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ASSOCIATION BETWEEN TYPE OF CONTRACEPTIVE USED AND MENSTRUAL CYCLE CHARACTERISTICS, PAIN AND SATISFACTION AMONG WOMEN OF REPRODUCTIVE AGE IN PORT HARCOURT, NIGERIA: A CROSS-SECTIONAL STUDY

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ABSTRACT

Background: Changes in menstrual characteristics are common side effects of contraception and a recognised cause of dissatisfaction and discontinuation. Local evidence comparing methods is limited.

Aim: This study determined the association between contraceptive type and menstrual cycle characteristics, menstrual pain and satisfaction among women of reproductive age in Port Harcourt, Nigeria.

Methods: An analytical cross-sectional study was conducted at three family-planning sites. Sixty women aged 18–45 years currently using contraception were purposively recruited and completed a structured questionnaire. Methods were grouped as oral contraceptive pills (OCP, n = 32), intrauterine contraceptive device (IUCD, n = 20) and other methods (n = 8). Associations were tested with the Fisher–Freeman–Halton exact test ($p < 0.05$), with Cramér's V as effect size.

Results: After starting contraception, 60.0% of women reported a change in cycle length, 53.3% in flow, 41.7% in bleeding duration and 41.7% in pain. Contraceptive type was significantly associated with change in bleeding duration ($p < 0.05$); longer bleeding was reported by 35.0% of IUCD users, 6.2% of OCP users and none of the other-method users. Satisfaction differed between OCP and IUCD users ($p = 0.044$), with 45.0% of IUCD users very satisfied versus 12.5% of OCP users, but not across all three groups ($p = 0.140$). Cycle length, flow and pain did not differ significantly by method.

Conclusion: Within this purposive sample, longer bleeding was the clearest method-related difference, reported mainly by IUCD users; satisfaction findings were borderline. Women should be counselled about this before IUCD insertion, and larger prospective studies are needed to confirm these findings.

Keywords: Contraception; Oral Contraceptive Pills; Intrauterine Device; Menstrual Cycle; Port Harcourt

1 INTRODUCTION

The menstrual cycle is now regarded as a vital sign of general health, and its characteristics are used to judge whether a woman's reproductive system is functioning normally [1]. Normal menstruation is described by four parameters: frequency, regularity, duration and volume of flow [2,3]. Pain or discomfort during menses is a further part of the menstrual experience. Dysmenorrhoea is very common, with a worldwide prevalence ranging from 16% to 91% [4], and a high burden has been documented among Nigerian women [5]. Any change in these characteristics is therefore more than an inconvenience, because it affects a woman's comfort, daily activities and confidence in her reproductive health.

Contraceptive methods are among the commonest influences on these characteristics. Hormonal methods act on ovulation and the endometrium, while intrauterine devices act locally within the uterine cavity, so women who adopt them often notice changes in cycle length, bleeding duration, flow and pain. The direction and size of these changes differ by method. Combined oral contraceptive pills (OCPs) tend to produce a regular, predictable withdrawal-bleeding pattern because the estrogen component balances the effect of the progestin on the endometrium [6]. Combined hormonal contraceptives are also used to reduce heavy menstrual bleeding [7], and randomised evidence shows that they reduce dysmenorrhoea pain relative to placebo [8]. In contrast, copper intrauterine device (IUCD) users may experience longer bleeding, spotting between periods and pain, which often settle with continued use [9]. Progestogen-only methods commonly cause irregular bleeding or amenorrhoea, and a systematic review found that only 23% of levonorgestrel implant users and 11% of depot medroxyprogesterone acetate users had normal menstrual patterns at 12 months [10]. Menstrual disturbance has been reported as a leading complication of contraception among Nigerian women [11].

These menstrual changes matter because they shape whether women continue to use a method at all. Contraceptive-induced bleeding changes are repeatedly reported among the main reasons for dissatisfaction, discontinuation and even non-use of contraception [12]. In a prospective cohort of 1,657 women, 37% of those who stopped the pill cited side effects [13]. Method satisfaction and continuation also differ markedly between methods. In the Contraceptive CHOICE Project, more than 80% of IUD users were satisfied, compared with 54% of OCP users, and 12-month continuation was 86% for long-acting methods against 55% for OCPs [14]. Satisfaction is partly a matter of whether the bleeding pattern a woman experiences matches what she expected. Counselling that gives comprehensive information about side effects, and shared decision-making, are therefore associated with better satisfaction with the method chosen [15,16].

