were tested using a one-way ANOVA, followed by Bonferroni post hoc comparisons when significant. Binary logistic regression was performed to examine the associations between place of residence and key attitude variables, using "Yes" as the outcome category to estimate odds ratios (ORs) and 95% confidence intervals. Bar charts were generated to illustrate reported side effects and preferred strategies to promote the appropriate use of ECPs.

Ethical considerations

After providing informed consent, participants completed a self-administered questionnaire. Participation was entirely voluntary. All responses were anonymous and

treated with complete confidentiality. Participants were informed about the purpose of the study, how their responses would be used, and their right to withdraw at any time without consequences.

Results

Sociodemographic characteristics of the participants

A total of 200 women participated in our study. All participants had used at least one emergency contraceptive pill (ECP). Most participants were aged 25–30 years (39%), followed by ≥30 years (33.5%) and 18–24 years (27%), while only one participant (0.5%) was under 18.

Regarding educational level, more than half of the respondents were graduates (58%), while 27% were currently attending university, and 15% had completed only high school. With respect to marital and relationship status, 63% of participants were married, 14.5% were single, and 22.5% reported being in a relationship.

Most participants were from urban areas (67%), whereas the remainder were from rural areas (33%). Nearly half of respondents (47%) reported earning between 400–800 € per month, while 32.5% earned more than 800 €, and 19.5% earned less than 400 €. Only 1% preferred not to disclose their income (Table 1).

Table 1. Sociodemographic characteristics of the participants.

Variable	Category	Total n (%)
Age	Under 18 years	1(0.5%)
	18–24 years	54(27.0%)
	25–30 years	78 (39.0%)
	≥30 years	67 (33.5%)
Education level	Graduated	116 (58.0%)
	University (in progress)	54 (27.0%)
	Completed only high school	30 (15.0%)
Marital status	Married	126 (63.0%)
	In a relationship	45 (22.5%)
	Single	29 (14.5%)
Monthly income (€)	<400 €	39 (19.5%)
	400–800 €	94 (47.0%)
	>800 €	65 (32.5%)
	Prefer not to answer	2 (1.0%)
Place of residence	Urban	134 (67.0%)
	Rural	66 (33.0%)
Total	—	200 (100.0%)

Patterns of emergency contraceptive pill use

Regarding counseling and ECP use patterns, most participants (81%) reported using emergency contraception once per month, while 19% had used it more frequently (Table 2). Among those who received counseling, 14% reported frequent use, compared to 5% of those who had not received counseling.

Table 2. Patterns of emergency contraceptive pill use according to counseling by healthcare professionals.

Variable	Category	Total n (%)	Counseling YES n (%)	Counseling NO n (%)
ECP used more than once a month	No	162 (81.0%)	92 (46.0%)	70 (35.0%)
	Yes	38 (19.0%)	28 (14.0%)	10 (5.0%)
Age at first use of ECP	18–25 years	94 (47.0%)	53 (26.5%)	41 (20.5%)
	25–30	62 (31.0%)	36 (18.0%)	26 (13.0%)
	30+	34 (17.0%)	24 (12.0%)	10 (5.0%)
	Under 18	10 (5.0%)	7 (3.5%)	3 (1.5%)
Type of emergency contraceptive pill used	Levonorgestrel (e.g., Anabel)	141 (70.5%)	92 (46.0%)	49 (24.5%)
	Ulipristal acetate (e.g., EllaOne)	35 (17.5%)	19 (9.5%)	16 (8.0%)
	I don't know	24 (12.0%)	9 (4.5%)	15 (7.5%)
Source of information	Internet / Google	87 (43.5%)	35 (17.5%)	52 (26.0%)
	Pharmacy	54 (27.0%)	49 (24.5%)	5 (2.5%)
	Social media	30 (15.0%)	9 (4.5%)	21 (10.5%)
	Doctor/Clinic	29 (14.5%)	27 (13.5%)	2 (1.0%)
Pill failure	No	162 (81.0%)	90 (45.0%)	72 (36.0%)
	Yes	38 (19.0%)	30 (15.0%)	8 (4.0%)
Reasons for ECP use	Forgot regular contraception	25 (12.5%)	19 (9.5%)	6 (3.0%)
	Lack of information on contraception options	12 (6.0%)	10 (5.0%)	2 (1.0%)
	Partner pressure	11 (5.5%)	5 (2.5%)	6 (3.0%)
	Condom rupture	8 (4.0%)	5 (2.5%)	3 (1.5%)
	Other	51 (25.5%)	20 (10.0%)	31 (15.5%)
	Unprotected intercourse	132 (66.0%)	78 (39.0%)	54 (27.0%)
Purchase without prescription	Yes	154 (77.0%)	88 (44.0%)	66 (33.0%)
	No	46 (23.0%)	32 (16.0%)	14 (7.0%)

