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Knowledge of Menstrual Health and Oral Contraceptive Use Among Young Women: A Cross-Sectional Study in Brazil

Juliana Risso Pariz

juliana.pariz@metodista.br

Methodist University of São Paulo

Amanda Dias Sales

Methodist University of São Paulo

Sabrina Souza Pereira

Methodist University of São Paulo

Gabriella Cassiana Nascimento Paulo

Methodist University of São Paulo

Heloisa Toutain Silveira Silva

Methodist University of São Paulo

Stephanie Schroder

Methodist University of São Paulo

Marina Maria Torres

Methodist University of São Paulo

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Abstract

Menstrual health literacy is a key component of women's reproductive health. Despite the widespread use of oral hormonal contraceptives, knowledge gaps regarding their use and potential adverse effects remain prevalent. This study aimed to assess the level of knowledge of young women regarding the menstrual cycle, menstruation, and oral hormonal contraceptive use. This cross-sectional study included 113 women aged 18–30 years recruited via social media in Brazil. Data were collected using a structured online questionnaire developed by the authors. Descriptive and inferential analyses were conducted using non-parametric tests, with a significance level of 5%. Most participants reported using oral hormonal contraceptives (77.7%). Although 81.3% reported receiving medical guidance, only 60.7% demonstrated adequate knowledge of adverse effects. No statistically significant association was observed between prior medical guidance and knowledge level ($p = 0.346$). A high prevalence of self-reported side effects was observed (50.9%). These findings indicate persistent gaps in knowledge, even among women receiving professional guidance. Strengthening health education strategies is essential to promote informed decision-making and reproductive autonomy.

1. INTRODUCTION

Menarche is a physiological event characteristic of female puberty and represents the clinical milestone marking the onset of reproductive function. It is accompanied by a series of bodily, hormonal, and psychosocial changes resulting from the maturation of the hypothalamic–pituitary–ovarian axis. Among these changes are breast development, redistribution of body fat, growth of hair in specific regions, and the progressive establishment of the menstrual cycle [1, 2].

In Brazil, population-based studies indicate that the average age at menarche is approximately 11.7 years, reflecting a trend toward earlier onset over recent decades [1, 3]. This finding highlights the relevance of the topic in the context of public health, as menarche typically occurs during elementary school years.

According to data from the Brazilian Institute of Geography and Statistics (IBGE), it is estimated that there are approximately 1.5 million girls aged 10 to 14 years in the state of São Paulo alone, an age group in which most have already experienced or will soon experience menarche [4]. Despite this, the literature indicates that many adolescents reach this stage without adequate information about the menstrual cycle, reproductive physiology, and the implications of menstruation. This lack of knowledge may lead to insecurity, inadequate self-care practices, and difficulties in experiencing sexuality.

Following menarche, the possibility of pregnancy becomes a reality in the context of sexual activity, which often coincides with the initial search for contraceptive methods. National studies indicate that adolescents are at higher risk of pregnancy during the first months after the onset of sexual activity, particularly due to irregular ovulatory cycles, limited access to qualified information, and incorrect use of contraceptive methods [5].

Among the available methods, oral hormonal contraceptives are among the most widely used in Brazil, mainly due to their availability, high contraceptive efficacy when used correctly, and ease of use [6]. In addition to preventing pregnancy, these medications are often prescribed for therapeutic purposes, such as regulating the menstrual cycle, reducing menstrual flow and cramps, controlling acne, and managing hormonal disorders.

However, the use of oral hormonal contraceptives is not without risks and may be associated with adverse effects of various types, including metabolic, cardiovascular, and psychosocial changes. The occurrence of these effects varies according to hormonal composition, user profile, and duration of use [7]. Brazilian studies indicate that, although usage is frequent, significant gaps remain in users' knowledge regarding the mechanism of action, adverse effects, and correct use of the method [8, 9].

The choice of contraceptive method should consider individual factors such as age, clinical conditions, hormonal profile, level of education, access to healthcare services, and sociocultural context. However, evidence suggests that oral contraceptives are often used without adequate professional guidance, which contributes to incorrect use, early discontinuation, and unintended pregnancies [10].