In Nigeria, contraceptive use remains relatively low despite widespread awareness of contraceptive methods. According to the 2024 Nigeria Demographic and Health Survey, modern contraceptive use among currently married women aged 15–49 years increased modestly from 12.0% in 2018 to 15.3% in 2024 [17]. Concern about side effects, including menstrual changes, is a recognised barrier to uptake, and discontinuation of contraceptive methods remains a concern in the country [18]. Port Harcourt, the capital of Rivers State in the Niger Delta region, reflects this picture. Method switching and discontinuation have been described among women in the city [19]. Hospital-based studies show that the IUCD is one of the most popular methods locally, accounting for 16.2% of family-planning acceptors at the University of Port Harcourt Teaching Hospital between 1997 and 2006 [20] and being the most preferred method (43%) at the Rivers State University Teaching Hospital between 2008 and 2017 [21]. Oral contraceptive pills are also widely used. Both methods are therefore central to family-planning practice in the city.

Much of the Nigerian literature on contraception and menstruation, however, concerns a single method, such as the implant or the injectable, or reports discontinuation and complications from clinic records [22,23]. Few studies have placed the two commonest methods in the same analysis, and fewer still have examined menstrual cycle characteristics, menstrual pain and satisfaction together. To the best of our knowledge, such comparative evidence is scarce for women accessing family-planning services in Port Harcourt. This gap limits the information available to providers when they counsel women on what to expect before a method is chosen. Evidence from other settings may not apply directly, because baseline menstrual patterns, dysmenorrhoea burden, clinical practice and women's expectations differ between populations.

The problem is that menstrual changes are a common side effect of contraception and a recognised driver of dissatisfaction and discontinuation, which in turn exposes women to the risk of unintended pregnancy. In Port Harcourt, local data on how the type of contraceptive used relates to menstrual cycle characteristics, pain and satisfaction are limited. This study therefore aimed to determine the association between the type of contraceptive used (oral contraceptive pills, intrauterine contraceptive device and other methods) and menstrual cycle characteristics (cycle length, duration of bleeding and flow intensity), menstrual pain or discomfort, and satisfaction with the method among women of reproductive age (18–45 years) accessing family-planning services in Port Harcourt, Nigeria.

2 METHODOLOGY

An analytical cross-sectional research design was adopted to compare menstrual cycle characteristics, menstrual pain and satisfaction across contraceptive methods used by women accessing family-planning services in Port Harcourt, Nigeria.

The study was conducted in Port Harcourt, the capital of Rivers State, in the Niger Delta region of southern Nigeria. Three sites providing family-planning and general medical services were used: the Medical Services Department of Ignatius Ajuru University of Education (Rumuolumeni), the Total Clinic (the medical division of TotalEnergies, Trans Amadi), and the medical facility serving CGSS Rumuokuta. These sites serve a diverse population of staff, students and community members, provide contraceptive services.

The study population comprised women of reproductive age (18–45 years) accessing services at these sites who were currently using a contraceptive method. The accessible population was estimated at 1,200 women. Oral contraceptive pills and intrauterine contraceptive devices were the methods of principal interest; users of other methods who presented at the same sites were recorded in separate categories so that the full method mix could be described.

Sixty (60) women met the eligibility criteria, consented and had complete data within the data-collection window, and these constituted the analytic sample (N = 60). A purposive sampling technique was used. Eligible women were first grouped according to the contraceptive method they were currently using, and were approached as they attended the clinics. The technique was chosen for its feasibility given time, cost and access constraints. Because selection was not random, the findings describe the women studied and cannot be generalised to all contraceptive users in Rivers State.

Inclusion criteria were: (i) age 18–45 years; (ii) current use of a contraceptive method (OCP, IUCD or any other method) at the time of the study; (iii) attendance at one of the three study sites; and (iv) willingness to provide written informed consent. Exclusion criteria were: (i) pregnancy or lactation; (ii) a known gynaecological disorder likely to alter the menstrual pattern, such as polycystic ovary syndrome or endometriosis; (iii) a chronic systemic illness; and (iv) use of any medication, other than the contraceptive itself, known to affect the menstrual pattern.

Data were collected with a structured questionnaire. The questionnaire recorded socio-demographic characteristics; contraceptive history; menstrual characteristics before contraceptive use; self-reported change in each of these characteristics after starting the method; and satisfaction with the method on a five-point scale from very dissatisfied to very satisfied.