Almost half of the participants (47%) reported first using emergency contraception between 18–24 years, followed by 31% between 25–30 years, and 17% at 30 years or older. Only 5% initiated use under 18 years of age. The majority used levonorgestrel-based pills such as Anabel (70.5%), while 17.5% used ulipristal acetate such as Ella-One, and 12% were unsure which type they had used.

When asked about sources of information, most participants cited the Internet or Google (43.5%), followed by pharmacies (27%), social media (15%), and doctors or clinics (14.5%). Counseling was substantially higher among those who obtained information from pharmacies (24.5%) and healthcare professionals (13.5%) compared to those relying on the Internet (17.5%) or social media (4.5%). This highlights a strong association between professional sources and the likelihood of receiving counseling.

Contraceptive failure was reported by 19% of women who had used emergency contraception. Notably, a higher proportion of failures was observed among women who received counseling (15%) compared to those who did not receive counseling (4%). This difference may indicate that counseled women are better informed about how to recognize and report potential failures.

Participants reported multiple reasons for using emergency contraception. The most common reason was unprotected intercourse (66%), followed by other reasons not specified in the questionnaire (25.5%), forgetting to use regular contraception (12.5%), lack of knowledge about contraceptive options (6%), partner pressure (5.5%), and condom rupture (4%). Counseling was most frequently provided among those reporting unprotected intercourse (39%) and those who forgot regular contraception (9.5%), indicating that counseling is more likely to occur in situations in which recognized contraceptive errors arise.

Access to emergency contraception without a prescription was common, with 77% of women purchasing the pill directly from a pharmacy. Among them, 44% received counseling, whereas 33% did not. Conversely, among the 23% who obtained the pill through a prescription, counseling rates were slightly higher (16% counseling vs. 7% no counseling). However, the overall data demonstrate that even when accessed without a prescription, pharmacists remain an essential source of counseling. Some questions allowed multiple responses; therefore, percentages exceed 100%, as each option was counted independently.

A chi-square test was performed to assess whether the frequency of ECP use differed according to whether women obtained the pill without a prescription (Table 3). The analysis revealed no significant association between purchasing ECPs without a prescription and frequency of use ($\chi^2 = 0.0106$, $p = 0.9181$), indicating that obtaining ECPs without a prescription did not significantly influence repeated use. Misuse appears to be minimal, even among participants who obtained ECPs without a prescription.

Table 3. Chi-square analysis of frequency of ECP use by prescription status.

Purchase without prescription	No (used once a month)	Yes (used more than once a month)	Total	χ^2	df	p-value
No	38	8	46	0.0106	1	0.9181
Yes	124	30	154			
Total	162	38	200			

Knowledge evaluation according to the source of information

An analysis of variance (ANOVA) was conducted to assess differences in knowledge scores regarding emergency contraceptive pills according to participants' primary source of information (Table 4). Knowledge scores ranged from 0 to 8. The results showed a statistically significant difference in knowledge scores across four groups (pharmacist, doctor or clinic, Internet or Google, and social media), $F(3, 3) = 90.91$, $p < 0.001$. Participants who reported pharmacists as their primary source of information (M = 6.02, SD = 1.1) and those who obtained information from doctors or clinics (M = 5.86, SD = 0.82) had significantly higher knowledge scores compared with participants who relied on the Internet or Google (M = 3.33, SD = 1.74) or social media (M = 2.83, SD = 1.45).

Table 4. ANOVA of knowledge scores regarding emergency contraceptive pills by participants' primary source of information.

Source of information	N	Mean (μ)	SD	SS between	SS within	df between	df within	MS between	MS within	F (p)
Pharmacist	54	6.02	1.1	559.96	402.42	3	196	186.65	2.05	90.91 (<0.001)
Doctor/Clinic	29	5.86	0.82							
Internet/Google	87	3.33	1.74							
Social media	30	2.83	1.45							

Post hoc Bonferroni comparisons (Table 5) confirmed that knowledge scores were significantly higher for the pharmacist and doctor or clinic groups than for Internet or Google and social media sources ($p < 0.001$). At the same time, no significant difference was observed

between pharmacists and doctors or clinics (p = 1) or between Internet or Google and social media (p = 0.87). These findings highlight the crucial role of healthcare professionals in ensuring accurate information and improving knowledge about emergency contraception. In contrast, information obtained from unverified online or social media sources was associated with significantly lower knowledge scores.

