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Knowledge, attitudes, and practices of Lebanese women toward the use of oral contraceptive pills

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Abstract

Background Despite widespread use, many Lebanese women have limited understanding of oral contraceptive pills (OCP), with misinformation and cultural barriers contributing to misuse and discontinuation. Additionally, the non-contraceptive benefits of OCP are often overlooked. Addressing these gaps can promote safer use and improve women's health. This study aims to explore Lebanese women's knowledge, attitudes, and practices regarding OCP and identify associated factors.

Methods A cross-sectional study was conducted using a structured questionnaire among Lebanese women aged between 18- and 49-years old shopping in local pharmacies. Multivariable analyses were employed to investigate the factors associated with knowledge, attitude, practices toward OCP usage.

Results A total of 384 women participated in the study, with 36.9% reporting ever using OCP. The mean knowledge score was 4.8 (SD = 1.5) out of 13, revealing notable knowledge gaps regarding OCP. Profession (medical employment), age, monthly family income, and OCP usage were all associated with knowledge, with profession showing the strongest association (β = 0.329, $p < 0.001$). Meanwhile, the mean attitude score was 3.8 (SD = 0.5) out of 6, suggesting an overall positive attitude towards OCP. Educational level (college/university vs. secondary or vocational or below, unstandardized β of 0.11, standardized β of 0.119, 95% CI of 0.01–0.21, *P*-value = 0.032) was associated with attitude. Additionally, age (AOR 1.05, 95% CI: 1.02–1.09), knowledge (AOR 1.20, 95% CI: 1.07–1.33), and monthly family income (>$2000 vs. $1,000, AOR = 0.46, 95% CI 0.24–0.91) emerged as significant factors associated with OCP usage.

Conclusion The study revealed gaps in Lebanese women's knowledge, attitude, and practices toward OCP, underscoring the need for accurate, patient-centered information. Providing this information in the context of decision-making empowers women to make informed contraceptive choices that align with their health needs and personal preferences.

Keywords Lebanese women, Oral contraceptives, Family planning, Reproductive health

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Background

Family planning empowers individuals to take control over their reproductive choices, enabling them to decide when they want children, and to plan the spacing of their pregnancies. This is achieved through access to a range of contraceptive methods and, when necessary, treatments for infertility [1, 2]. Oral contraceptive pills (OCP) are widely used form of hormonal birth control that prevents pregnancy by inhibiting ovulation, thickening cervical mucus, and altering the uterine lining [3]. They offer women a convenient and reversible method of family planning, providing both contraceptive benefits and potential non-contraceptive benefits like regulating menstrual cycles and reducing menstrual cramps [4]. However, despite their effectiveness, women often abandon OCP due to a lack of awareness that different formulations with varying side effects are available, which could better suit their needs. Lack of information about OCPs can lead to discontinuation, as women may stop using them due to side effects without exploring alternatives. This knowledge gap can result in incorrect use and unintended pregnancies, with the first-year failure rate of typical OCP use estimated at 7% [5–7].

Epidemiological studies conducted in Middle Eastern countries have revealed similar rates of contraceptive use among married women aged 15–49, with Lebanon reporting a rate of 58%, Jordan 61%, Kuwait 52%, and Iraq 53% [8]. These rates demonstrate a close clustering, indicating that contraceptive use is relatively consistent across these countries.

In Lebanon, a diverse range of contraceptive methods are utilized, including both traditional methods such as periodic abstinence and coitus interruptus as well as modern methods like condoms, OCP, and IUDs. According to a study conducted by Ghada et al. in 2019 on the awareness and usage of family planning methods in the Lebanese community, the most used contraceptive methods among participants were periodic abstinence (50.9%), condoms (47.6%), OCP (32.7%), IUDs (26.8%), and implants (13.1%) [9].

According to current regulations in Lebanon, the OCP, which are the focus of our study, are not classified as over-the-counter medications [10]. However, consumers can purchase them without a physician's prescription, making them readily accessible. This accessibility is facilitated by community pharmacists, who commonly supply OCP upon patient request. Recent research underscores the influence of pharmacists in Lebanon's healthcare landscape, with approximately 90% of Lebanese pharmacists serving as the primary source of drug counselling for patients [11]. While pharmacists play a key role in providing information about OCP, other healthcare providers, such as physicians and gynecologists, are also involved. They prescribe OCP and perform procedures like IUD insertions, ensuring a comprehensive approach to contraceptive care. Concerning cost, OCP are generally paid for out-of-pocket by consumers [12]. There are no widespread subsidized government or NGO programs specifically targeting low-income individuals for contraceptive provision. However, some NGOs might offer limited support or services in specific regions or for communities. Consequently, the cost of OCP can be a barrier for some women, particularly those from lower socioeconomic backgrounds.

Although OCP are widely available in Lebanon, existing studies reveal gaps in women's knowledge of their side effects and uses [13, 14]. More recent findings show that only 13.5% of unmarried women had adequate contraceptive knowledge, with socioeconomic and educational factors playing a key role [15]. Although these studies have provided valuable insights into the knowledge of specific Lebanese groups about OCP, their scope has been constrained by limited geographical coverage and a lack of representativeness, which limits the generalizability of their findings to the broader population. To address these limitations, we conducted a thorough assessment of women's knowledge, practices, and attitudes towards OCP, surveying a diverse range of women from all Lebanese governorates to provide a current and comprehensive understanding.