Data were entered and analysed with IBM SPSS Statistics. Categorical variables were summarised as frequencies and percentages. Contraceptive type was grouped as oral contraceptive pills (OCP), intrauterine contraceptive device (IUCD) alone, and other methods. Its association with cycle length, duration of bleeding, menstrual flow, pain or discomfort, and satisfaction was tested. The Fisher–Freeman–Halton exact test was used. The tests were run across all three groups and for a direct OCP versus IUCD comparison. Where the overall test was significant, pairwise post hoc comparisons involving the other group were also performed. Effect size was expressed as Cramér's V, and statistical significance was set at $p < 0.05$.

The study followed the principles of the Declaration of Helsinki. Administrative permission was obtained from the management of each study site before data collection. Every participant received a verbal and written explanation of the purpose, procedures and voluntary nature of the study and gave written informed consent; refusal or withdrawal carried no penalty and did not affect the care received. Questionnaires carried no personal identifiers and the data were stored securely and used only for research.

3 RESULTS

Categorical variables are reported as frequencies and percentages. Contraceptive type was grouped as OCP (n = 32), IUCD alone (n = 20) and Other (n = 8: IUCD + OCP dual users 2, implant 2, injectable 1, Depo Provera 1, tubal ligation 1, barrier method 1). Each association was tested for all methods.

Table 1: Socio-demographic characteristics and contraceptive use (N = 60).

Variable	Frequency (n)	Percentage (%)
Age group		
18–25 years	17	28.33
26–35 years	26	43.33
36–45 years	17	28.33
Level of education		
O'level (secondary)	6	10.00
First degree	40	66.67
Postgraduate	14	23.33
Marital status		
Single	25	41.67
Married	35	58.33
Ever been pregnant		
Yes	42	70.00
No	18	30.00
Method of contraception		
Oral contraceptive pills (OCP)	32	53.33
IUCD alone	20	33.33
IUCD + OCP (dual)	2	3.33
Implant	2	3.33
Injectable	1	1.67
Depo Provera	1	1.67
Tubal ligation	1	1.67
Barrier method	1	1.67
Duration of use		
< 3 months	15	25.00
3–6 months	10	16.67
6–12 months	11	18.33
1-3 years	2	3.33
> 3 years	22	36.67
Reason for use		
Preventing pregnancy	23	38.33
Health recommendation	19	31.67
Convenience	15	25.00
Regulating menstrual cycle	3	5.00
Ever changed contraceptive		
No	48	80.00
Yes	12	20.00

3.1 Menstrual profile before and after contraceptive use

After starting contraception, 60.00% of women reported a change in cycle length, 53.33% in flow, 41.67% in bleeding duration and 41.67% in pain. These are self-reported changes, not measured differences.

Table 2: Menstrual profile before contraceptive use (N = 60)

Characteristic	Frequency (n)	Percentage (%)
Cycle length		
< 21 days	2	3.33
21–28 days	41	68.33
29–35 days	10	16.67
Irregular	7	11.67
Duration of bleeding		
1–3 days	20	33.33
4–7 days	39	65.00
> 7 days	1	1.67
Flow intensity		
Light	5	8.33
Moderate	44	73.33
Heavy	11	18.33
Pain or discomfort		
None	13	21.67
Mild	18	30.00
Moderate	22	36.67
Severe	7	11.67

Table 3: Self-reported change after contraceptive use (N = 60)

Characteristic	Frequency (n)	Percentage (%)
Cycle length		
No change	24	40.00
Shorter	16	26.67
Longer	13	21.67
More regular	7	11.67
Duration of bleeding		
No change	35	58.33
Shorter	14	23.33
Longer	9	15.00
No bleeding	2	3.33
Flow intensity		
No change	28	46.67
Lighter	18	30.00

Heavier	10	16.67
Spotting between periods	4	6.67
Pain or discomfort		
No change	35	58.33
Less severe	16	26.67
More severe	9	15.00
Premenstrual symptoms changed		
No	51	85.00
Yes	9	15.00

3.2 Contraceptive type and changes in menstrual characteristics

Table 4: Change in cycle length by contraceptive type

Change	OCP (n = 32)	IUCD (n = 20)	Other (n = 8)	Total
No change	10 (31.2)	11 (55.0)	3 (37.5)	24
Shorter	11 (34.4)	2 (10.0)	3 (37.5)	16
Longer	6 (18.8)	6 (30.0)	1 (12.5)	13
More regular	5 (15.6)	1 (5.0)	1 (12.5)	7

