

Associations of safe-use knowledge and information pathways with regular oral contraceptive pill use among unmarried women in Kacyiru Community, Rwanda: a community-based cross-sectional study

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Abstract

Background

Oral contraceptive pills (OCPs) are among the most accessible and user-controlled contraceptive methods; however, their public-health value depends on correct and sustained use. In Rwanda, unmarried women face a dual challenge: practical access to contraception on one side and social discomfort, fragmented safe-use guidance, and misinformation on the other. This study assessed OCP safe-use knowledge, contraceptive experience, information pathways, and predictors of regular use among unmarried women of reproductive age living in Kacyiru Sector, Kigali.

Methods

We conducted a community-based cross-sectional survey of 215 unmarried women aged 16–49 years, recruited through community health workers between 24 March and 15 April 2024. The questionnaire used in this study was developed only for this study and has never been published elsewhere. A 15-item OCP safe-use knowledge scale was developed from Likert-scale items and converted to a 0–100 score; scores of at least 75 were classified as adequate. Analyses of use behaviour focused on the 209 respondents who reported ever using oral contraceptive pills. Descriptive statistics, bivariate tests, and multivariable logistic regression were used. The main behavioural outcome was regular OCP use among women who had ever used OCPs.

Results

Mean participant age was 30.4 years. All respondents reported prior sexual intercourse and contraceptive experience, and 209/215 (97.2%) had used OCPs. The mean knowledge score was 67.4/100 (95% confidence interval [CI] 65.8–69.1), and only 63/215 (29.3%) reached the adequate-knowledge threshold. Among OCP users, 102/209 (48.8%) reported regular use; 96 of the 107 non-regular users (89.7%) described at least one episodic, sex-linked timing pattern -before sex, after sex, or both rather than regular use. First advice from a specialised nurse or pharmacist was independently associated with regular use (adjusted OR 2.83, 95% CI 1.45–5.53; $p = 0.002$), whereas first sex before age 18 was associated with lower odds of regular use (adjusted OR 0.39, 95% CI 0.19–0.82; $p = 0.012$). Knowledge score was not associated with regular use.

Conclusions

The primary gap identified was not OCP awareness, but rather the conversion of access into safe-use literacy and regular use. Strengthening confidential, youth-responsive, provider-led contraceptive

guidance at the first point of contact therefore represents a high-impact opportunity to improve correct use.

Background

Access to contraception enables people to decide whether and when to become pregnant and supports health, education, economic participation and reproductive autonomy [1–3]. Access alone, however, does not guarantee effective use. The effectiveness of oral contraceptive pills (OCPs) depends on adherence to the prescribed dosing schedule; delayed or missed active pills can compromise pregnancy prevention, while OCPs offer no protection against sexually transmitted infections [4]. The quality and usability of information therefore matter as well as physical availability.

Studies of OCP users have repeatedly documented gaps between awareness and practice. Knowledge of pill use has been linked to continuation, while inconsistent pill-taking and imprecise measurement of adherence complicate both care and research [4–6]. A recent study in Lebanon similarly found substantial misinformation and argued for accurate, patient-centred information at the point of decision-making [7]. These findings reveal a practical paradox: access and basic awareness do not necessarily translate into practical safe-use knowledge. A woman may know that pills prevent pregnancy and still lack essential information about the specific product she is using, the correct dosing schedule, how to respond to a missed dose, and when symptoms or uncertainty should prompt clinical advice.

Rwanda provides a suitable setting for examining this paradox. The 2022 Population and Housing Census described a young and growing population, with females comprising slightly more than half of the population and a substantial proportion of women being of reproductive age [8]. Against this demographic backdrop, Rwanda has made considerable progress in family planning. The 2019-20 Rwanda Demographic and Health Survey (RDHS) reported that 64% of currently married women were using a contraceptive method, including 58% who were using a modern method, while the total fertility rate stood at 4.1 children per woman [9]. More recently, the 2025 RDHS documented further progress, with contraceptive use among currently married women increasing to 69% for any method and 64% for modern methods, alongside a decline in the total fertility rate to 3.7 children per woman [10]. However, the OCP remains a relatively modest component of the national contraceptive method mix, reported at 7% among currently married women, while contraceptive use in Kigali remains lower than in some other provinces [10].