Methods

Study design and participants

A cross-sectional study was carried out among women attending pharmacies in all Lebanese governorates between March and July 2017. Lebanese women aged between 18 and 49 who visited the pharmacies and gave informed voluntary consent were included in the study. However, excluded from our study were women who were unable to provide informed consent or participate due to cognitive impairment or language barriers.

In determining the sample size for our study, we used an estimated OCP usage rate of 18.45%, based on findings from a previous study [16]. With a 95% confidence level and a 5% margin of error, this approach yielded an estimated sample size of around 231 participants. To strengthen the robustness of our findings, account for incomplete responses, and enable subgroup analyses, we included 384 participants. This larger sample size enhances the reliability and generalizability of our results.

Sampling procedure

The study utilized a multi-stage sampling approach to ensure representation across Lebanon's governorates and pharmacies. We combined the eight governorates into five strata based on geographic and demographic similarities: Beirut, Mount Lebanon, North Lebanon and Akkar, South Lebanon and Nabatiyeh, and Beqaa

and Baalbek-Hermel. A stratified sampling method was employed, with participant numbers determined through a probability-proportion-to-size sampling technique based on data from the Central Administration of Statistics (CAS) [23]. The proportional allocation was based on the population of women aged 18–49 within each governorate. We chose 32 pharmacies at random from a list of registered pharmacies provided by the Order of Pharmacists in Lebanon. Inclusion criteria for the pharmacies were that they be currently operational, geographically diverse, and willing to participate in the study, with distribution proportionally across the governorates: 4 pharmacies in Beirut, 12 in Mount Lebanon, 7 in North Lebanon and Akkar, 5 in South Lebanon and Nabatiyeh, and 4 in Beqaa and Baalbek-Hermel. We aimed to recruit 9 participants per pharmacy, resulting in a total sample size of 289 to account for potential non-responses. This oversampling (by approximately 25%) was intended to ensure that we met our minimum sample size requirement of 231 participants. In cases where pharmacists refused to participate, we redistributed the target number of participants among the remaining pharmacies within the same governorate. Within each selected pharmacy, the first 9 eligible women who visited were invited to participate, following a convenience sampling strategy.

Ethical consideration

The study received ethical approval from the scientific committee of the Lebanese University, Faculty of Medical Sciences (ID 1/2/2017). Confidentiality of all collected data was ensured, and the study followed the ethical principles of the Helsinki Declaration. Verbal informed consent was obtained from all participants, and steps were taken to preserve anonymity during the study.

Data collection

The first author gathered data from pharmacies throughout Lebanon, where she clearly explained the study's objectives and assured women that their responses would be confidential, anonymous, and utilized solely for scientific purposes. Following oral consent, the author administered the structured questionnaire, primarily consisting of closed-ended questions, in a face-to-face verbal format.

The questionnaire was developed based on an extensive literature review [13, 20, 21, 24] in English and then translated into Arabic to ensure accessibility and comprehension for the target population (supplementary file 1). A bilingual expert conducted the initial translation, and a different expert performed a back-translation to check for accuracy. The discrepancies were resolved by a committee of experts. To validate the content of the scores, experts in the field provided feedback on the questionnaire's relevance and comprehensiveness, and adjustments were made accordingly. The questionnaire was then pilot tested with a small sample of 10 women to assess its clarity and readability. Participants did not report any issues regarding the clarity and comprehensibility of the items. Additionally, all questions were completed within approximately 10–15 min.

The questionnaire was divided into four sections:

1. Demographic characteristics of the participants encompassed age, level of education, marital status, and profession (Unemployed, non-medical employment, and medical employment). Additionally, income, region of residence, number of children, and duration of marriage were also examined.
2. Knowledge about OCP: Participants underwent assessment through 13 questions probing their knowledge of OCP, indications for usage, awareness of potential side effects and health risks, and recognition of pregnancy risks during OCP usage. The responses to each question were coded as "1" for "yes" and "0" for "no or don't know." The score range was 0–13 points. Participants were also asked about their OCP sources of information. Cronbach's alpha coefficient for the knowledge questions was 0.630.
3. Attitudes toward OCP were assessed by six statements encompassing perceptions of OCP safety and efficacy relative to other methods, concerns regarding potential adverse effects such as infertility, perspectives on shared decision-making between partners regarding contraceptive usage and family planning, and comfort levels in discussing contraceptive topics. Participants were asked to express their agreement or disagreement with each statement using a 5-point Likert scale ranging from 1 (indicating "totally disagree") to 5 (indicating "totally agree"). Reverse coding was applied to the three items to ensure consistent interpretation of higher scores as more positive attitudes toward OCP. Cronbach's alpha coefficient for the attitude dimension was 0.774.
4. Practices toward OCP use were evaluated through women's patterns of use, reasons for usage or non-usage, behaviour when forgetting a pill, preferences, consultation habits, pregnancy occurrences, potential reasons for discontinuation, level of information, and its sources.