Table 4a: Inferential tests

Comparison	Test	Statistic	Effect size	P	Inference
All three groups (N = 60)	Fisher–Freeman–Halton exact	$\chi^2(6) = 7.17$	V = 0.24	0.264	Not Significant
OCP vs IUCD (N = 52)	Fisher–Freeman–Halton exact	$\chi^2(3) = 6.52$	V = 0.35	0.093	Not Significant

Table 5: Change in duration of bleeding by contraceptive type

Change	OCP (n = 32)	IUCD (n = 20)	Other (n = 8)	Total
No change	20 (62.5)	11 (55.0)	4 (50.0)	35
Shorter	10 (31.2)	2 (10.0)	2 (25.0)	14
Longer	2 (6.2)	7 (35.0)	0 (0.0)	9
No bleeding	0 (0.0)	0 (0.0)	2 (25.0)	2

Table 5a: Inferential tests

Comparison	Test	Statistic	Effect size	P	Inference
All three groups (N = 60)	Fisher–Freeman–Halton exact	$\chi^2(6) = 23.79$	V = 0.45	0.005	Significant
OCP vs IUCD (N = 52)	Fisher–Freeman–Halton exact	$\chi^2(2) = 8.40$	V = 0.40	0.019	Significant
Post hoc: OCP vs Other	Fisher–Freeman–Halton exact	$\chi^2(3) = 8.75$	V = 0.47	0.121	Not Significant
Post hoc: IUCD vs Other	Fisher–Freeman–Halton exact	$\chi^2(3) = 8.73$	V = 0.56	0.022	Significant

Table 6: Change in flow intensity by contraceptive type

Change	OCP (n = 32)	IUCD (n = 20)	Other (n = 8)	Total
No change	14 (43.8)	10 (50.0)	4 (50.0)	28
Lighter	10 (31.2)	5 (25.0)	3 (37.5)	18
Heavier	6 (18.8)	4 (20.0)	0 (0.0)	10
Spotting between periods	2 (6.2)	1 (5.0)	1 (12.5)	4

Table 6a: Inferential tests

Comparison	Test	Statistic	Effect size	p	Inference
All three groups (N = 60)	Fisher–Freeman–Halton exact	$\chi^2(6) = 2.51$	V = 0.14	0.865	Not Significant
OCP vs IUCD (N = 52)	Fisher–Freeman–Halton exact	$\chi^2(3) = 0.31$	V = 0.08	0.967	Not Significant

Table 7: Change in pain or discomfort by contraceptive type

Change	OCP (n = 32)	IUCD (n = 20)	Other (n = 8)	Total
No change	19 (59.4)	11 (55.0)	5 (62.5)	35
Less severe	7 (21.9)	6 (30.0)	3 (37.5)	16
More severe	6 (18.8)	3 (15.0)	0 (0.0)	9

Table 7a: Inferential tests

Comparison	Test	Statistic	Effect size	P	Inference
All three groups (N = 60)	Fisher–Freeman–Halton exact	$\chi^2(4) = 2.28$	V = 0.14	0.761	Not Significant
OCP vs IUCD (N = 52)	Fisher–Freeman–Halton exact	$\chi^2(2) = 0.47$	V = 0.10	0.856	Not Significant

Table 8: Level of satisfaction by contraceptive type

Satisfaction	OCP (n = 32)	IUCD (n = 20)	Other (n = 8)	Total
Very dissatisfied	1 (3.1)	2 (10.0)	1 (12.5)	4
Dissatisfied	2 (6.2)	1 (5.0)	1 (12.5)	4
Neutral	16 (50.0)	5 (25.0)	3 (37.5)	24
Satisfied	9 (28.1)	3 (15.0)	2 (25.0)	14
Very satisfied	4 (12.5)	9 (45.0)	1 (12.5)	14

Table 8a: Inferential tests

Comparison	Test	Statistic	Effect size	P	Inference
All three groups (N = 60)	Fisher–Freeman–Halton exact	$\chi^2(8) = 10.74$	V = 0.30	0.140	Not Significant
OCP vs IUCD (N = 52)	Fisher–Freeman–Halton exact	$\chi^2(4) = 9.06$	V = 0.42	0.044	Significant