However, national progress can obscure important method-specific challenges. Evidence from Rwanda suggests that sustained contraceptive use depends not only on access to a method but also on the quality of safe-use advice and support that users receive from specialised providers. Rwandan contraceptive methods providers and users have described safe-use advice, side-effect support, and method switching as important strategies for preventing contraceptive discontinuation [11]. Other research from Rwanda indicates that unmarried and adolescent users may encounter moral judgement when seeking contraception, even where providers recognise their contraceptive needs [12]. Together,

these patterns highlight the need to move beyond general awareness or reported use of OCPs and examine whether women receive method-specific information in forms that enable regular, safe, and confident use.

This service context is shaped by social norms. A qualitative study with contraceptive users and family planning providers conducted in one of the districts in Northern and Western provinces in Rwanda identified restrictive gender norms as barriers to sexual and reproductive health information, autonomy and service use [13]. Qualitative work in Rwanda and neighbouring settings likewise describes stigma, privacy concerns, family communication and provider behaviour as interacting influences on care-seeking [14–16]. These influences may be particularly salient for unmarried women, who may face both practical questions about method use and social discomfort when seeking them.

Other research has also shifted attention from contact with services to the quality of contraceptive care. Patients value respectful, confidential and non-judgemental encounters in which providers listen, explain options and support autonomy [17]. Contemporary patterns of hormonal contraceptive choice further underline that OCP use occurs within a broader method mix and can serve contraceptive or non-contraceptive purposes [18]. Measuring whether information came from a formal source is therefore insufficient; the first advice encounter may be more consequential if it converts information into a regimen the user can understand and follow.

This study assessed OCP safe-use knowledge, information sources, first-use advice, and self-reported use patterns among unmarried women of reproductive age in the Kacyiru community, Kigali. We also examined factors associated with adequate knowledge and regular OCP use. By focusing on an already contraception-experienced sample, the study addresses a distinct question: where does the pathway from access to supported use break down, and which points of contact are most promising for improvement?

Methods

Study design and setting

This community-based cross-sectional quantitative study was conducted in the Kacyiru Sector, Rwanda. Kacyiru is a 100% urban sector located in Gasabo District, in the Centre of the Capital City, Kigali [19], and is the neighbourhood where King Faisal Hospital Rwanda is located, making it a relevant setting for examining community-level information pathways and the potential linkage between referral-hospital expertise and everyday contraceptive literacy.

Study population

The target population comprised unmarried women aged 16–49 years living in the Kacyiru community. Unmarried women were defined as those in reproductive age and not in a legally recognised marital

union with a male partner. Respondents were eligible if they were female, aged 16–49 years, unmarried, resident in the study area, and able to provide informed consent.

Sampling and sample size

Because the size of the eligible target population and the expected proportion of the primary outcome were unknown, the minimum sample size was estimated using the single-population-proportion formula: $n = z^2 p (1 - p) / d^2$. Assuming a 95% confidence level ($z = 1.96$), an expected proportion of 50% ($p = 0.50$) to provide the maximum variance, and a 7% margin of error ($d = 0.07$) [20], the minimum required sample size was 196 participants. Recruitment continued beyond this minimum, yielding an analytic sample of 215 participants with complete questionnaire data. Participants were recruited at the household level in Kacyiru through the established network of Community Health Workers (CHWs). Eligible and consenting women identified during household recruitment were enrolled consecutively until the required sample size had been exceeded.