Data analysis

The collected data were analyzed using the Statistical Package for Social Sciences program (SPSS) database for Windows, version 21. Means and standard deviations (SD) for continuous variables, in addition to frequencies (n) and percentages (%) for categorical variables, were

Table 1 Geographical distribution of the study sample

Strata	Women Population Size aged 19–49 (23)	Percentage of Population	Calculated Sample Size	Number of Women Included in Our Sample	Percentage of Women in Our Sample per Strata
Beqaa and Baalbek-Hermel	295,492	13.7	53	49	12.8
North Lebanon and Akkar	501,725	23.3	89	84	21.9
South Lebanon and Nabatiyeh	200,573	9.3	36	59	15.3
Beirut	301,279	14.0	54	50	13
Mount Lebanon	856,793	39.7	152	142	37
Total	2,155,862	100	384	384	100

Table 2 Sociodemographic characteristics of the study participants in the study ($N=384$)

Socio-demographic Variables	All ($N=384$)	OCP Users		*P*-value
		No ($n=242$)	Yes ($n=142$)	
Level of Education				0.033*
Secondary or Vocational or below	189 (49.2)	109(57.7)	80(42.3)	
College/University	195 (50.8)	133(68.2)	62(31.8)	
Marital Status				0.001*
Unmarried	155(40.4)	114(73.5)	41(26.5)	
Married	229 (59.6)	128(55.9)	101(44.1)	
Profession				0.07
Unemployed	157 (40.9)	90(57.3)	67(42.7)	
Non-medical employment	178 (46.4)	123(69.1)	55(30.9)	
Medical employment	49 (12.8)	29(59.2)	20(40.8)	
Monthly Family Income				0.045*
< 1,000$	118 (30.7)	66(55.9)	52(44.1)	
1,000–2,000$	153 (39.8)	95(62.1)	58(37.9)	
>2,000$	113 (29.4)	81(71.7)	32(28.3)	
Region of Residence				0.042*
Mount-Lebanon	142 (37.0)	97(68.3%)	45(31.7%)	
North Lebanon and Akkar	84 (21.9)	57(67.9%)	27(32.1%)	
South Lebanon and Nabatiyeh	59 (15.4)	32(54.2%)	27(45.8%)	
Beirut	50 (13)	33(66%)	17(34%)	
Beqaa and Baalbek-Hermel	49(12.8)	23(46.9%)	26(53.1%)	
Number of children				< 0.0001*
Nulliparous	40(47.4)	9(22.5)	31(77.5)	
1–2	121(31.5)	52(43)	69(57)	
≥ 3	81(21.1)	45(55.6)	36(44.4)	
Age Mean (SD)	30.4 (8.2)	28.9(7.9)	32.8(8.1)	< 0.0001*

N or n: Frequency, % percentage, SD Standard Deviation, **P*-value less than 0.05 is considered significant

calculated for descriptive purposes. A bivariate analysis was conducted to examine differences in knowledge and attitude scores toward OCP as well as OCP use across various sociodemographic characteristics. The student t-test was employed to compare means of continuous variables between dichotomous groups; an ANOVA was used for comparisons involving three or more means; and the chi-square test or Fischer exact test was utilized for percentage comparisons. Multiple linear regression models were employed to identify factors associated with knowledge and attitude scores, with inclusion criteria set at a p-value of <0.2 from bivariate analysis. Unstandardized β coefficients along with 95% confidence intervals, standardized β, and p-values were reported. We assessed the data for multicollinearity using Variance Inflation Factor (VIF) values. All VIFs were below the recommended threshold of 5, indicating no multicollinearity issues in the data. Additionally, multivariable logistic regression analysis was conducted to identify factors associated with OCP use (yes or no), with adjusted odds ratios and 95% confidence intervals presented. A significance level of $p<0.05$ was used to determine statistical significance throughout the analyses.

Results

Socio-demographic characteristics of the women participating in the study

In this study, 441 women were invited to participate, but data were only collected from 384 women, resulting in an 87.1% response rate. The distribution of women in our sample closely mirrors the population distribution across the different strata, with minor variations in most regions: Beqaa and Baalbek-Hermel (12.8% vs. 13.7%), North Lebanon and Akkar (21.9% vs. 23.3%), Beirut (13.0% vs. 14.0%), and Mount Lebanon (37.0% vs. 39.7%) (Table 1). However, there is an oversampling in South Lebanon and Nabatiyeh (15.3% vs. 9.3%). While this variation exceeds typical margins, it may provide a more detailed understanding of OCP usage in this region. Despite this, the sample remains broadly representative of women aged 18–49 in Lebanon.

Table 2 outlines the demographic characteristics of the study sample. The participants' ages ranged from 18 to 49 years, with a mean age of 30.4 years and a standard deviation of 8.2. Among the total sample, 59.6% of women were married and 59.2% were employed Among all married women in the study, the duration of marriage varied from 1 to 32 years, with a mean duration of 9.7 years and a standard deviation of 8. Of the total participants, 142 (37%) reported that they have ever used OCP.

When assessing the association between using OCP and the respondents' socio-demographic data, knowledge, and attitude scores, bivariate analysis showed a significant association with educational level, marital status, monthly family income, region of residence, age, and knowledge score.