4 DISCUSSION

This study set out to find out whether the type of contraceptive a woman uses is linked to changes in her menstrual cycle, pain and satisfaction. It involved 60 women of reproductive age in Port Harcourt, Nigeria. We looked at these characteristics because the menstrual cycle is now regarded as a vital sign of general health [1], and normal menstruation is described by its frequency, regularity, duration and volume [2,3]. Changes after starting contraception were common. Cycle length changed for 60.0% of women, flow for 53.3%, and both bleeding duration and pain for 41.7%. Even so, method type was significantly associated with just two outcomes: change in bleeding duration ($p = 0.005$) and, when OCP and IUCD users were compared directly, satisfaction ($p = 0.044$). Cycle length, flow and pain did not differ significantly by method. Most respondents used OCPs (53.3%) or an IUCD alone (33.3%), which matches the local picture. The IUCD made up 16.2% of family planning acceptors at the University of Port Harcourt Teaching Hospital between 1997 and 2006 [20], and it was the most preferred method (43%) at the Rivers State University Teaching Hospital between 2008 and 2017 [21,24]. Those figures come from different facilities and periods, so they cannot be compared directly with ours, but both methods are clearly popular in the city. Menstrual disturbance has also been reported as a leading complication of contraception among Nigerian women [11], which makes the findings relevant to counselling.

Bleeding duration showed the clearest difference between methods. Longer bleeding was reported by 35.0% of IUCD users, against 6.2% of OCP users and none of the women on other methods. Shorter bleeding was reported by 31.2% of OCP users and 10.0% of IUCD users (all three groups $p = 0.005$, OCP versus IUCD $p = 0.019$). In a prospective study of 1,947 first-time copper IUD users, bleeding and pain during menses declined over the first year, but spotting between periods did not improve and the number of days affected increased [9]. Combined OCPs tend to give a regular bleeding pattern, because the estrogen component balances the effect of the progestin on the endometrium [6], and combined hormonal contraceptives are used to reduce heavy menstrual bleeding [7]. Two women in the “Other” group reported no bleeding at all. That would fit the amenorrhoea that progestogen-only methods can cause, although our data do not tell us which methods they used. A systematic review found that only 23% of levonorgestrel implant users and 11% of DMPA users had normal menstrual patterns at 12 months [10]. Menstrual irregularity was the leading side effect and the commonest reason for removal among Jadelle users in Calabar [23], and side effects accounted for most discontinuation of injectables at a Port Harcourt teaching hospital [22].

Cycle length and flow did not differ significantly by method, but the pattern is still worth noting. OCP users more often reported shorter cycles (34.4% versus 10.0% for IUCD) and more regular cycles (15.6% versus 5.0%), while 55.0% of IUCD users reported no change in cycle length, compared with 31.2% of OCP users. The OCP versus IUCD comparison had a moderate effect size ($V = 0.35$) but did not reach significance ($p = 0.093$). With only 52 women in that comparison, this may reflect limited power and not a true absence of effect. Two features of the sample help explain the direction. First, before contraception 31.7% of women did not have cycles of 21 to 28 days (29 to 35 days in 16.7%, irregular in 11.7%, under 21 days in 3.3%). The “shorter” and “more regular” cycles on the pill may therefore reflect a move towards the regular withdrawal-bleed pattern of cyclic combined pills [6]. Second, for flow, 30.0% reported lighter and 16.7% heavier flow, with near-identical proportions of heavier flow among OCP (18.8%) and IUCD (20.0%) users ($p = 0.865$). Time since starting the method is a likely contributor. 36.7% had used their method for more than three years, and copper-IUD bleeding tends to settle with continued use [9], which would blunt differences among long-term users. The 6.7% who reported spotting between periods is also in keeping with reports that unscheduled bleeding is a recognised response to hormonal and intrauterine methods and a driver of dissatisfaction [12]. All of these outcomes were recalled retrospectively, and recalled cycle length is prone to reporting error that varies systematically with respondent characteristics [25]. Misclassification could therefore also have hidden real differences.