Table 5. Post-hoc Bonferroni comparisons of knowledge scores by source of information.

Comparison	Mean difference	p (Bonferroni)	Interpretation
Pharmacist vs. social media	3.19	< 0.001	Significant
Pharmacist vs. Internet/ Google	2.69	< 0.001	Significant
Pharmacist vs. Doctor	0.16	1	Not significant
Doctor vs. Internet/ Google	2.53	< 0.001	Significant
Doctor vs. social media	3.03	< 0.001	Significant
Internet/Google vs. social media	0.5	0.87	Not significant

Participants' attitudes toward ECP use

When asked whether using emergency contraceptive pills (ECPs) without a medical recommendation is dangerous, most respondents (62.5%) disagreed, while 35% agreed and 2.5% were unsure. Regarding attitudes toward avoidance due to shame or fear of judgment, 70% of respondents reported no avoidance, whereas 30% reported avoiding ECP use for these reasons. Cultural and family or social norms influenced the decision to use ECPs for a notable proportion of participants: 38.5% indicated they were "somewhat" influenced, 24% reported being "strongly" influenced, 37% said they were not influenced, and 0.5% were unsure (Table 6).

Table 6. Participants' attitudes and social influence on ECPs' use.

Variable	Category	N	%
Use of ECP without medical recommendation is dangerous	No	125	62.5
	Yes	70	35
	Don't know	5	2.5
Avoidance of requesting ECP at the pharmacy due to feelings of shame or fear of being judged	No	140	70
	Yes	60	30
Cultural and family/social norms influenced the decision to take ECP	Yes, somewhat	77	38.5
	None	74	37
	Yes, a lot	48	24
	Not Sure	1	0.5

Next, we examined the association between these variables and participants' place of residence (urban vs. rural) using a chi-square test and logistic regression (Table 7). There was no statistically significant association between residence and the belief that using ECPs without a medical recommendation is dangerous (χ^2 = 1.51, p = 0.469, OR = 0.73, 95% CI: 0.39–1.37). Outcome for logistic regression used: Yes.

Avoidance due to shame or fear of judgment differed significantly by residence, χ^2 = 8.15, p = 0.0043, OR = 2.6 (95% CI: 1.39–4.89). Women in rural areas have 2.6 times higher odds of avoiding asking for ECPs due to shame or fear of judgment than women in urban areas. Outcome for logistic regression used: Yes.

Similarly, cultural and family or social norms had a considerably stronger influence among rural respondents compared with those living in urban areas, with rural women being 4.57 times more likely to report that such norms affect their decision to take ECPs (χ^2 = 20.64, p = 0.00012, OR = 4.57, 95% CI: 2.20–9.49). Outcome for logistic regression used: Yes, a lot + Yes, somewhat. These findings suggest that rural participants tend to report greater social and cultural pressure and are more likely to experience shame-related avoidance. In contrast, urban participants demonstrate less stigma around ECP use.

Side effects experienced among women who used ECPs

Regarding the side effects experienced after using emergency contraceptive pills, the most frequently reported effect was menstrual cycle irregularities (44.5%), followed by abdominal pain (26%), headache (23.5%), nausea (22%), mood swings (21.5%), fatigue (16%), and breast tenderness (13%). Notably, 26% of participants reported no side effects (Fig. 1). Documenting these experiences provided insight into the prevalence of commonly reported impacts and their potential influence on perceptions of ECP safety.

Preferred strategies to promote appropriate ECP use

When asked about preferred strategies, most participants (n = 132) indicated that free consultation from doctors or clinics would be the most effective approach to promote the appropriate use of emergency contraceptive pills. The implementation of sex education in schools was also strongly supported (n = 122). Meanwhile, 92 participants suggested stricter control within pharmacies, whereas 74 recommended online awareness campaigns. Only a small

Table 7. Associations between place of residence and key variables related to attitudes toward ECP use.