Knowledge about OCP

In the overall sample, the mean knowledge score was 4.8 (SD = 1.5) out of 13, suggesting an overall 37% (4.8/13*100) correct rate on this knowledge test. Among OCP users, the mean knowledge score was slightly higher at 5.3 (SD = 1.7), corresponding to an overall correct rate of 41%. The results showed that nearly all women in the study (98.4%) knew what OCP are and their main purpose, birth control. However, only 54.2% of the women were aware that OCP can also be used to manage menstrual disorders. Women most commonly reported mood swings (44%), weight gain (38.3%), and headaches (38%) as potential side effects of OCP use. Additionally, 9.9% believed OCPs increased the risk of uterine cancer, and 8.6% were aware of the risk of thrombosis. Fewer women recognized non-contraceptive benefits, with 7% aware of acne treatment benefits and 3.6% recognizing OCPs as emergency contraception. OCP users were more likely to recognize one side effect, specifically mood swings, with 54.9% of users identifying this compared to 44% of non-users. Additionally, OCP users demonstrated greater awareness of the possibility of becoming pregnant while using OCP, with 57% acknowledging this risk compared to 47.9% of non-users (Table 3).

Table 3 Women's knowledge concerning OCP (*N* = 384)

	All	OCP users		*P*-value
		Yes	No	
Do you know what OCP are? n (%)				N/A
Yes	378(98.4)	142 (100)	236(97.5)	
No	6(1.6)	0(0)	6(2.5)	
OCP health benefits n (%)				
Birth control	368(95.8)	138(97.2)	230(95)	0.430
Menstrual cycle regulation	208(54.2)	84(59.2)	124(51.2)	0.139
Acne treatment	27(7)	13(9.2)	14(5.8)	0.221
Don't know	6(1.6)	1(0.7)	5(2.1)	N/A
OCP self-reported possible side effects n (%)				
Mood swing	169(44)	78(54.9)	91(37.6)	0.001
Weight gain	147(38.3)	62(43.7)	85(35.1)	0.104
Headache	146(38)	61(43)	85(35.1)	0.129
Nausea and vertigo	71(18.5)	32(22.5)	39(16.1)	0.135
Breakthrough bleeding	28(7.3)	11(7.7)	17(7)	0.840
Abdominal cramping	11(2.9)	4(2.8)	7(2.9)	1.000
Don't know	63(16.4)	11(7.7)		N/A
OCP health risks n (%)				
Uterine cancer	38(9.9)	15(10.6)	23(9.5)	0.860
Thrombosis	33(8.6)	15(10.6)	18(7.4)	0.346
Possibility of being pregnant during OCP usage				
Yes	197(51.3)	81(57)	116(47.9)	0.010
No	127(33.1)	49(34.5)	78(32.2)	
Don't know	60(15.6)	12(8.5)	48(19.8)	N/A

N Frequency, % percentage. More than one response was allowed for questions on benefits, side effects, and risks, N/A: Statistical testing was not applicable due to lack of variability, Fisher's exact test was used for "Abdominal cramping", Statistical tests were not performed for "Don't know" responses, *P*-value less than 0.05 is considered significant

OCP source of information

Interestingly, 54% of all participants reported getting information about OCP from their family and neighbours and 20% from friends and colleagues. Among OCP users, 78.0% of women reported receiving information about OCP from a healthcare professional, 11.9% from media platforms, and 8.3% from friends and colleagues (Fig. 1).

Attitudes towards OCP

The mean attitude score was 3.8 (SD = 0.5) out of 6, suggesting an overall positive attitude towards OCP, with a rate of approximately 63%. Of the total participants, 97.1% and 96.6% agreed to some degree that OCP were the safest and most effective contraceptive method, respectively. It was also found that 65.4% of women discussed the number of desired children with their partners, and 68% made joint decisions regarding the use of OCP. Interestingly, about 37% of respondents totally disagreed with the notion that discussing the topic of birth control is embarrassing. The findings suggest strong agreement that both partners should decide together on family planning matters, with mean scores of 4.6 and 4.4 for decisions regarding the number of children and the use of OCP, respectively. Participants reported neutral to partial agreement regarding OCP being the safest and most effective contraceptive methods, as well as concerns about OCP potentially causing infertility, with all three statements receiving a mean score of 3.1 (Table 4).

Patterns of OCP use

In this study, 36.9% of the participating women reported using OCP, with 58% reporting using them for birth control and 27.5% to regulate their menstrual cycle. In response to inquiries about missed OCP, 31.3% of women who have ever used OCP for birth control expressed their intention that they would take the missed pill as soon as they remembered, while 30.1% reported they would be consulting their doctors for guidance. Interestingly, 19.3% stated they would take two OCP simultaneously to compensate for the missed dose. Notably, a small proportion (3.6%) expressed uncertainty about the appropriate course of action, and 3.6% reported discontinuing OCP use. Ease of use (54.2%) and low cost (18.1%) were the primary reasons cited for choosing OCP for birth control.

