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Contraceptive Use and Associated Factors Among People Living with HIV/AIDS Attending an Anti-Retroviral Therapy Centre in Central India

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ABSTRACT

Introduction:

India is home to approximately 2.47 million people living with HIV (PLHIV), and the increasing availability of antiretroviral therapy (ART) has contributed to a decline in AIDS-related mortality. However, unintended pregnancies among PLHIV continue to pose a public health challenge. While ART services are well-established, the integration of family planning (FP) services remains suboptimal, particularly for individuals outside key populations. This study aimed to assess patterns of contraceptive usage and explore associated socio-demographic and clinical factors among PLHIV in Central India.

Methods

A cross-sectional study was conducted among 168 HIV-positive individuals attending the ART Centre to evaluate changes in contraceptive use before and after HIV diagnosis, identify factors influencing current use, and explore key barriers among non-users. Participants were selected using purposive sampling and interviewed using a structured, pre-tested questionnaire. Data were analysed using SPSS version 25, applying descriptive statistics and chi-square tests to examine associations, with a p-value of < 0.05 considered statistically significant.

Results

Contraceptive use increased significantly after HIV diagnosis, rising from 35.1% to 78.0%. Condoms remained the most used method both before and after diagnosis. Additionally, the use of oral pills, copper-T, injectables, and natural methods increased post-diagnosis, indicating diversification of contraceptive methods. Education ($p = 0.021$) and spouse's HIV status ($p = 0.03$) were significantly associated with current contraceptive use. Among non-users, key barriers included irregular sexual activity (43.2%), partner discordance (27%), and fear of side effects (10.8%).

Conclusion

The study highlights a promising increase in contraceptive uptake among PLHIV following diagnosis. However, persistent barriers and limited method choices underscore the need for integrated, client-centred FP services within ART centres. Addressing misinformation, involving partners, and strengthening education-focused counselling could contribute to improved contraceptive outcomes for PLHIV.

Keywords: PLHIV, Sexual and reproductive health, condoms

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INTRODUCTION

According to the National AIDS Control Organization (NACO), India had approximately 2.47 million people living with HIV (PLHIV) in 2023, with an adult HIV prevalence of 0.20%, marking a significant decline from 0.55% in 2000. This trend reflects a steady and sustained reduction in the HIV epidemic over recent years[1,2]. Since 2010, new HIV infections have declined by 46% and AIDS-related deaths by 76%, largely due to the provision of free antiretroviral therapy (ART) to over 1.67 million PLHIV. This has led to significant improvements in survival and quality of life. However, heterosexual transmission continues to be the predominant mode of HIV transmission in India[1,3]. A single unprotected sexual act carries a substantially higher risk of pregnancy (3.5%) compared to the risk of HIV transmission (0.04%), highlighting the critical need for effective contraception among people living with HIV (PLHIV). Multiple studies have reported that a significant proportion of pregnancies in this population are unplanned and often unwanted, resulting in increased health risks for both mothers and their infants[4,5]. Preventing such pregnancies is a core strategy in the WHO's four-pronged approach to preventing mother-to-child transmission (PMTCT) and is central to the Elimination of MTCT (EMTCT) goals[6]. Despite increasing recognition of sexual and reproductive health (SRH) as a component of comprehensive HIV care, the SRH needs of PLHIV—especially those outside traditional high-risk groups such as sex workers, Men having sex with men (MSM), or Intravenous drug user (IDUs)—remain underserved in public health programming[4,5].While ART is widely available through India's national program, family planning (FP) counselling and services are still poorly integrated into ART centres, resulting in fragmented care [2,4]. Studies report that PLHIV, particularly women, face barriers such as stigma, lack of privacy, limited Contraceptive method options, and inadequately trained providers, all of which limit their access to contraception[5,6]. Contraceptive use plays a dual role—supporting reproductive autonomy while contributing to public health goals by preventing HIV transmission and unintended pregnancies[5]. Lack of access to FP services is associated with higher maternal morbidity, increased perinatal transmission risk, and psychosocial burden due to unplanned parenthood[4,6]. Conversely, when PLHIV receive respectful, confidential, and comprehensive contraceptive counselling, they are more likely to adopt dual protection strategies, such as condom use, which prevents both pregnancy and HIV/STI transmission[4]. Addressing these unmet SRH needs through integrated, culturally sensitive, and evidence-based approaches within ART services is vital to improving maternal and child health outcomes and advancing India's national and global HIV commitments[6]. This study, therefore, aims to assess patterns of contraceptive use among PLHIV before and after HIV diagnosis, and to explore the socio-demographic and clinical factors influencing current contraceptive use in Ujjain District, Central India

