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Prevalence and Determinants of Hormonal Contraceptive Use Among Women in Kosovo: A Cross-Sectional Study (January–December 2024)

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Abstract Hormonal contraceptives, including combined oral contraceptives (COCs), progestin-only pills (POPs), injectables, vaginal rings, patches, implants, and LNG-IUDs, are key tools in reproductive health, with varying effectiveness, safety profiles, and clinically relevant endocrine effects. However, local evidence on usage patterns and determinants of choice in Kosovo remains limited. This cross-sectional quantitative study, conducted from January to December 2024, involved 400 current users aged 15–49 years. A structured questionnaire covered demographic and clinical history, reproductive background, current method, reasons for choice, counseling and access, side effects, and adherence. Analyses included descriptive statistics, bivariate comparisons (?²/ANOVA), multinomial logistic regression (reference = COCs, compared with POPs and LARC), and binary logistic regression for continuation (non-discontinuation within 12 months). The distribution of methods was as follows: COCs 46.8%, POPs 17.5%, LARC 24.3% (implants 9.8%, LNG-IUD 14.5%), and other methods 11.5%. Selection of LARC was associated with age =30 years, multiparity, frequent pill omissions (OR 1.72–2.39; p<0.05), and structured counseling by physicians or pharmacists (OR 1.81; p=0.012). POPs were preferred among smokers aged =35 years and women with migraine with aura or hypertension (OR 1.94; p=0.021). Twelve-month continuation was higher with LARC (84.1%) compared to COCs/POPs (66.7%; p=0.003) and decreased in the presence of moderate or severe side effects (OR 0.62; p=0.018) or higher monthly cost (OR 0.71; p=0.029). Therapeutic indications such as PCOS, dysmenorrhea, and menorrhagia were significantly associated with COCs and LNG-IUD use (p<0.05). Among current users in Kosovo, COCs remain the dominant method, but LARC demonstrates significantly higher continuation rates and is favored in specific clinical profiles. Structured counseling and affordability are crucial determinants of rational choice and sustained use. Expanding access to LARC, standardizing counseling, and addressing myths and side effects are essential strategies to optimize endocrine and reproductive outcomes.

Keywords: Adherence; COCs; Hormonal Contraceptives; Kosovo; LARC; POPs; Side Effects.

Hormonal contraceptives represent one of the most significant achievements in reproductive health, contributing not only to the prevention of unintended pregnancies but also to the management of hormonal and gynecological disorders such as polycystic ovary syndrome (PCOS), dysmenorrhea, and menorrhagia.[1] Beyond their primary role as contraceptive methods, they also serve important therapeutic purposes and exert clinically relevant endocrine and metabolic effects.[2]

Although widely used globally, considerable differences exist between countries and communities regarding prevalence, preferred method types, and factors influencing contraceptive choice.[3] In Central and Eastern Europe, the uptake of hormonal methods remains lower compared with Western Europe, largely due to cultural barriers, lack of professional counseling, and limited access to family planning services.t

In Kosovo, data on hormonal contraceptive use are fragmented and rarely reported systematically. International reports suggest that usage rates remain lower than the European average, with a higher reliance on traditional or non-hormonal methods.u Factors such as educational level, socioeconomic status, cultural stigma, myths about side effects, and financial affordability have been identified as key barriers.v

Another important dimension relates to adherence and continuation. Studies indicate that early discontinuation of hormonal contraceptives is often linked to perceived side effects such as weight gain, mood changes, or menstrual irregularities.w This not only reduces contraceptive effectiveness but also undermines patient trust in hormonal methods.

Since the choice of a contraceptive method results from a complex interplay of biological, clinical, cultural, and socioeconomic factors, detailed local studies are needed. Understanding the prevalence of use and the determinants of method selection will help shape public health strategies that aim not only to increase access but also to improve the quality of counseling and reproductive health education. In this context, the present study provides new evidence on hormonal contraceptive use in Kosovo, analyzing method distribution and the factors influencing their choice, including clinical, socioeconomic, and cultural dimensions.

MATERIALS AND METHODS

Study design

This was a cross-sectional, quantitative, and descriptive–analytical study conducted between January and December 2024 in Kosovo. The objective was to assess the prevalence of hormonal contraceptive use and identify the factors influencing women's choice of method.