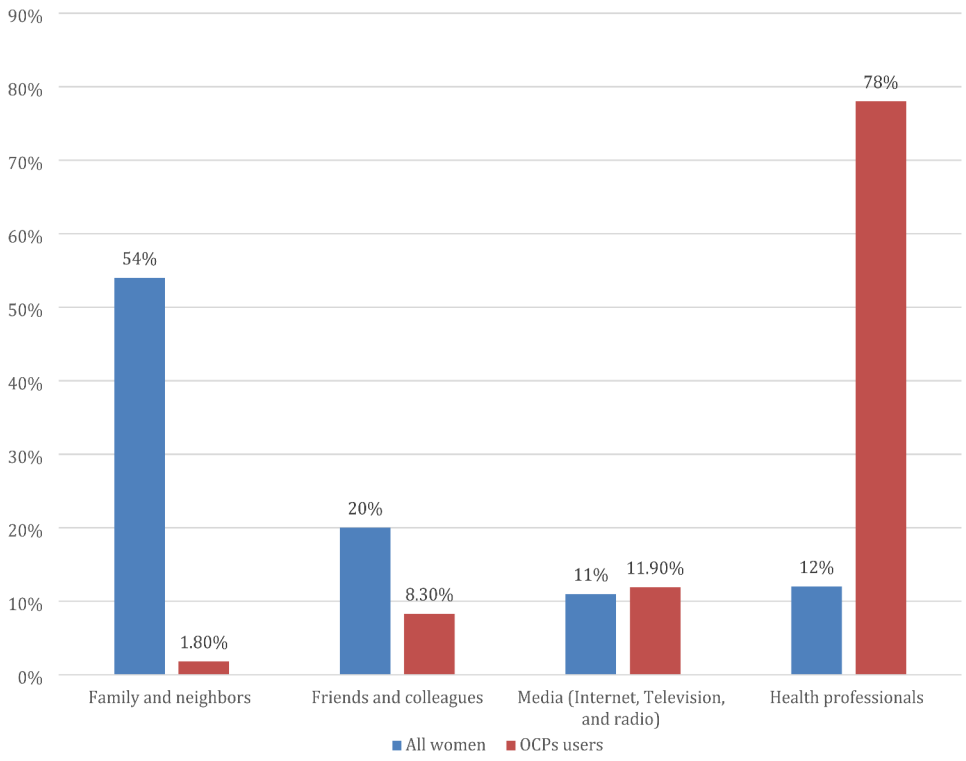

Fig. 1 Source of information about OCP (*N* = 384)

Table 4 Respondents' attitudes toward OCP (*N* = 384)

	Mean (SD)	Totally Disagree	Partially Disagree	Neutral	Partially agree	Totally agree
The man and the woman should decide together on the number of planned children.	4.6(0.7)	2(0.5)	6(1.6)	10(2.6)	105(27.3)	261(68)
The man and the woman should decide together on the use of the pill as a contraceptive method.	4.4(0.9)	13(3.4)	11(2.9)	16(4.2)	93(24.2)	251(65.4)
It is embarrassing to talk about the birth control subject.	4.2(0.7)	141(36.7)	203(52.9)	28(7.3)	8(2.1)	4(1)
OCP are the safest contraceptive method.	3.1(1.0)	11(2.9)	161(41.9)	89(23.2)	93(24.2)	30(7.8)
OCP are the most effective contraceptive method.	3.1(1.0)	13(3.4)	154(40.1)	88(22.9)	106(27.6)	23(6)
OCP can cause infertility.	3.1(1.1)	19(4.9)	102(26.6)	114(29.7)	100(26)	49(12.8)

Data is presented in terms of frequency and percentages

Among OCP users, more than 75% sought consultation from a doctor before starting to use the OCP. The most common reasons for stopping OCP use were side effects (37.1%) and the desire to conceive (25.7%). The study also revealed a failure rate of 5.3%, with five out of 83 women becoming pregnant while using OCP (Table 5).

Factors associated with knowledge and attitude scores

Table 6 presents the results of the bivariate analyses. OCP knowledge scores were associated with education level, marital status, profession, monthly income, age, and OCP usage. Regarding attitude scores, education level was found to be associated with attitude scores (*p*-values of 0.022). Medical employment was the strongest predictor of knowledge (unstandardized coefficient = 1.619, $p < 0.001$), followed by higher family income (> 2000$ vs. <1000$, unstandardized coefficient = 0.509, $p = 0.018$). Age also positively influenced knowledge (unstandardized coefficient = 0.027, $p = 0.010$). OCP use was associated with an increase in knowledge score (unstandardized coefficient = 0.409, $p = 0.014$). (Table 7).

Factors associated with OCP usage

Older women and those with higher levels of knowledge were more likely to use OCP compared to their younger counterparts (AOR 1.05, 95% CI: 1.02–1.09) or women with low knowledge levels (AOR 1.20, 95% CI: 1.07–1.33). Additionally, women with a monthly family income exceeding $2000 were less likely to use OCP (Table 8).

Table 5 Patterns of OCP Use (*N* = 384)