Table 1: Socio-Demographic Profile of Study Participants (N = 168)

Socio-demographic Profile		Frequency	Percentages
Age Group	20-30 years	54	32.10%
	31-40 years	82	48.80%
	> 40 years	32	19.00%
Gender	Male	72	42.90%
	Female	96	57.10%
Religion	Hindu	152	90.50%
	Muslim	16	9.50%
Education	Literate	96	57.10%
	Illiterate	72	42.90%
Occupation	Skilled worker	52	31.00%
	Unskilled worker	68	40.50%

	Homemakers	48	28.60%
SES	Lower class	108	64.30%
	Middle class	42	25.00%
	Upper class	18	10.70%

SES- Socio-economic status

Methodology

This study aimed to assess changes in contraceptive use before and after HIV diagnosis, identify socio-demographic and clinical factors influencing current contraceptive use among PLHIV, and explore key barriers to contraceptive use among non-users.

Participant selection

This cross-sectional study was conducted at the Antiretroviral Therapy (ART) Centre of a tertiary care centre and teaching institute in central India. The study population comprised HIV-positive men and women aged 18 years and above who had been aware of their HIV status for at least six months prior to the study. Participants were eligible if they were mentally and physically capable of understanding the study and provided written informed consent. Individuals were excluded if they were below 18 years of age, had been on ART for less than six months, had a diagnosed mental illness or communication barrier, or did not consent to participate. A total of 168 participants were recruited using purposive sampling, selected based on their attendance at the ART centre during the study period and their willingness to participate. This non-probability sampling method was adopted to ensure the inclusion of participants with varied socio-demographic characteristics and contraceptive experiences.

Data Collection and Measurements

Data were collected using a structured, pretested questionnaire designed in simple, locally understandable language and aligned with the study objectives. The questionnaire captured comprehensive information on socio-demographic characteristics, contraceptive knowledge, usage patterns (before and after HIV diagnosis), and factors influencing contraceptive behaviour. Prior to the main study, the tool was pretested on a subset of participants with similar characteristics to ensure clarity, reliability, and contextual relevance. Following data collection, each questionnaire was carefully reviewed for completeness and internal consistency.

Data Analysis

Data were coded and inserted into IBM SPSS Statistics for Windows, Version 25.0. Descriptive statistics such as frequencies and percentages were used to summarize socio-demographic variables and patterns of contraceptive use. Comparative analysis was performed to assess changes in contraceptive behaviour before and after HIV diagnosis. To examine associations between categorical variables—such as age group, gender, education level, occupation, socio-economic status, time since HIV diagnosis, spouse HIV status, and HIV clinical stage—and the current utilization of family planning methods, the Chi-square test of independence was applied. A p-value of <0.05 was considered statistically significant.

Ethical Approval

The study received ethical approval from the Institutional Ethics Committee of R.D. Gardi Medical College, Ujjain. Participation was strictly voluntary, and the right to withdraw from the study at any point without affecting their treatment was assured. Confidentiality was ensured by conducting interviews with PLHIV in a private setting with only the principal investigator present, assigning unique identification codes to each participant, and securely storing all data with access limited to the research team

Table 2: HIV-Related Characteristics of Study Participants (N = 168)

HIV Related Information		Frequency	Percentages
Time Since Diagnosis	< 2 years	34	20.2%
	2-5 years	64	38.1%
	6-10 years	52	31.0%
	> 10 years	18	10.7%
Spouse HIV status	Positive	113	67.3%
	Negative	33	19.6%
	Not Known	4	2.4%
	Unmarried	18	10.7%
Current HIV Stage	1	145	86.3%
	2	8	4.8%
	3	12	7.1%
	4	3	1.8%