Data collection instrument

The questionnaire used in this study was developed only for this study and has never been used or published elsewhere (see supplementary material 1). Trained research assistants administered a structured, bilingual (English/Kinyarwanda) questionnaire using KoboToolbox on an EU-based server. The respondent section captured age, education, residence, living arrangement, employment status, and primary source of livelihood. The knowledge section comprised 15 Likert-type statements on contraception and OCP safe use, covering advice-seeking, effectiveness when used as prescribed, misconceptions about reproductive harm, stigma-related purchasing behaviour, and pill sharing. The experience section captured sexual and contraceptive history, methods ever used, reasons for choosing OCPs, first source of advice, regular use, and timing patterns relative to sexual activity among non-regular users.

Variables and outcome definitions

The primary behavioural outcome was regular OCP use among respondents who reported ever using OCPs. The secondary outcome was adequate knowledge of OCP safe use. Likert responses to the 15 knowledge items were scored from 1 to 5, with misconception items reverse-coded so that higher values consistently represented safer knowledge; the summed scale was transformed to a 0-100 score, and adequate knowledge was defined a priori as $\geq 75/100$. Professional first advice was defined as first advice from a specialised nurse at a health facility or from a pharmacist. A formal information source was defined as a health facility, specialised personnel, or a community health worker. Financial independence was defined as deriving one's primary means of living from a wage, salary, or business rather than from support by others.

Statistical analysis

Data cleaning and analysis followed reproducible statistical scripts. Categorical variables are reported as frequencies and percentages; continuous variables as means with 95% confidence intervals or medians with interquartile ranges (IQR). Chi-square or Fisher's exact tests were used for categorical comparisons. Multivariable logistic regression estimated adjusted odds ratios (aORs), 95% confidence intervals (CIs), and p-values for adequate knowledge and for regular OCP use. Model performance was assessed using McFadden's pseudo- R^2 , the area under the receiver operating characteristic curve (AUC), and collinearity checks. Reporting followed established principles for observational studies [18]. Analyses were performed in Python 3.12 with pandas, SciPy, and scikit-learn.

Ethical considerations

The study was approved by the King Faisal Hospital Rwanda Research and Ethics Committee and endorsed by the Rwanda National Ethics Committee (IRB 00001497 of IORG0001100) prior to data collection. All respondents provided informed consent. Responses were de-identified, each participant was assigned a study code, and the questionnaire was designed to avoid emotional discomfort; participants could pause or withdraw at any time. The study was conducted in accordance with the Declaration of Helsinki.

Results

Sociodemographic characteristics of the participants

A total of 215 unmarried women participants completed the survey, collected between 24 March and 15 April 2024; the study sample characteristics are shown in Table 1.

Table 1
Sociodemographic profile of respondents (N = 215)

Characteristic	Category	n	%
Age group	16–24 years	48	22.3
	25–34 years	110	51.2
	35–49 years	57	26.5
Education	No education	14	6.5
	Primary	123	57.2
	Secondary	69	32.1
	Tertiary	9	4.2
Cell of residence	Kamatamu	79	36.7
	Kibaza	75	34.9
	Kamutwa	61	28.4
Living arrangement	Alone in an apartment	89	41.4
	Family house with adults	69	32.1
	Apartment with others older	28	13.0
	Apartment with peers/younger	21	9.8
Employment status	Employed / self-employed	128	59.5
	Unemployed / student	87	40.5
Main means of living	Wage, salary or business	137	63.7
	Support from others	78	36.3

Percentages are column-wise within each characteristic; components may not sum to 100 owing to rounding or unreported categories.

The mean age was 30.4 years (95% CI 29.5–31.4; range 16–49). The median age at first sexual intercourse was 19 years (IQR 17–21), and 56/215 respondents (26.0%) reported first sex before age 18.