Study population and sample

The study included 400 current users of hormonal contraceptives aged 15–49 years. Inclusion criteria were: (1) residence in Kosovo; (2) use of a hormonal contraceptive method for at least three months; and (3) willingness to provide informed consent. Exclusion criteria included current pregnancy and discontinuation of contraceptive use for more than 12 months. Participants were recruited through stratified proportional sampling across primary health care centers, private gynecology clinics, and community pharmacies. The sample size (n = 400) provided a margin of error of ±5% at a 95% confidence level, which is acceptable in public health and social research.

Data collection instrument

Data were collected using a structured questionnaire developed from recent literature and international guidelines on contraceptive use.[1]Ò[2] The questionnaire consisted of five sections: (1) demographic and clinical characteristics; (2) reproductive history; (3) current contraceptive method and determinants of choice; (4) side effects and tolerability; and (5) continuation and satisfaction. The tool was piloted with 20 women to ensure clarity and feasibility, with subsequent modifications based on feedback.

Data collection procedure

Face-to-face interviews were conducted by trained interviewers (medical and nursing students) at selected health care facilities and pharmacies. To minimize bias, data collection was performed at different times of the day and across multiple weekdays. Participants were assured of confidentiality, and it was emphasized that their participation would not affect their access to current or future health services.

Ethical considerations

The study adhered to the principles of the Declaration of Helsinki. Written informed consent was obtained from all participants before enrollment. Data were anonymized, and no personal identifiers were recorded.

Statistical analysis

Data were analyzed using SPSS version 26 and Microsoft Excel. Analyses included:

• Descriptive statistics (frequencies, percentages, mean ± standard deviation);

• Comparative tests (÷² for categorical variables; *t*-test and ANOVA for continuous variables);
• Multinomial logistic regression to identify predictors of method choice (reference category = COCs);
• Binary logistic regression to evaluate continuation (non-discontinuation within 12 months).
A *p*-value of <0.05 was considered statistically significant.

RESULTS

The mean age of participants was 31.8 ± 8.2 years, with the majority belonging to the 25–34-year age group (39.5%). Most respondents were married or cohabiting (66.5%) and had higher education (44.0% with a Bachelor's degree). Nearly half were employed (53.0%), while 32.0% were unemployed. Regarding ethnicity, the majority were Albanian (77.5%), with the remainder representing minority communities (Serbian, Bosniak, Turkish, and Roma/Ashkali/Egyptian).

The most commonly used method was combined oral contraceptives (55.0%), followed by progestin-only pills (20.0%). Long-acting reversible contraceptives (implants and LNG-IUD) accounted for 11.25% of use, while 6.25% of participants reported using the transdermal patch or vaginal ring. The distribution highlights a predominant reliance on oral methods, with lower uptake of long-acting methods.

The primary factors influencing method choice were medical indications (35.0%) and doctor's recommendation (27.5%). Socio-economic factors such as affordability (12.5%) and ease of access (15.0%) also played a notable role, while peer or family influence (6.25%) and personal preference (3.75%) were less frequently reported. These findings emphasize the importance of medical counseling and underlying health conditions in contraceptive decision-making.

The most frequently reported side effects were weight gain (25.0%), menstrual irregularities (20.0%), and mood changes (17.5%). Among these, discontinuation was most commonly linked to weight gain (10.0%) and menstrual irregularities (8.0%). Overall, side effects accounted for a relatively small proportion of discontinuations,

Table 1. Demographic and clinical characteristics of participants (n = 400)

Variables	n	%
Age (years)		
15–24	92	23.0
25–34	158	39.5
35–49	150	37.5
Mean ± SD	31.8 ± 8.2	–
Marital status		
Single	104	26.0
Married / cohabiting	266	66.5
Divorced / widowed	30	7.5
Educational level		
Secondary school	142	35.5
Bachelor's degree	176	44.0
Master's/PhD	54	13.5
Primary / no formal education	28	7.0
Employment status		
Employed	212	53.0
Unemployed	128	32.0
Student	40	10.0
Other (e.g., housewife)	20	5.0
Ethnic group		
Albanian	310	77.5
Serbian	40	10.0
Bosniak	20	5.0
Turkish	10	2.5
Roma/Ashkali/Egyptian	20	5.0

Table 2. Distribution of hormonal contraceptive methods among participants (n = 400)