Given this scenario, it becomes essential to assess the level of knowledge of women regarding the menstrual cycle, menstruation, and oral hormonal contraceptive methods. Identifying informational gaps may support the development of more effective educational strategies, strengthen primary prevention actions, and contribute to the promotion of female reproductive autonomy. Therefore, this study aimed to evaluate the level of knowledge of women about the menstrual cycle, menstruation, and the use of oral hormonal contraceptives.

2. METHODS

2.1 Study design and participants

This was an observational, descriptive, cross-sectional study conducted between July 2021 and December 2023. The study was carried out by undergraduate students from the Academic League of Sexual and Reproductive Health of the Biomedicine program at Universidade Metodista de São Paulo.

A total of 113 women aged between 18 and 30 years participated in the study. Participants were recruited through convenience sampling via social media, with Instagram being the primary platform used for dissemination.

Women who met the age criteria and agreed to participate by providing informed consent through an electronic form were included in the study. Participants who did not provide consent or did not complete the questionnaire were excluded.

2.2 Data collection

Data were collected using a structured questionnaire developed by the research team and administered through Google Forms®. The instrument included questions related to sociodemographic characteristics (such as age and marital status), menstrual cycle characteristics, and the use of oral hormonal contraceptives.

Additionally, the questionnaire assessed participants' knowledge regarding contraceptive use, perceived effects, correct usage, and aspects related to sexual and reproductive health.

The questionnaire was developed based on relevant literature in the field. A pilot test was conducted to assess clarity and comprehension of the questions. However, the instrument was not formally validated.

The questionnaire was anonymous, and no identifying information was collected.

The questionnaire was developed by the authors and does not involve copyrighted or proprietary instruments.

2.3 Ethical considerations

All participants provided informed consent electronically prior to participation. The study was approved by the Research Ethics Committee of Universidade Metodista de São Paulo (CAAE: 46339821.0.0000.5508).

2.4 Statistical analysis

Data were initially organized in Microsoft Excel® spreadsheets for data cleaning and coding. Statistical analyses were performed using Jamovi® software.

Categorical variables were described using absolute and relative frequencies, while continuous variables were expressed as means and standard deviations after assessment of data distribution.

Normality was evaluated using graphical inspection and appropriate normality tests. Given the distribution of the data and sample size, non-parametric tests were applied for inferential analyses.

Associations between categorical variables were assessed using the chi-square test (X^2). Comparisons between two independent groups were performed using the Mann–Whitney test.

A significance level of 5% ($p < 0.05$) was adopted for all analyses.

3. RESULTS

A total of 113 women aged 18 to 30 years participated in the study, with a mean age of 22.63 ± 3.01 years. Participants were from different regions of Brazil, with a predominance from the Southeast region. Most participants reported being sexually active (89.3%; n = 101) and having regular menstrual cycles (78.6%; n = 89), while 21.4% (n = 24) reported irregular cycles (Table 1).

Table 1
Sociodemographic and Menstrual Characteristics of Participants (n = 113)

Variable	n (%) or mean ± SD
Age (years)	22.63 ± 3.01
Sexually active	
Yes	101 (89.3)
No	12 (10.7)
Age at menarche (years)	12.34 ± 1.35
Regular menstrual cycle	
Yes	89 (78.6)
No	24 (21.4)

Note: Numerical data are presented as mean ± standard deviation. Categorical variables are expressed as absolute and relative frequencies

Regarding contraceptive use, 77.7% (n = 88) of participants reported using oral hormonal contraceptives, while 22.3% (n = 25) reported not using this method. Among non-users, other contraceptive methods were reported, including intrauterine devices (IUDs), vaginal rings, injectable methods, and male condoms.

A high level of agreement was observed regarding public health policies related to contraceptive access. Most participants (98.2%; n = 111) supported the free distribution of oral contraceptives through the Brazilian public health system, while only 1.8% (n = 2) expressed disagreement or indifference.