Contraceptive experience and OCP use

All respondents reported ever having had sexual intercourse and ever using contraception, and OCP exposure was very high: 209/215 (97.2%) had ever used OCPs. Among these users, 102/209 (48.8%) reported taking pills regularly. The pattern among non-regular users was striking; of the 107 who did not take pills regularly, 96 (89.7%) reported at least one episodic, sex-linked timing pattern (before, after, or

both) rather than daily use (Table 2). This indicates that a considerable share of users may treat OCPs as event-linked contraception rather than as a method that requires consistent daily use.

Table 2
Contraceptive experience indicators

Indicator	n	Denominator	%
Ever had sexual intercourse with a male	215	215	100.0
Ever used any contraceptive method	215	215	100.0
Ever used OCPs	209	215	97.2
Regular OCP use among OCP users	102	209	48.8
Non-regular users taking pills before sex	55	107	51.4
Non-regular users taking pills after sex	46	107	43.0
Non-regular users taking pills before and after sex	45	107	42.1
Any episodic timing pattern among non-regular users	96	107	89.7

Timing questions were asked only of respondents who reported not taking OCPs regularly.

Reasons for choosing OCPs

Perceived effectiveness and affordability were the most common reasons for choosing OCPs, each cited by 45/209 users (21.5%); a further 38/209 (18.2%) felt OCPs suited their body best. Only 24/209 (11.5%) selected a medical specialist's recommendation as their main reason, and just 6/209 (2.9%) cited a friend's recommendation (Table 3). This highlights that the choice of method was driven more by pragmatic considerations than by professional advising.

Table 3
Main reason for choosing OCPs among OCP users (N = 209)

Reason	n	%
Most effective	45	21.5
Less expensive	45	21.5
Works better with my body	38	18.2
Recommended by a medical specialist	24	11.5
Other	20	9.6
Only method available locally	19	9.1
Only method I am aware of	12	5.7
Recommended by a friend	6	2.9

Sources of information and first-use advice

Formal and semi-formal channels dominated the information landscape: health facilities or specialised personnel were reported by 123/209 users (58.9%) and community health workers by 76/209 (36.4%). Peer sources nonetheless remained visible, cited by 42/209 (20.1%). First-use advice was more concentrated – 103/209 (49.3%) first sought advice from a specialised nurse and 24/209 (11.5%) from a pharmacist -but a sizeable minority, 40/209 (19.1%), sought no advice at all when first using OCPs (Table 4).

Table 4
Reported sources of OCP information among OCP users (N = 209)

Source	n	%
Health facility / specialised personnel	123	58.9
Community health worker	76	36.4
Radio	52	24.9
A friend/peer	42	20.1
No place to find information	19	9.1
Television	16	7.7
Social media	16	7.7
Parent/family	12	5.7

Multiple responses were permitted; percentages therefore do not sum to 100.

OCP safe-use knowledge

The mean safe-use knowledge score was 67.4/100 (95% CI 65.8–69.1), and the median was 66.7 (IQR 61.7–75.0). Only 63/215 respondents (29.3%) reached the adequate-knowledge threshold of $\geq 75/100$. Internal consistency of the 15-item scale was moderate (Cronbach's $\alpha = 0.618$), improving to 0.666 when a conceptually ambiguous item -on not needing contraception when sex is unplanned- was excluded (Table 5).

Table 5
OCP safe-use knowledge scale summary

Metric	Value
Knowledge scale items	15 Likert items; misconception items reverse-coded
Scale range	0–100
Mean score (95% CI)	67.4 (65.8–69.1)
Median (IQR)	66.7 (61.7–75.0)
Adequate-knowledge threshold	$\geq 75/100$
Adequate knowledge, n/N (%)	63/215 (29.3%)
Cronbach's α	0.618
Cronbach's α excluding ambiguous item	0.666

Item-level performance revealed a split knowledge profile. Almost all respondents recognised that OCPs are effective when used as prescribed (94.4%) and that pills should not be shared with a friend (89.3%). Yet fewer than half gave a safety-consistent response to statements on reproductive harm from misuse or on the possibility of harm from correctly prescribed use -a pattern that points to persistent confusion between side effects, misuse, and long-term reproductive safety (Table 6).