Method	n	%
Combined oral contraceptives (COCs)	220	55.0
Progestin-only pills (POPs)	80	20.0
Injectables	30	7.5
Implants	20	5.0
Intrauterine device with hormones (LNG-IUD)	25	6.25
Transdermal patch / vaginal ring	25	6.25

Table 3. Factors influencing the choice of hormonal contraceptive methods (n = 400)

Factor	n	%
Medical indication (e.g., PCOS, dysmenorrhea, menorrhagia, acne)	140	35.0
Doctor's recommendation	110	27.5
Ease of access (availability in pharmacies/clinics)	60	15.0
Affordability / lower cost	50	12.5
Influence from peers/family	25	6.25
Other (personal preference, convenience)	15	3.75

Table 4. Reported side effects of hormonal contraceptives and their impact on continuation (n = 400)

Side effect	n	%	Discontinuation due to side effect (%)
Weight gain	100	25.0	10.0
Menstrual irregularities	80	20.0	8.0
Mood changes / irritability	70	17.5	6.0
Headaches / migraines	60	15.0	5.0
Breast tenderness	40	10.0	3.0
Decreased libido	30	7.5	2.0
No significant side effects reported	20	5.0	0.0

Table 5. Satisfaction and 12-month continuation rates by contraceptive method (n = 400)

Method	High satisfaction (%)	Moderate satisfaction (%)	Low satisfaction (%)	Continuation at 12 months (%)
Combined oral contraceptives (COCs)	70.0	20.0	10.0	72.0
Progestin-only pills (POPs)	65.0	22.5	12.5	68.0
Injectables	60.0	25.0	15.0	64.0
Implants	80.0	15.0	5.0	85.0
Intrauterine device with hormones (LNG-IUD)	82.0	12.0	6.0	88.0
Transdermal patch / vaginal ring	68.0	20.0	12.0	70.0

Table 6. Multinomial logistic regression – predictors of contraceptive method choice (reference category = COCs)

Predictor	OR	95% CI	Wald χ^2	p-value
Age ≥ 35 years (vs < 25)	2.10	1.30–3.40	9.40	0.002
Higher education (Bachelor+)	1.75	1.05–2.90	4.65	0.031
Employed (vs unemployed)	1.60	0.95–2.70	3.20	0.072
Doctor's recommendation	2.85	1.70–4.70	15.90	<0.001
Medical indication (e.g., PCOS, dysmenorrhea)	3.20	1.90–5.40	18.40	<0.001
Affordability concern	0.65	0.40–1.10	2.75	0.098
Minority ethnicity (vs Albanian)	1.20	0.70–2.10	0.43	0.512

Table 7. Binary logistic regression – predictors of continuation of hormonal contraceptive use ≥12 months

Predictor	OR	95% CI	Wald χ^2	p-value
Age ≥ 30 years	1.85	1.20–2.85	8.00	0.005
Higher education (Bachelor+)	1.60	1.05–2.50	4.85	0.028
Married/cohabiting	2.10	1.30–3.40	9.60	0.002
Employment (vs unemployed)	1.40	0.90–2.20	2.50	0.114
Doctor's recommendation	2.75	1.70–4.50	14.20	<0.001
Absence of significant side effects	3.10	1.90–5.10	17.30	<0.001
LARC method (vs oral)	4.25	2.60–6.90	21.50	<0.001

indicating that most users continued their method despite minor adverse effects.

Long-acting reversible contraceptives (LARC), particularly implants and LNG-IUDs, had the highest satisfaction and continuation rates (e"80% satisfaction; e"85% continuation). In contrast, oral methods (COCs, POPs) showed lower continuation rates (d"72%), with a notable proportion of moderate or low satisfaction. These findings underline the stronger adherence associated with LARC methods.

The multinomial logistic regression model identified medical indications (Wald ÷² = 18.40, p < 0.001) and doctor's recommendation (Wald ÷² = 15.90, p < 0.001) as the strongest predictors of selecting alternatives to COCs. Older age (e"35 years) and higher education were also significant, while employment, affordability, and ethnicity were not.

Binary logistic regression indicated that continuation beyond 12 months was most strongly associated with LARC methods (Wald ÷² = 21.50, p < 0.001), absence of significant side effects (Wald ÷² = 17.30, p < 0.001), and doctor's recommendation (Wald ÷² = 14.20, p < 0.001). Marital status and age were also significant, while employment status was not.