Variable	Urban (%)	Rural (%)	χ^2	p-value	OR	95% CI	p-value (logistic regression)
Use of ECP without medical recommendation is dangerous	71.40%	28.60%	1.51	0.469	0.73	0.39–1.37	0.329
Avoidance of requesting ECP at the pharmacy due to feelings of shame or fear of being judged	51.70%	48.30%	8.15	0.0043	2.6	1.39–4.89	0.0029
Cultural and family/social norms influenced the decision to take ECP	47.90%	52.10%	20.64	0.00012	4.57	2.20–9.49	<0.0001

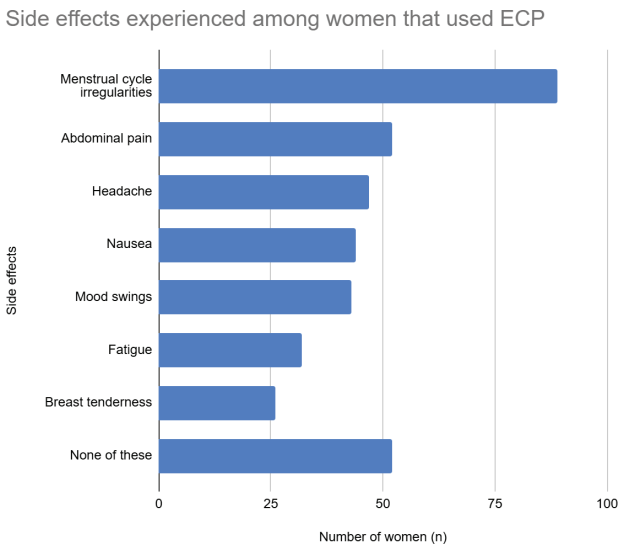

Figure 1. Side effects experienced among women who used ECPs.

number (n = 10) proposed other strategies. Overall, these findings indicate a strong preference for strategies led by healthcare professionals and supported through formal education systems (Fig. 2).

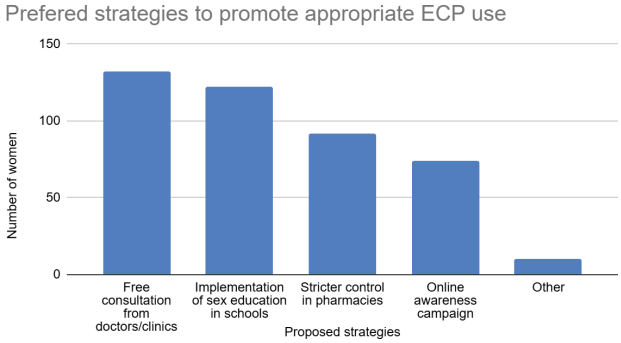

Figure 2. Preferred strategies to promote appropriate ECP use.

Discussion

This study explored knowledge, attitudes, and practices related to emergency contraceptive pill (ECP) use among 200 participants, focusing on demographic factors, access to information, counseling, side effects experienced, and the role of social and cultural influences. The findings provide meaningful insight into how sociodemographic characteristics and information sources are associated with variations in knowledge and practices regarding emergency contraception. When comparing the findings of this study with the international evidence base, a broadly consistent demographic and knowledge pattern is observed: ECP users tend to be young, typically in their early to mid-20s.

In most studies, the demographic profile of ECP users mirrors that observed in Kosovo: the majority of participants were aged 18–30 and predominantly from urban areas. Hungarian data clearly show that ECP users were significantly younger than women seeking abortion, suggesting that younger women may be more likely to seek emergency contraceptive options following contraceptive difficulties (Kozinszky et al. 2016). Italian findings align with this trend, with most ECP users falling in their mid-twenties, an age group often described as having high levels of sexual activity but unstable contraceptive routines (Bastianelli et al. 2016). German pharmacists also consistently reported that young women accounted for the majority of ECP requests (Said et al. 2019).

Even in Pakistan, a socially conservative context, the average age of both male and female respondents remained in the young-adult range, suggesting that age may be consistently associated with ECP use across cultural settings, regardless of marital norms (Abdullah et al. 2024). Taken together, these findings position Kosovo within the global pattern: ECP use appears to be more frequently reported among young, urban, and more educated women, a demographic that generally demonstrates higher health-seeking behavior, greater awareness of available methods, and more autonomy in reproductive decision-making.