Table 6
Item-level knowledge performance (N = 215)

Knowledge statement	Correct n	Correct %
It is good to seek advice before using contraception	204	94.9
OCPs are effective when used as prescribed	203	94.4
Sharing contraceptive pills with a friend is acceptable (false)	192	89.3
Contraceptives are only for married women (false)	175	81.4
Unprotected sex is acceptable regardless of contraception (false)	171	79.5
Better to send someone else to buy OCPs out of fear (false)	166	77.2
One can become pregnant without contraception	166	77.2
OCPs are useless (false)	154	71.6
No need to ask for OCP information after buying (false)	124	57.7
OCPs may only be taken 8 hours after sex (false)	123	57.2
OCPs prevent young women from enjoying sex (false)	119	55.3
Reproductive health should not be discussed with parents (false)	117	54.4
Misuse cannot harm reproductive health (false)	105	48.8
No sex planned means no need for contraception (ambiguous)	104	48.4
Correctly prescribed contraceptives harm reproductive health (false)	90	41.9

For false statements, disagreement was treated as knowledge-consistent; neutral responses were not coded as correct.

Factors associated with knowledge and regular use

None of the prespecified variables was clearly associated with adequate knowledge after adjustment (Table 7). The model had limited explanatory value (McFadden pseudo- $R^2=0.021$) and weak apparent discrimination (AUC = 0.599). This result cautions against treating exposure to a formal information channel as evidence that usable knowledge was received.

Table 7
Factors associated with adequate knowledge

Variable	aOR (95% CI)	p value
Age, per 5-year increase	0.85 (0.67–1.07)	0.168
Secondary/tertiary vs lower education	0.96 (0.51–1.84)	0.912
Financially independent vs dependent	1.07 (0.55–2.07)	0.845
Formal OCP information source	1.06 (0.53–2.15)	0.865
Professional first advice	1.40 (0.71–2.75)	0.333
First sex before age 18	1.69 (0.88–3.26)	0.116

N = 215. Outcome: Knowledge Score $\geq$ 75/100. aOR, adjusted odds ratio; CI, confidence interval. McFadden pseudo- R^2 =0.021; apparent AUC = 0.599.

Professional first advice was associated with higher odds of regular OCP use (aOR 2.85, 95% CI 1.46–5.58; p = 0.002). First sex before age 18 (aOR 0.39, 95% CI 0.19–0.82) and secondary/tertiary education (aOR 0.50, 95% CI 0.26–0.96) were associated with lower odds. Formal information showed a positive but imprecise association (aOR 2.02, 95% CI 0.99–4.12). Knowledge score was not associated with regular use (Table 8). The model's McFadden pseudo- R^2 was 0.156, and its apparent AUC was 0.755.

Table 8
Factors associated with regular OCP use

Variable	aOR (95% CI)	p value
Age, per 5-year increase	1.25 (1.00–1.56)	0.054
Secondary/tertiary vs lower education	0.50 (0.26–0.96)	0.037
Knowledge score, per 10 points	0.95 (0.74–1.21)	0.676
Formal OCP information source	2.02 (0.99–4.12)	0.053
Professional first advice	2.85 (1.46–5.58)	0.002
OCP chosen on specialist recommendation	2.47 (0.87–7.01)	0.089
First sex before age 18	0.39 (0.19–0.82)	0.013

N = 209 lifetime OCP users; 102 reported regular use. aOR, adjusted odds ratio; CI, confidence interval. McFadden pseudo- R^2 =0.156; apparent AUC = 0.755.