Patterns of use	*N*	%
Have you used OCP?		
Yes	142	36.9
No	242	63.0
Reason for usage	*N* = 142	**%**
Birth Control	83	58.5
Regulation of the menstrual cycle	39	27.5
Treatment of the ovarian cysts	13	9.1
Delay of the menstrual period	4	2.8
Acne treatment	3	2.1
Reason for non-usage of OCP	*N* = 242	**%**
No need	133	55.2
Usage of other contraception methods	49	20.3
Fear of side effects	42	17.4
Deny the partner	8	3.3
No idea	4	1.7
Ethical reasons	3	1.2
Religious beliefs	2	0.8
Women's behaviour after missing a pill for birth control purposes	*N* = 83	
Retake when you remember	26	31.3
Dr's Consultation	25	30.1
Take 2 consecutive OCP	16	19.3
Consultation of pharmacist	10	12
Usage of another method (condom)	5	6.0
Ignorance of what to do	3	3.6
Stop usage	3	3.6
Why do you prefer OCP usage for birth control purposes?	*N* = 83	**%**
Easy to use	45	54.2
Low cost	15	18.1
High efficacy	9	10.8
Choice of a doctor	7	8.4
Failure of other methods	3	3.7
Choice of a couple	4	4.8
Consultation with a doctor before using OCP	*N* = 140	**%**
Yes	105	75.0
No	35	25.0
Have you done a blood test before using OCP?	*N* = 140	**%**
Yes	65	46.4
No	73	52.1
I don't remember	2	1.4
Did you get pregnant during OCP usage?	*N* = 94	**%**
Yes	5	5.3
No	89	94.7
In your opinion, why did you get pregnant during the usage of OCP?	*N* = 5	**%**
Forget a pill	4	80.0
Other factors	1	20.0
Perceived Reasons for Discontinuing OCP	*N* = 140	**%**
Side effects	52	37.1
Regulation of cycle	38	27.3
Intent to conceive	36	25.7
Doctor	4	2.9
Inefficacity	4	2.9
Disappearance of acne	4	2.9
Difficult of usage	2	1.4

Table 5 (continued)

Patterns of use	*N*	%
Are you well-informed concerning the OCP pattern of use?	*N* = 139	**%**
Yes	109	78.4
No	29	20.9
I don't know	1	0.7
Is information sufficient in your opinion?	*N* = 109	**%**
Yes	90	82.6
No	17	15.6
I don't know	2	1.8

N or n: Frequency, % percentage

Table 6 Bivariate analysis of the factors associated with knowledge and attitude scores (*N* = 384)

Socio-demographic Variables	Knowledge score Mean (SD)	*P*-value	Attitude score Mean (SD)	*P*-value
Education level		0.035		0.022
Secondary or Vocational or below	4.7(1.3)		3.7(0.5)	
College/University	5.0(1.6)		3.8(0.4)	
Marital status		0.002		0.185
Unmarried	4.5(1.5)		3.7(0.5)	
Married	5.0(1.4)		3.8(0.4)	
Profession		< 0.001		0.087
Unemployed	4.7(1.7)		3.7(0.5)	
Non-medical employment	4.7(1.7)		3.8(0.4)	
Medical employment	5.9(1.7)		3.7(0.5)	
Monthly family income		0.021		0.352
< 1,000$	4.6(1.3)		3.7(0.5)	
1,000–2,000$	4.7(1.5)		3.8(0.4)	
˃2,000$	5.1(1.6)		3.8(0.4)	
Region of residence		0.528		0.252
Mount-Lebanon	4.8(1.4)		3.8(0.4)	
North	4.8(1.5)		3.8(0.5)	
South	4.8(1.5)		3.7(0.4)	
Beirut	5.0(1.8)		3.7(0.5)	
Beqaa	4.6(1.4)		3.6(0.5)	
Age*	0.243	< 0.001	0.05	0.328
OCP usage		0.002		0.103
No	4.7(1.6)		3.8(0.4)	
Yes	5.3(1.7)		3.7(0.5)	

SD Standard Deviation, * Determined through correlation coefficient, and *p*-value less than 0.05 is considered significant

Discussion

The present study sought to assess Lebanese women's knowledge, attitudes, and practices towards OCP usage. The findings showed limited knowledge and significant misinformation about OCP, even among users. Many women lack a clear understanding of its benefits and risks, which is concerning given the importance of informed decision-making for effective contraceptive use and reproductive health. Our results align with earlier studies. For instance, a study by Chebaro et al. (2005) found that only 36.7% of Lebanese women from urban areas were aware of OCP side effects, and 49.8% knew their indications [13]. Another study by Barbour et al. (2009) reported that 53.9% of university students claimed to know the side effects of OCP, though the study focused more on general contraceptive practices rather than specific methods [14]. Additionally, a more recent study on sexual and reproductive health knowledge among unmarried Lebanese women revealed that only 13.5% possessed proficient knowledge about contraceptives [15]. These consistent findings highlight the persistent knowledge gaps and underscore the need for targeted educational interventions to improve awareness of OCP. Our results are also consistent with studies conducted in the Al-Qunfudah region of Saudi Arabia, which also found inadequate awareness of OCP indications among Arabian women [17], and another study among Jordanian women that reported low knowledge levels regarding side effects [18].

The lack of awareness about OCP side effects and risks is a noteworthy concern. Our research revealed that while some common side effects, such as headaches and nausea, were acknowledged, more serious risks, like thrombosis, were not well grasped. Furthermore, the misconception that OCP elevate the likelihood of experiencing mood swings, weight gain, and the risk of uterine cancer highlights the necessity for accurate information dissemination to debunk these myths and alleviate unwarranted fears among users.