The findings from Kosovo indicate that unprotected intercourse, missed regular contraception, lack of information on contraceptive options, and condom breakage were among the most commonly reported reasons for seeking ECP. These patterns are broadly consistent with international evidence. Hungarian research similarly reports condom breakage and non-use of contraception among the leading causes for ECP uptake (Kozinszky et al. 2016), while both Italian and German studies report almost identical reasons, including missed pills, condom failure, and general contraceptive misuse (Bastianelli et al. 2016; Said et al. 2019). In our study, most women reported obtaining ECPs without a prescription. However, repeated use (more than once per month) was uncommon.

This pattern is comparable to findings from countries in which pharmacy access to ECPs has long been established. In France, where ECPs became available through pharmacies in 1999 (Moreau et al. 2006), more than 85% of users obtained ECPs directly from pharmacies. At the same time, research did not observe evidence of reductions in routine contraceptive use or a substantial increase in sexual risk behaviors. Instead, improved availability was reported as a key change at the moment of need. Evidence from Germany, Italy, and Spain similarly suggests that increased accessibility is not necessarily associated with higher levels of inappropriate or repeated use (Arisi et al. 2022).

Data from Hungary suggest that liberalization of access to ECPs may not be associated with overuse (Szűcs et al. 2010). In our study, although 77% of participants obtained ECPs without a prescription, many still perceived prescription-only access as a barrier. This finding reflects a potential gap between formal policy and actual pharmacy practice. Similar patterns have been observed in Turkey, where many women incorrectly believed that ECPs could not be purchased over the counter despite their official over-the-counter availability (Aksu et al. 2010).

In contrast, Australia has a liberal over-the-counter policy, yet only 48% of women were aware that ECPs could be obtained without a prescription (Hobbs et al. 2011). Our

results indicate that women generally use ECPs responsibly and do not report frequent use, suggesting that restrictive access may not be necessary to prevent misuse. On the contrary, it may delay and reduce the clinical effectiveness of ECPs, which is highly time-dependent. Aligning national policies with WHO recommendations and with practices in other European countries could potentially facilitate timely access, support reproductive autonomy, and contribute to reducing unintended pregnancies. However, further studies are needed to evaluate the direct impact of policy changes on ECP use and clinical outcomes.

Studies from diverse settings indicate that awareness of ECPs does not always translate into accurate knowledge of timing, mechanism, and effectiveness. In Ethiopia, although nearly 70% of female college students aged 18–25 had heard of EC, only about one-quarter correctly understood its use (Nibabe and Mgutshini 2014). In Cameroon, most students who were aware of ECPs reported informal sources as primary: around 70% heard about ECP from friends and family, with far fewer citing health personnel or media (Kongnyuy et al. 2007). Similarly, in Kosovo, the internet and social media are often the primary sources of information about ECPs, particularly among younger and rural women.

In both Cameroon and Kosovo, reliance on an informal source was associated with misconceptions, including conflation of ECP with abortion and concerns about long-term fertility effects. Conversely, contact with formal sources such as health professionals, structured educational campaigns, or written educational materials was linked with more accurate knowledge and more positive safety perceptions (Kongnyuy et al. 2007).

In Ethiopia, higher levels of knowledge were concentrated among older students, those in advanced academic years, and those exposed to formal education or health services (Nibabe and Mgutshini 2014). Thai first-year undergraduates showed only moderate knowledge overall, but those with prior use of ECPs or formal education scored significantly higher than those without such exposure (Yongpraderm et al. 2022). Students across these contexts preferred receiving information from health professionals in hospitals, universities, or pharmacies rather than from friends or online sources.

Overall, these findings suggest that healthcare provider involvement may be associated with improved understanding, attitudes, and intended use of ECPs. Knowledge gaps observed in Kosovo, particularly regarding appropriate timing, mechanisms of action, and expected efficacy, are consistent with the international literature. In Pakistan, common misconceptions and low awareness strongly influence how women use contraception, while in Turkey, a common barrier to ECP use was the belief that it induces abortion or harms an existing pregnancy (Aksu et al. 2010). Even in Australia, where ECPs are widely accessible, awareness of correct use remains incomplete (Hobbs et al. 2011). This evidence indicates that misinformation and moral misconceptions remain core barriers across diverse socioeconomic and cultural contexts.