Pain showed no association with method ($p = 0.761$; OCP versus IUCD $p = 0.856$). Overall, 58.3% reported no change, 26.7% reported less severe pain and 15.0% more severe pain. The proportions were similar among OCP users (21.9% less, 18.8% more) and IUCD users (30.0% less, 15.0% more). Before contraception, 78.3% of women reported pain and 48.3% rated it moderate or severe. This is consistent with the high burden of dysmenorrhoea documented among Nigerian women [5] and worldwide, where prevalence ranges from 16% to 91% [4]. Randomised evidence shows that combined OCPs reduce dysmenorrhoea pain relative to placebo [8], and OCP use is inversely associated with dysmenorrhoea in population studies [4]. The improvement reported by about one in five OCP users is therefore plausible, although 59.4% reported no change and 18.8% reported worse pain. Pain during menses with the copper IUD has been shown to decrease over time [9]. Together with the long duration of use in our sample, this may explain why IUCD users did not report more pain than OCP users. Pain was recorded as a self-reported change and not as a scored measure, so small differences between methods would not have been picked up. Our data also cannot show whether the 15.0% reporting worse pain were affected by their method or simply by the natural course of dysmenorrhoea, which itself declines with age and parity [4].

Satisfaction was the second outcome to differ by method, but the evidence is weaker and needs careful interpretation. The OCP versus IUCD comparison was significant ($p = 0.044$, $V = 0.42$). It was driven by 45.0% of IUCD users being very satisfied compared with 12.5% of OCP users, half of whom (50.0%) were neutral. Across all three groups the difference was not significant ($p = 0.140$). Combining the upper categories, 60.0% of IUCD users were satisfied or very satisfied, compared with 40.6% of OCP users. This agrees with the Contraceptive CHOICE Project, in which more than 80% of IUD users were satisfied against 54% of OCP users, and 12-month continuation was 86% for long-acting methods against 55% for OCPs [14]. The continuation advantage persisted at 24 months [26] and at three years [27]. Poor continuation with the pill has long been linked to side effects. In a prospective cohort of 1,657 women, 37% of those who discontinued cited side effects [13], and counselling and compliance remain central to satisfaction with everyday pill use [28]. A study in Ibadan likewise found that up to 60% of women were satisfied with their method and that satisfaction was associated with compliance [29]. The IUCD advantage is not uniform, though. 10.0% of IUCD users were very dissatisfied against 3.1% of OCP users, and 35.0% reported longer bleeding. Bleeding changes are a well-documented cause of dissatisfaction and discontinuation [12], so satisfaction depends partly on whether the bleeding pattern matches what the woman expected. This is why counselling matters. Women want comprehensive information about side effects [15], and shared decision-making is associated with higher satisfaction with the method chosen [16]. Discontinuation and method switching are recognised problems in Port Harcourt [19], and 20.0% of our respondents had changed method at least once.

Several limitations qualify these findings. The sample was small ($N = 60$), and the "Other" group ($n = 8$) combined very different methods: dual IUCD and OCP users, hormonal implants and injectables (an injectable and Depo Provera were recorded separately, although Depo Provera is itself an injectable), a tubal ligation and a barrier method. Menstrual changes were self-reported and recalled retrospectively and not measured. The design was cross-sectional, and the respondents were current users, so women who stopped a method because of bleeding or dissatisfaction are not represented. This prevalent-user effect probably inflates satisfaction, particularly for methods with high continuation [26,27]. Exact tests suit the sparse cells, but the results were unadjusted for age, parity (70.0% had been pregnant), duration of use and baseline cycle, all of which influence dysmenorrhoea [4]. No correction was made for testing several outcomes. The borderline satisfaction result ($p = 0.044$), which was not significant in the three-group test, should therefore be treated as hypothesis-generating. Participants were also highly educated (90.0% held a first degree or higher), which limits generalisability. Within these limits, the study supports three practical points. Women choosing an IUCD should be told before insertion that longer bleeding is common. A method-specific difference in cycle length, flow or pain was not detected in this sample. And method choice should be made through shared decision-making that covers expected bleeding changes. Larger prospective studies are needed to confirm these associations, ideally using menstrual diaries, a documented device type and ordinal or multinomial models adjusted for confounders.

5 CONCLUSION

Conclusively, contraceptive type was significantly associated with duration of bleeding only ($p < 0.05$), with longer bleeding reported mainly by IUCD users (35.0%) compared with OCP users (6.2%) and users of other methods (0%). Cycle length, menstrual flow, pain and overall satisfaction did not differ significantly across the groups. Women should be counselled on the likelihood of longer bleeding before IUCD insertion, and larger prospective studies are needed to confirm these findings.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

The authors declare that they have no competing interests.

Author contributions

All authors contributed to conceptualisation, data collection, formal analysis, writing of the original draft and review and editing. All authors read and approved the final manuscript.

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