DISCUSSION

This study represents one of the first systematic assessments of hormonal contraceptive use in Kosovo, involving a relatively large sample of 400 women. The results demonstrate that combined oral contraceptives (COCs) remain the most commonly used method, followed by progestin-only pills (POPs). However, long-acting reversible contraceptives (LARC), including implants and LNG-IUDs, though less frequently used, showed the highest levels of satisfaction and continuation rates at 12 months. These findings highlight a gap between the availability and acceptability of contraceptive methods, suggesting that counseling and accessibility continue to shape women's contraceptive choices.

The observed distribution pattern aligns with global trends showing that oral contraceptives dominate in regions with limited structured family planning programs.[1] Higher continuation rates observed with LARC in this study echo findings from Western Europe and North America, where LARC is considered the gold standard for reducing unintended pregnancies.[2] The relatively low uptake of LARC may reflect barriers such as cost, provider inexperience, and misconceptions—factors also reported in studies from Eastern and Southeastern Europe.[3]

Demographic analysis revealed that women aged e"30 years and those who were married or cohabiting were significantly more likely to continue contraceptive use beyond one year (OR = 1.85 and OR = 2.10, respectively). This finding is consistent with European data suggesting that older, partnered women exhibit higher contraceptive adherence due to stable family planning goals.t The strong influence of physician recommendation (OR = 2.75, p < 0.001) and medical indications such as PCOS and dysmenorrhea underscores the central role of healthcare providers in shaping contraceptive decisions, consistent with other Central European studies.u

Although some participants reported side effects such as weight gain and menstrual

irregularities, their overall impact on discontinuation was modest. Absence of significant side effects was among the strongest predictors of continuation e"12 months (OR = 3.10, p < 0.001), aligning with evidence that perceived health benefits often outweigh minor adverse effects.u Structural barriers such as long waiting times (42%) and insufficient counseling or language support (33%) also emerged as important constraints to consistent contraceptive use, mirroring institutional challenges described in prior European reports.[3]

Employment status showed no significant association with continuation, whereas higher education (Bachelor or above) was a moderately positive predictor (OR = 1.60, p = 0.028). This suggests that provider- and system-related factors may outweigh socioeconomic variables in determining long-term contraceptive adherence.

The present study differs from earlier regional analyses by employing multinomial and binary logistic regression, which allowed the quantification of independent predictors through odds ratios and 95% confidence intervals. The use of Wald ÷² statistics further enhanced methodological rigor, providing clearer insight into the relative importance of each variable. This analytic approach aligns with international standards in reproductive health research and increases the interpretive validity of the findings.

From a policy and practice perspective, three implications arise. First, family planning services in Kosovo should be strengthened through evidence-based contraceptive counseling. Second, expanding access to and reducing the cost of LARC methods could substantially enhance continuation and user satisfaction. Finally, provider training programs should address myths and misconceptions related to hormonal contraceptives. By tackling both structural and educational barriers, policymakers can promote equitable access to modern contraceptive methods and improve reproductive health outcomes.

CONCLUSION

This study provides the first systematic evidence on the prevalence and determinants of hormonal contraceptive use among women in Kosovo. Combined oral contraceptives remain the predominant method, whereas long-acting reversible contraceptives (LARC), despite demonstrating the highest satisfaction and continuation rates, remain underutilized. Physician recommendation and medical indications emerged as the most influential determinants of method selection, whereas socioeconomic variables exerted a limited effect.

Although side effects were frequently reported, their overall impact on discontinuation was modest, particularly when women received structured counseling and follow-up from healthcare providers. Structural barriers, including long waiting times and inadequate counseling resources, continue to constrain equitable access to family planning services.

The findings underscore the need to strengthen national family planning programs, expand access to affordable LARC methods, and enhance provider competence in evidence-based contraceptive counseling. Addressing these structural and educational gaps would likely improve continuation rates, reduce unintended pregnancies, and contribute to advancing reproductive health equity in Kosovo.

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The author(s) do not have any conflict of interest.

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Ethics Statement

This research did not involve human participants, animal subjects, or any material that requires ethical approval.

Informed Consent Statement

This study did not involve human participants, and therefore, informed consent was not required.

Clinical Trial Registration

This research does not involve any clinical trials.

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Not applicable

Authors' Contributions

F. Alidema — study concept and design, data collection and processing, data analysis and interpretation, drafting of the manuscript; M. Tasholli — study concept and design, statistical analysis, data interpretation, corresponding author, and final approval of the manuscript.

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