A more precise comparison emerges when examining attitudes and moral frameworks surrounding ECP use. In Pakistan, one-third of participants viewed ECPs as conflicting with religious and ethical principles, indicating that moral concerns can prevent their use (Abdullah et al. 2024). In Ethiopia, 23% of students explicitly cited shame as a reason for avoiding ECPs (Nibabe and Mgutshini 2014). Meanwhile, in the UK, women often report being labeled as "irresponsible" or "careless" for using emergency contraception (Eastham et al. 2020). Despite these concerns, most still obtain ECPs, which may reflect a neutral attitude toward healthcare providers and relatively straightforward access. In Ethiopia, social pressure and misinformation are associated with very low ECP use, with only 10–15% of aware students reporting prior use (Nibabe and Mgutshini 2014). Meanwhile, Pakistan shows an even more restrictive pattern, in which only 11% reported prior use, constrained by myths, male decision-making power, and social taboos (Abdullah et al. 2024).

Kosovo appears to occupy an intermediate position: less religiously restrictive than Pakistan, but more socially cohesive than Western contexts. Rural women in Kosovo were 2.6 times more likely than urban women to avoid requests for ECPs in pharmacies due to shame or fear of judgment and nearly five times more likely to report familial or cultural pressure when considering ECP use. Unlike UK women, whose experiences of stigma are often symbolic, Kosovar women report behavioral manifestations of stigma that may delay or limit access. Across these settings, stigma – whether moral, social, or behavioral – consistently appears as a barrier to ECP uptake.

Qualitative research from Albania similarly highlights how cultural expectations, fear of community judgment, and concerns about being perceived as "immoral" influence women's willingness to seek modern contraceptives, particularly in rural areas with stronger social surveillance (Kragelund Nielsen et al. 2012). In contrast, Switzerland and Germany report lower levels of stigma, which may be associated with structured pharmacy protocols, formal counseling, and public health systems that normalize ECP use (Bastianelli et al. 2016, Said et al. 2019).

Across the literature, the clinical profile of emergency contraception (EC) is generally benign, although women's perception of side effects is often more concerning than the evidence suggests. Narrative reviews indicate that both levonorgestrel and ulipristal are usually well tolerated, with mostly mild and short-lived effects such as headache, nausea, abdominal pain, transient cycle shifts, occasional spotting, and no evidence of teratogenicity or increased ectopic risk when EC fails (Mierzejewska et al. 2024). In contrast, survey data from Central and Eastern Europe highlight that women most frequently worry about long-term or serious harms, including weight gain, thrombosis, "cancer," and libido changes, despite modern hormonal methods having an overall favorable safety profile (Fait et al. 2018).

The Kosovar data sit exactly at this intersection: reported side effects after ECP use are mostly minor and align

with the international profile: nausea, irregular bleeding, breast tenderness, and temporary cycle disruption. Yet, many women anticipate more serious consequences, such as infertility or abortion. These perceptions may contribute to delays or reluctance in ECP use. Such findings underscore the potential importance of professional counseling and structured education in providing accurate information about ECP side effects and addressing common misconceptions.

Strengths and limitations of the study

This research provides essential strengths, including being the first to assess knowledge, attitudes, and practices related to emergency contraceptive pill use among women of reproductive age in Kosovo. This offers valuable baseline data for policymakers and healthcare professionals. The inclusion of both online and in-pharmacy recruitment enabled a more diverse sample. Meanwhile, the use of a structured questionnaire ensured systematic and consistent data collection. In addition, this study identifies actionable gaps in counseling, access, and educational needs, providing clear direction for public health interventions and pharmacy practice.

However, the study also has limitations. Its cross-sectional design prevents the establishment of causal relationships, and reliance on self-reported data may have led participants to overestimate or underreport certain behaviors due to the sensitivity of ECP use. Moreover, the study did not verify actual ECP use, side effects, or the quality of counseling through medical or pharmacy records. Therefore, all findings depend solely on participants' reported experiences. Additionally, the study sample may not be fully representative of all women in Kosovo, particularly those without internet access or who do not use pharmacies.

Conclusion

This study provides important insights into the patterns of emergency contraceptive pill (ECP) use, knowledge scores, and attitudes among women of reproductive age in Kosovo. Although most participants obtained ECPs without a medical prescription, frequent or unsafe use was not commonly reported. Notably, significant knowledge gaps were identified, particularly among women relying on online sources or social media. In contrast, those who received information from pharmacists or healthcare providers tended to have higher knowledge scores. These findings suggest that healthcare professionals may play an essential role in ensuring the safe and effective use of ECPs.