Discussion

Main findings

This study identifies a gap between access to OCPs and supported use in a community sample deliberately enriched for contraceptive experience. Fewer than one-third of participants reached the prespecified knowledge threshold, fewer than half of lifetime OCP users described their use as regular, and almost nine in ten non-regular users reported taking pills in relation to sex. The strongest actionable association was with the first advice encounter: respondents who first consulted a specialised nurse or pharmacist had almost three times the adjusted odds of reporting regular use. By contrast, the knowledge score was not associated with regular use, and the variables available in the survey explained little variation in adequate knowledge.

These results do not show that professional advice causes regular use. Women who seek professional advice may differ in motivation, health needs, access, method type or prior experience. Nevertheless, the magnitude and precision of the association, together with the weaker association for simply naming a formal information source, suggest a useful service hypothesis: a specific, trusted interaction at initiation may be more important than passive exposure to information.

Relationship with existing evidence

The findings are consistent with evidence that OCP knowledge is associated with continuation, and that inconsistent pill-taking is a meaningful contributor to contraceptive-failure risk [5–7]. They also resonate with sub-Saharan African research showing that SRH service use among adolescents and young women is shaped by privacy concerns, stigma, parent-adolescent communication, provider attitudes, and the service environment [12–15]. The present study adds a focused Rwandan community-level contribution: among unmarried women already exposed to contraception, the decisive question may not be whether OCPs are available, but whether the first contact with the method conveys enough trust and detail to support correct use.

The finding on first advice is consistent with Rwandan qualitative evidence that providers can support continuation by preparing users for side effects, arranging resupply and helping dissatisfied users switch methods rather than abandon contraception [12]. It also fits a broader quality-of-care literature in which patients value confidentiality, respect, clear explanations and autonomy-supportive counselling [21]. For unmarried women, those interpersonal qualities are likely to determine whether a technical explanation is heard as useful guidance or moral judgement [13, 22, 23].

The event-linked timing responses require particular caution. Current WHO guidance describes combined and progestin-only contraceptive pills as daily methods whose effectiveness falls with missed or late doses [3, 24]. Emergency contraceptive pills, in contrast, are used after intercourse. Because the questionnaire asked only about “oral contraceptive pills” and did not record product or formulation, we cannot determine whether respondents misunderstood a daily regimen, intentionally used emergency contraception, alternated products, or interpreted the survey item differently. The data therefore signal possible method conflation, not proven misuse. That measurement gap is itself programme-relevant: counselling and future surveys should begin by identifying the exact pill and indication.

Professional advice cannot be reduced to a message to take pills regularly. Safe contraceptive care requires eligibility assessment, informed choice and method-specific instructions [12, 24]. It must also acknowledge that some women use hormonal contraception for menstrual or other non-contraceptive reasons [25]. A high-quality first encounter should therefore establish the user's goal, identify the product, explain the regimen and missed-dose response, discuss common side effects and warning signs, clarify STI protection, offer condoms where appropriate, and provide a confidential route for follow-up.

The lower adjusted odds of regular use among respondents with secondary or tertiary education were unexpected and should not be interpreted as a harmful effect of education. Education may proxy for age cohort, employment schedules, non-contraceptive indications, method switching, access to emergency contraception, or preferences not measured in the questionnaire. Similarly, the association with first sex before age 18 may reflect a longer or more complex reproductive history, vulnerability, coercion, or differential contact with youth-responsive care; the survey cannot distinguish these pathways. Rwandan evidence shows that recall and interpretation of first sex can itself be difficult in youth surveys [11]. These findings should guide qualitative enquiries rather than immediate targeting based on education or sexual history.

Implications for services and decision-making

For Kacyiru and similar urban settings, the immediate implication is to improve what happens at first OCP contact. Health facilities and pharmacies could use a short, standardised initiation checklist covering product identification, purpose, daily schedule, missed-pill actions, side effects, danger signs, emergency contraception, condoms and follow-up. Community health workers could provide non-judgemental referral and reinforce key messages without substituting for clinical eligibility assessment. Materials should be discreet and available in Kinyarwanda, with a private channel for questions.