Among users of oral hormonal contraceptives (n = 88), the primary reason for use was pregnancy prevention (51.8%; n = 46), followed by hormonal regulation (21.4%; n = 19), reduction of menstrual flow (15.2%; n = 13), and other clinical indications (11.6%; n = 10). Most users (81.3%; n = 72) reported receiving prior medical guidance, mainly from gynecologists. However, 14.3% (n = 13) reported insufficient information, and 4.5% (n = 4) reported initiating use without any professional guidance (Table 2).

Table 2
Oral Hormonal Contraceptive Use and Associated Characteristics (n = 113)

Variable	n (%)
Use of oral hormonal contraceptives	
Yes	88 (77.7)
No	25 (22.3)
Reason for contraceptive use (n = 88)	
Pregnancy prevention	46 (51.8)
Hormonal regulation	19 (21.4)
Reduction of menstrual flow	13 (15.2)
Other reasons	10 (11.6)
Prior medical guidance (n = 88)	
Yes	72 (81.3)
No, insufficient information	13 (14.3)
No guidance received	4 (4.5)
Previous use of more than one brand	
Yes	47 (53.6)
No	41 (46.4)

A wide variety of contraceptive brands was reported, with Iumi®, Qlaira®, and Selene® being the most frequently mentioned. More than half of the users (53.6%; n = 47) reported having used more than one contraceptive brand over time.

Regarding adverse effects, 50.9% (n = 45) of users reported experiencing at least one side effect associated with oral contraceptive use. The most commonly reported symptoms included mood changes, headache, weight gain, edema, breakthrough bleeding, decreased libido, nausea, and skin changes. Additionally, 94.6% (n = 83) reported noticing some form of bodily change after initiating contraceptive use (Table 3).

Table 3
Knowledge of Oral Hormonal Contraceptives and Associated Effects (n = 88)

Variable	n (%)
Reported side effects	
Yes	45 (50.9)
No	43 (49.1)
Perceived bodily changes	
Yes	83 (94.6)
No	5 (5.4)
Knowledge of contraceptive effects	
Aware of effects	54 (60.7)
Partial knowledge	34 (39.3)
Knowledge of mechanism of action	
Yes	77 (87.5)
No	11 (12.5)
Knowledge of correct use	
Yes	84 (95.5)
No	4 (4.5)

In terms of knowledge, 60.7% (n = 54) of participants reported adequate knowledge of adverse effects, while 39.3% (n = 34) reported partial knowledge. Most participants reported knowing the mechanism of action of oral contraceptives (87.5%; n = 77) and the correct method of use (95.5%; n = 84). No statistically significant association was found between prior medical guidance and knowledge of adverse effects ($\chi^2 = 2.12$; $p = 0.346$).

The age at menarche ranged from 9 to 16 years, with a mean of 12.34 ± 1.35 years. Most participants (75.8%) reported menarche between 11 and 13 years of age. No significant difference in age at menarche was observed between users and non-users of oral contraceptives ($U = 612.0$; $p = 0.802$), with similar mean ages between groups (12.37 ± 1.40 vs. 12.25 ± 1.21 years, respectively) (Table 4).

Table 4
Distribution of Age at Menarche Among Study Participants (n = 113)

Age at menarche (years)	n	%
9	1	0.8
10	12	10.7
11	22	19.6
12	38	33.9
13	25	22.3
14	5	4.4
15	7	6.2
16	2	1.7
Total	**113**	**100.0**

4. DISCUSSION

The findings of the present study demonstrate a high prevalence of oral hormonal contraceptive use among young women, which is consistent with national data indicating that oral contraceptives remain one of the most widely used methods in Brazil, particularly among women of reproductive age living in urban areas and with higher levels of education [8, 9]. This pattern reflects both the accessibility of the method and its high contraceptive efficacy when used correctly.

The main reason reported for contraceptive use was pregnancy prevention, followed by hormonal regulation and menstrual control. These findings are consistent with previous studies showing that oral contraceptives are frequently used not only for contraceptive purposes but also for the management of menstrual symptoms and gynecological conditions [7].