Furthermore, rural women were more likely to report feelings of shame or fear of judgment when requesting ECPs, indicating that cultural norms and social stigma may influence access and decision-making. When asked about potential improvement strategies, most participants favored approaches involving healthcare professionals, such as free clinical consultations and the implementation of sex education in schools. Efforts such as strengthening pharmacist training, providing explicit patient education materials, and developing national guidelines for over-the-counter ECP use could help address knowledge gaps and perceived stigma while ensuring equitable access to reliable information.

Overall, these findings highlight the need for coordinated public health interventions that combine professional counseling, structured education, and well-defined policies. Further research, particularly prospective and implementation studies, would be valuable for a better understanding of how such measures may influence knowledge, attitudes, and patterns of ECP use over time.

Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statements

The authors declared that no clinical trials were used in the present study.

The authors declared that no experiments on humans or human tissues were performed for the present study.

The authors declared that no informed consent was obtained from the humans, donors or donors' representatives participating in the study.

The authors declared that no experiments on animals were performed for the present study.

The authors declared that no commercially available immortalised human and animal cell lines were used in the present study.

Use of AI

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Author contributions

VQ and AB observed this research project, had full access to the study's data, and were in charge; they also took responsibility for ensuring the integrity of the data. Study design: VQ, AB. Instructions on the use of instruments for the outcome measures used in this study: ZI, DS, PSH. Analysis and interpretation of data: AB, VQ, PSH. Manuscript preparation: VQ, AB, GJZ. Statistical Analysis: DS, ZI, GJZ.

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Data availability

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

Abdullah M, Ahmed S, Malick AA, Ihsan MT, Shah M, Yaseen A, Zubair F, Iqbal S, Mufarrih SM, Tariq TB, Zahid M, Ahmed W, Shamsi U (2024) Knowledge, practices, and barriers to access of emergency contraceptive pills in married women and men: A multicenter clinic-based cross-sectional study from Karachi, Pakistan. BMC Public Health 24: 2e886. https://doi.org/10.1186/s12889-024-20390-3

AKPPM (2025) List of products with M/A in Kosovo, 2025. https://akppm.rks-gov.net/DocumentsAndPublications/SinglePublication/8415

Aksu H, Küçük M, Karaöz B, Ünay V (2010) Knowledge, practices, and barriers concerning the use of emergency contraception among women of reproductive age at a university hospital of Aydin, Turkey. Archives of Gynecology and Obstetrics 282: 285–292. https://doi.org/10.1007/s00404-009-1267-x

Arisi E, Bauer C, Farris M, Giulini-Limbach C, Glasier A, Lete I, May U, Mirjalili N, Nappi RE, Sanchez-Borrego R, Serrano I (2022) The views of women and pharmacists on the desirability of a progestogen-only pill over the counter. Results of a survey in Germany, Italy and Spain. The European Journal of Contraception & Reproductive Health Care 27: 494–503. https://doi.org/10.1080/13625187.2022.2128643

Bastianelli C, Rosato E, Farris M, Benagiano G (2016) Emergency contraception: A survey of 1773 women. The European Journal of Contraception & Reproductive Health Care 21: 455–461. https://doi.org/10.1080/13625187.2016.1237630

Cameron S, Li H, Gemzell-Danielsson K (2017) Current controversies with oral emergency contraception. BJOG: An International Journal of Obstetrics & Gynaecology 124: 1948–1956. https://doi.org/10.1111/1471-0528.14773

Eastham R, Milligan C, Limmer M (2020) Qualitative findings about stigma as a barrier to contraception use: The case of Emergency Hormonal Contraception in Britain and implications for future contraceptive interventions. The European Journal of Contraception & Reproductive Health Care 25: 334–338. https://doi.org/10.1080/13625187.2020.1806998

Fait T, Buryak D, Cirstoiu M-M, Luczai E, Janczura R (2018) Needs and preferences of women users of oral contraceptives in selected countries in Central and Eastern Europe. Drugs in Context 7: 1–17. https://doi.org/10.7573/dic.212510

Hobbs MK, Taft AJ, Amir LH, Stewart K, Shelley JM, Smith AM, Chapman CB, Hussainy SY (2011) Pharmacy access to the emergency contraceptive pill: A national survey of a random sample of Australian women. Contraception 83: 151–158. https://doi.org/10.1016/j.contraception.2010.06.003