Among participants, family and neighbors were the main sources of OCP information, followed by friends and colleagues, with few women consulting healthcare professionals. This finding is consistent with a study in Saudi Arabia's Jazan region, where families were also the primary source of OCP information [19]. Concerning information sources for OCP users, it was found that 22% of users obtained information from social media platforms, family members, neighbours, colleagues, and friends. Indeed, this reliance on informal sources of information can perpetuate misinformation and

Table 7 Multivariable analysis assessing factors associated with knowledge and attitude scores of women toward OCP (*N* = 384)

	Unstandardized Coefficients	Standardized Coefficients	*P*-value	95.0% Confidence Interval for B	
	B	Beta		Lower Bound	Upper Bound
Knowledge as a dependent variable*					
Age	0.027	0.136	0.010	0.007	0.048
Profession (non-medical employment vs. unemployment)	0.001	0.000	0.996	-0.341	0.343
Profession (medical employment vs. unemployment)	1.619	0.329	< 0.001	1.110	2.129
Education level (college/university vs. secondary or vocational or below)	0.082	0.025	0.647	-0.268	0.431
Marital status (married vs. unmarried)	0.307	0.092	0.076	-0.032	0.647
Family income per month (1000 $ vs. < 1000$)	0.024	0.007	0.895	-0.339	0.388
Family income per month (> 2000$ vs. <1000$)	0.509	0.141	0.018	0.089	0.928
OCP usage (yes vs. no)	0.409	0.120	0.014	0.084	0.733

*Variables entered the models are age, profession, education level, marital status, family income per month, and OCP users, *P*-value less than 0.05 is considered significant

Table 8 Factors associated with OCP usage (*N* = 384)

Variables	OCP Usage			
	No *n* (%)	Yes *n* (%)	Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Education level				
Secondary or Vocational or below	109(57.7)	80(42.3)	1.00	1.00
College/University	133(68.2)	62(31.8)	0.63(0.42–0.94)	0.82(0.48–1.38)
Marital Status				
Unmarried	114(73.5)	41(26.5)	1.00	1.00
Married	128(55.9)	101(44.1)	2.19(1.41–3.41)	1.43(0.86–2.39)
Profession				
Unemployed	90(57.3)	67(42.7)	1.00	1.00
Non-medical employment	123(69.1)	55(30.9)	0.60(0.38–0.94)	0.71(0.42–1.18)
Medical employment	29(59.2)	20(40.8)	0.93(0.48–1.78)	0.85(0.39–1.87)
Monthly Family Income				
< 1000$	66(55.9)	52(44.1)	1.00	1.00
1000–2000$	95(62.1)	58(37.9)	0.77(0.47–1.26)	0.75(0.44–1.28)
>2000$	81(71.7)	32(28.3)	0.50(0.29–0.87)	0.46(0.24–0.91)
Region of Residence				
Mount-Lebanon	97(68.3%)	45(31.7%)	1.00	1.00
North and Akkar	57(67.9%)	27(32.1%)	0.90(0.45–1.78)	0.59(0.28–1.24)
South and Nabatiyeh	32(54.2%)	27(45.8%)	1.64(0.75–3.56)	1.06(0.45–2.47)
Beirut	33(66%)	17(34%)	0.92(0.44–1.93)	0.65(0.29–1.47)
Baalbek-AL Hermel and Beqaa	23(46.9%)	26(53.1%)	2.19(0.98–4.94)	1.36(0.56–3.35)
Age Mean (SD)	28.9(7.9)	32.8(8.1)	1.06(1.03–1.09)	1.05(1.02–1.09)
Knowledge Mean (SD)	4.3(1.3)	4.7(1.2)	1.22(1.08–1.39)	1.20(1.07–1.33)
Attitude Mean (SD)	4.4(1.2)	4.5(1.2)	0.688(0.44–1.08)	0.69(0.29–1.51)

N Frequency, % Percentage, OR Odds Ratio, CI Confidence Interval

hinder women from receiving comprehensive and accurate information about OCP. It also suggests a gap in professional guidance, highlighting the need for healthcare professionals to be more involved in patient education.

The study reveals a significant knowledge gap among women using OCP for birth control. Despite 58.5% of participants being at risk of pregnancy, there was no significant difference in knowledge scores between women at risk and those not at risk. Since adequate knowledge is

crucial for effective use and preventing unintended pregnancies, targeted educational interventions are needed to increase awareness of OCP's benefits and risks, regardless of women's immediate contraceptive plans. Furthermore, our study identified several factors associated with knowledge about OCP. Profession, monthly income, and age are all associated with greater knowledge about OCP. Our results corroborate a previous study's results, indicating that unemployed women with limited access to OCP or lower income levels are less likely to be informed about OCP [20]. These findings underscore the importance of considering socio-demographic factors when designing targeted educational interventions to effectively address knowledge gaps in OCP. In addition, OCP users exhibited a higher level of knowledge about OCP in comparison to non-users. This may be because OCP are a subject of interest for users who actively seek out information to meet their knowledge needs regarding the pills. According to health behavior theories such as the Health Belief Model (HBM) and the Information Motivation Behavioral Skills (IMB) Model, individuals are more likely to seek information on topics that directly affect their health [21, 22]. Research shows that women using OCP often seek knowledge to address concerns about side effects, effectiveness, and safety, consulting healthcare providers or other resources [23]. This active engagement reflects their desire to make informed decisions regarding their contraceptive use. Moreover, our findings revealed that educational level was associated with attitude scores, indicating that women with higher levels of education displayed a more positive attitude in comparison to those with lower levels of education. This is consistent with previous research, which has shown that educational attainment plays a critical role in shaping contraceptive attitudes and practice due to better access to health information, increased autonomy in making informed decisions, and improved use of healthcare services. This underscores the importance of focusing educational interventions on less-educated women to reduce disparities in contraceptive knowledge and access [24].