Despite the high prevalence of use, the results revealed important gaps in knowledge regarding the adverse effects of oral hormonal contraceptives. Although most participants reported knowing the mechanism of action and the correct method of use, only about 60% reported adequate knowledge of potential side effects. This finding aligns with previous studies demonstrating a discrepancy between contraceptive use and comprehensive understanding of associated risks and benefits, even among populations with greater access to healthcare services [8].

A substantial proportion of participants reported experiencing adverse effects, including mood changes, headache, weight gain, and breakthrough bleeding. These findings are consistent with the literature, which describes a wide range of possible side effects associated with hormonal contraceptive use,

depending on formulation, dosage, and individual characteristics [7]. Although many of these effects are not absolute contraindications, they may negatively impact satisfaction and adherence to the method.

In this context, early discontinuation of oral contraceptives has been associated with both the occurrence of side effects and insufficient information provided during contraceptive counseling. Evidence suggests that inadequate communication and limited educational approaches in healthcare settings may contribute to incorrect use and increase the risk of unintended pregnancies, particularly among young women [10].

Most participants reported having received medical guidance prior to initiating contraceptive use, highlighting the central role of healthcare services in access to these methods. However, the lack of association between medical guidance and knowledge level suggests that the quality and effectiveness of counseling may be insufficient. Consultations focused primarily on prescription, without structured educational support and clear communication, may not be adequate to ensure informed and sustained use of contraceptive methods [8, 9].

Regarding menstrual characteristics, the mean age at menarche observed in this study was consistent with national data indicating a trend toward earlier onset among Brazilian adolescents [1]. The predominance of regular menstrual cycles may be partially explained by the use of hormonal contraceptives, which are known to regulate the menstrual cycle through suppression of ovulation.

From a public health perspective, the findings of this study highlight the importance of strengthening health education strategies in sexual and reproductive health. Although access to contraceptive methods is widely available through the Brazilian public health system, informational gaps persist and may compromise safe and informed use.

Additionally, this study was developed within the context of a university extension initiative, which reinforces the role of academic institutions in promoting community-based health education. Extension activities have been recognized as important strategies for integrating teaching, research, and community engagement, contributing to the dissemination of scientific knowledge and empowerment of individuals, particularly in the field of sexual and reproductive health.

Overall, the results emphasize that access to contraceptive methods alone is not sufficient to ensure appropriate use. Continuous, evidence-based educational strategies that are accessible and tailored to the needs of women are essential to promote reproductive autonomy and improve health outcomes.

This study has limitations. The use of a convenience sample recruited through social media may limit the generalizability of the findings. Additionally, the questionnaire used was not formally validated, which may affect the reliability of the results. The cross-sectional design also does not allow causal inferences to be established.

5. CONCLUSION

In conclusion, this study identified important gaps in knowledge regarding menstrual health and oral hormonal contraceptive use among young women. Despite the high prevalence of contraceptive use and reported access to medical guidance, a substantial proportion of participants demonstrated limited understanding of potential adverse effects.

These findings suggest that access to healthcare services and contraceptive methods alone is not sufficient to ensure informed and appropriate use. Strengthening health education strategies in sexual and reproductive health is essential to improve knowledge, support informed decision-making, and promote reproductive autonomy.

Efforts should focus on enhancing the quality of communication between healthcare professionals and patients, as well as developing educational interventions tailored to the needs of young women.

Declarations

Funding

No funding was received for conducting this study.

Competing Interests

The authors have no competing interests to declare that are relevant to the content of this article.

Ethics Approval

This study was approved by the Research Ethics Committee of Universidade Metodista de São Paulo (CAAE: 46339821.0.0000.5508).

Consent to Participate

Informed consent was obtained from all individual participants included in the study.

Data Availability

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

Consent for Publication

Not applicable.

Authors´ Contributions

All authors contributed to the study conception and design. Data collection was performed by Amanda Dias Sales, Sabrina Souza Pereira, Gabriella Cassiana Nascimento Paulo, Heloisa Toutain Silveira Silva,

Stephanie Schroder, and Marina Maria Torres. Data analysis and interpretation were performed by Juliana Risso Pariz. The first draft of the manuscript was written by Juliana Risso Pariz, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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