Kongnyuy EJ, Ngassa P, Fomulu N, Wiysonge CS, Kouam L, Doh AS (2007) A survey of knowledge, attitudes and practice of emergency contraception among university students in Cameroon. BMC Emergency Medicine 7: 1–7. https://doi.org/10.1186/1471-227X-7-7

Kozinszky Z, Devosa I, Fekete Z, Szabó D, Sikovanyecz J, Pásztor N, Keresztúri A (2016) Knowledge of emergency contraceptive pills among hungarian women presenting for induced abortion or seeking emergency contraception. Geburtshilfe und Frauenheilkunde 76: 978–982. https://doi.org/10.1055/s-0042-105746

Kragelund Nielsen K, Nielsen SM, Butler R, Lazarus JV (2012) Key barriers to the use of modern contraceptives among women in Albania: A qualitative study. Reproductive Health Matters 20: 158–165. https://doi.org/10.1016/S0968-8080(12)40681-4

Mierzejewska A, Walędziak M, Merks P, Różańska-Walędziak A (2024) Emergency contraception – A narrative review of literature. European Journal of Obstetrics & Gynecology and Reproductive Biology 299: 188–192. https://doi.org/10.1016/j.ejogrb.2024.06.015

Mooney-Somers J, Lau A, Bateson D, Richters J, Stewart M, Black K, Nothnagle M (2019) Enhancing use of emergency contraceptive pills: A systematic review of women's attitudes, beliefs, knowledge, and experiences in Australia. Health Care for Women International 40: 174–195. https://doi.org/10.1080/07399332.2018.1526286

Moreau C, Bajos N, Trussell J (2006) The impact of pharmacy access to emergency contraceptive pills in France. Contraception 73: 602–608. https://doi.org/10.1016/j.contraception.2006.01.012

Nappi RE, Lobo Abascal P, Mansour D, Rabe T, Shojai R (2014) Use of and attitudes towards emergency contraception: A survey of women in five European countries. The European Journal of Contraception & Reproductive Health Care 19: 93–101. https://doi.org/10.3109/13625187.2013.865164

Nibabe WT, Mgutshini T (2014) Emergency contraception amongst female college students – knowledge, attitude and practice. African Journal of Primary Health Care & Family Medicine 6. https://doi.org/10.4102/phcfm.v6i1.538

Quansah EST (2025) Emergency contraceptives and drug misuse: Health implications among female university students. African Journal of Applied Research 11: 237–252. https://doi.org/10.26437/ajar.v11i2.1034

Said A, Ganso M, Freudewald L, Schulz M (2019) Trends in dispensing oral emergency contraceptives and safety issues: A survey of German community pharmacists. International Journal of Clinical Pharmacy 41: 1499–1506. https://doi.org/10.1007/s11096-019-00911-6

Shen J, Che Y, Showell E, Chen K, Cheng L (2019) Interventions for emergency contraception. Cochrane Database of Systematic Reviews 1: CD001324. https://doi.org/10.1002/14651858.CD001324.pub6

Szűcs M, Párduczné Szöllősi A, Bártfai G (2010) Knowledge and attitudes of pharmacists regarding over-the-counter emergency contraception in South-Eastern Hungary. The European Journal of Contraception & Reproductive Health Care 15: 336–342. https://doi.org/10.3109/13625187.2010.510225

UN Women (2024) Kosovo Gender Country Profile. UN Women – Europe and Central Asia. https://doi.org/10.18356/9789211065329

UNFPA (2022) Nearly half of all pregnancies are unintended – a global crisis, says new UNFPA report | United Nations Population Fund. https://www.unfpa.org/press/nearly-half-all-pregnancies-are-unintended%E2%80%94-global-crisis-says-new-unfpa-report

WHO (2019) High rates of unintended pregnancies linked to gaps in family planning services: New WHO study. https://www.who.int/news/item/25-10-2019-high-rates-of-unintended-pregnancies-linked-to-gaps-in-family-planning-services-new-who-study

WHO (2021) Emergency contraception. https://www.who.int/news-room/fact-sheets/detail/emergency-contraception

WHO (2024) WHO recommendations on self-care interventions: Making over-the-counter emergency contraceptive pills available without a prescription. https://www.who.int/publications/i/item/9789240089945

Yongpraderm S, Uitrakul S, Daengnapapornkul P, O-in R, Sinsangbun B (2022) Knowledge and attitude toward emergency contraceptive pills among first-year undergraduate students in Southern Thailand. BMC Medical Education 22: e593. https://doi.org/10.1186/s12909-022-03659-2