Regarding participants' practices toward OCP, the current study revealed that around one-third of the women surveyed had utilized OCP. This finding aligns with a previous study conducted in Lebanon in 2005, which also reported a 37% usage rate among surveyed women [13]. This suggests a steady prevalence of OCP use among Lebanese women over time. Our findings indicated that approximately 60% of Lebanese women opted for OCP as a contraceptive method, a percentage lower than that observed among Jordanian women (80%) [18]. However, consistent with the study, three-quarters of the participants indicated that they used OCP following consultation with a physician. Interestingly, easy usage and affordability were the primary factors influencing OCP usage. Concerning pregnancy risk, the majority (94.7%) of Lebanese women did not encounter pregnancy while utilizing OCP, suggesting proper adherence to the method. Notably, for those who became pregnant, the main reason mentioned was forgetting to take their OCP, underscoring the effectiveness of this contraceptive method. Additionally, discontinuation of OCP usage was predominantly attributed to side effects, consistent with conclusions drawn from other research studies [18, 19, 25].

Our results indicated that women with a higher family income were less likely to use OCP in comparison to those with lower family incomes. This observation suggests that economic factors may play a role in contraceptive decision-making, possibly due to affordability or access issues. Women in higher income brackets may have access to and prefer other, more expensive contraceptive methods over OCP. These methods could include long-acting reversible contraceptives such as IUDs or contraceptive implants, which typically have higher upfront costs but may be more cost-effective over time due to their longer duration of effectiveness. Additionally, they may have better access to healthcare services and family planning resources, allowing them to explore a wider range of contraceptive options beyond OCP. Understanding the contraceptive preferences and utilization patterns of women across different income levels can help tailor family planning programs and services to better meet the diverse needs of women and ensure equitable access to a comprehensive range of contraceptive methods. Additionally, the associations between age, knowledge score, and OCP usage are noteworthy. Older women and those with higher levels of knowledge were more inclined to use OCP, indicating that age and awareness levels may influence contraceptive choices.

Several limitations should be acknowledged in this study. While the sampling strategy aimed to represent Lebanese women aged 18–49 by covering all governorates and utilizing probability-proportion-to-size sampling based on regional population distribution, the use of convenience sampling within pharmacies may introduce bias, as women visiting pharmacies may not fully represent the broader population. The calculated sample size for the study was 231 participants, based on an estimated OCP usage rate. However, we intentionally oversampled to include 384 participants to enhance the robustness of our findings, account for potential incomplete responses, and facilitate subgroup analyses. This oversampling may have introduced variability not considered in the initial power analysis, potentially impacting the interpretation of some findings. Although Beta testing was conducted with 10 women to refine the survey, their responses were not used to estimate the correct answer rate, which

could have improved the precision of our calculations. The overrepresentation of medically related professionals among participants further exacerbates selection bias, potentially skewing results toward individuals with higher health literacy or greater interest in healthcare topics. Future studies using alternative recruitment methods, such as household surveys, may provide a more comprehensive and accurate understanding of the target population. Several recommendations are suggested to tackle the notable knowledge gaps and diverse attitudes towards OCP among Lebanese women. Firstly, enhancing the engagement of healthcare providers in educating women about OCP, covering their advantages, risks, and proper usage, is important [26]. Healthcare professionals could utilize various communication channels, such as social media platforms, community initiatives, and educational institutions, to ensure accurate information reaches a broader audience [27]. Secondly, creating targeted educational campaigns to address specific knowledge gaps and misconceptions about OCP, tailored to different sociodemographic groups, will help dispel prevalent myths [28]. Thirdly, incorporating OCP education into routine health check-ups and consultations will guarantee the consistent spread of information [29]. Fourthly, targeting educational interventions toward women with lower incomes and educational levels to address sociodemographic disparities will aid in narrowing the knowledge gap and enhancing attitudes toward OCP [28]. Lastly, providing accessible counseling services in primary healthcare centers can deliver tailored guidance and assistance to women regarding contraceptive use [30]. In addition, involving men in family planning discussions can promote mutual decision-making and support within relationships [31].

Conclusion

In summary, the study highlights significant gaps in knowledge, attitudes, and usage patterns related to OCP among Lebanese women, emphasizing the need for enhanced education and awareness. While sociodemographic factors may not be easily changed, the findings can help identify groups at higher risk of making uninformed contraceptive decisions. To improve outcomes, targeted educational interventions should focus on these at-risk groups, with strategies including increased healthcare provider involvement, tailored educational campaigns, diverse information channels, and the integration of OCP education into routine health check-ups.

Supplementary Information

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Supplementary Material 1

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Author contributions
H.S. and N.L. conceived the project idea and designed the questionnaire. H.S. and L.AA. conducted the survey analysis. H.S., L.AA., and Z.B. performed the literature review and structured and drafted the paper. L.AA. and Z.B. critically reviewed the manuscript for significant intellectual content. All authors reviewed and approved the final manuscript.

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Data availability
The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate
The study received ethical approval from the scientific committee of the Lebanese University, Faculty of Medical Sciences (ID 1/2/2017). Confidentiality of all collected data was ensured, and the study followed the ethical principles of the Helsinki Declaration. Verbal informed consent was obtained from all participants, and steps were taken to preserve anonymity during the study.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

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