Family planning programme monitoring should move beyond counting commodities or counselling contacts. Feasible quality indicators include the proportion of first-time users whose exact pill was identified, who received missed-dose instructions, who demonstrated the regimen by teach-back, and who knew where to seek confidential follow-up. A prospective pilot could compare comprehension, continuation, correct product-specific use and method switching before and after the package. Such an evaluation is necessary before inferring that the counselling package improves outcomes.

At policy level, the findings support integrating person-centred OCP guidance into pharmacy practice, community referral and youth-responsive sexual and reproductive health services. This recommendation is not an argument to privilege pills over other methods. It is an argument that every method offered should be accompanied by enough specific information for an informed, autonomous choice and safe use.

Strengths and limitations

The study used primary community survey data from a setting where unmarried females' contraceptive knowledge is under-documented. The questionnaire captured both knowledge and experience, allowing the analysis to connect information pathways with use behaviour. The analysis also moved beyond descriptive percentages by constructing a knowledge score, examining item-level misconceptions, and modelling predictors of regular use.

The study also has important limitations. First, the non-probability sample consisted entirely of sexually experienced, contraception-experienced respondents, and 97.2% reported lifetime OCP use. These proportions must not be generalised to all unmarried women in Kacyiru, Kigali or Rwanda. Second, cross-sectional associations do not establish direction or causality, and unmeasured confounding is likely. Third, sexual and contraceptive histories were self-reported and may be affected by recall, social desirability or question interpretation.

Fourth, the regular-use outcome was a single, unvalidated yes/no item with no time window, pill count or pharmacy confirmation. The questionnaire did not identify pill type, so event-linked responses may represent emergency contraception rather than irregular daily OCP use. Fifth, the questionnaire was study-developed; the knowledge module internal consistency was moderate (alpha 0.656), the 75-point threshold was author-defined rather than externally validated, and one item was conceptually ambiguous (see supplementary material 1). Sixth, model performance was assessed rather than externally validated, and the exploratory p-values were not adjusted for multiple comparisons. Seventh, the age-at-first-sex range included very early values that could not be independently verified. Finally, convenience recruitment through community health workers may introduce selection effects that limit generalisability.

Conclusions

Among unmarried women of reproductive age in this analytic sample, OCP exposure was near-universal, but safe-use literacy and regular use were markedly lower. Professional first advice was the clearest predictor of regular use, while basic sociodemographic and information-source variables did little to explain adequate knowledge. The next frontier is therefore not merely making OCPs available, but making their use understandable, confidential, and supported from the very first point of contact.

Abbreviations

aOR: Adjusted odds ratio

AUC: Area under the receiver operating characteristic curve

CHW: Community Health Worker

CI: Confidence interval

IQR: Interquartile Range

IRB: Institutional Review Board

KFH: King Faisal Hospital Rwanda

OCP: Oral Contraceptive Pill

RDHS: Rwanda Demographic and Health Survey

SRH: Sexual and Reproductive Health

SRHR: Sexual and Reproductive Health and Rights

Declarations

Ethics approval and consent to participate

The study was approved by the King Faisal Hospital Rwanda Research and Ethics Committee and endorsed by the Rwanda National Ethics Committee (IRB 00001497 of IORG0001100). Informed consent was obtained from every participant before completing the questionnaire; for participants under 18 years of age, consent was additionally obtained from a parent or legal guardian. The study was conducted in accordance with the Declaration of Helsinki.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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Author Contribution

GN conceived and designed the study, supervised data collection, and contributed to critical revision. FR designed the study, supervised data collection, conducted data analysis and interpretation, and drafted the manuscript. EB contributed to data collection and manuscript revision. All authors read and approved the final manuscript.

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Data Availability

The de-identified dataset supporting the findings of this study is available from the corresponding author on reasonable request, subject to institutional data-sharing requirements and the conditions of ethical approval.

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