Results

In this study, most participants were aged 31–40 years (48.8%), female (57.1%), and Hindu (90.5%). Over half were literate (57.1%), and the majority were unskilled workers (40.5%). Most belonged to the lower socioeconomic class (64.3%). A large proportion had been diagnosed with HIV for 2–5 years (38.1%) and were in clinical Stage 1 (86.3%). The majority had HIV-positive spouses (67.3%), while others had HIV-negative (19.6%), unknown-status (2.4%) partners, or were unmarried (10.7%). Contraceptive use increased significantly after HIV diagnosis, from 35.1% to 78.0%. Condoms remained the most used method both before (65.0%) and after diagnosis (46.9%), with a post-diagnosis rise in oral pills (23.1%), natural methods (12.3%), copper T (9.2%), and injectables (8.5%). No significant association was found between contraceptive use and age, gender, religion, occupation, or socioeconomic status ($p > 0.05$). However, education ($p = 0.021$) and spouse HIV status ($p = 0.03$) were significantly associated with use. Among non-users, key barriers included irregular sexual activity (43.2%), discordant or unknown partner status (27.0%), spouse refusal and fear of side effects (10.8% each), and other reasons (8.1%).

Table 3: Association between Socio-Demographic Variables and Current Utilization of Family Planning Methods

Socio-demographic Variables		Current Utilization of Family Planning Method				P Value
		YES		NO		
		Frequency	Percentages	Frequency	Percentages	
Age Group	20-30 years	38	29.0%	16	43.2%	0.237
	31-40 years	66	50.4%	16	43.2%	
	> 40 years	27	20.6%	5	13.5%	
Gender	Male	58	44.3%	14	37.8%	0.485
	Female	73	55.7%	23	62.2%	
Religion	HINDU	116	88.5%	36	97.3%	0.109
	MUSLIM	15	11.5%	1	2.7%	
Education	Literate	81	61.8%	15	40.5%	**0.021***
	Illiterate	50	38.2%	22	59.5%	
Occupation	Skilled Worker	41	31.3%	11	29.7%	0.839
	Unskilled worker	54	41.2%	14	37.8%	
	Homemakers	36	27.5%	12	32.4%	

SES	LOWER CLASS	85	64.9%	23	62.2%	0.832
	MIDDLE CLASS	33	25.2%	9	24.3%	
	UPPER CLASS	13	9.9%	5	13.5%	

SES- Socio economic status

DISCUSSION

The present study provided important insights into contraceptive use among PLHIV , revealing an encouraging trend of increased contraceptive uptake post-diagnosis and emphasizing the role of education and partner concordance in influencing contraceptive behaviour. These findings align with and diverge from previous research, offering scope for both affirmation and critical reflection. Contraceptive uptake in the cohort rose significantly post-HIV diagnosis (from 35.1% to 78.0%), mirroring the findings of Chakrapani et al[7], who observed a rise from 28% to 95% in India post-diagnosis, driven primarily by condom use. This increase in use underscores the impact of HIV counselling and integration with ART services in sensitizing PLHIV about reproductive choices. Similarly, Joshi et al[8] reported a sharp increase in condom use from 5.7% to 71.7% post-diagnosis among HIV-positive women in Mumbai, with 89.6% reporting regular usage. Dugg et al[9]. in East Delhi observed that 74.5% of women living with HIV used some form of contraception, with counselling at ART centres significantly contributing to this uptake. They also noted that 17% still had unmet needs, indicating that while ART access improved contraceptive behaviour, gaps remain in addressing individualized needs.In terms of method diversification, the present study observed increased adoption of oral pills, Copper-T, injectables, and natural methods post-diagnosis, indicating a broadening of contraceptive options beyond condoms. However, consistent with the national pattern, condoms remained the predominant choice. Joshi et al[8]. also noted that although awareness of modern contraceptives was high, misconceptions regarding the harmfulness of non-condom methods were prevalent, especially among women—42.7% believed alternative methods were unsafe due to their HIV status. This suggests a persistent need for comprehensive contraceptive counselling that addresses myths and expands comfort with dual or long-acting methods. Similarly, Pokharel et al[10]. in Kathmandu reported that while 72% of PLHIV were aware of modern contraceptive methods, only 2% continued to use long-acting methods post-diagnosis, suggesting fear, limited provider guidance, and discontinuation due to misconceptions. The current study also identified that educational status was significantly associated with contraceptive use, which was echoed in multiple studies. Adeleye et al[11] found a significant association between contraceptive use and education level ($p = 0.001$), underscoring that higher education enhances contraceptive awareness and uptake. Similarly, Wekesa et al[12] reported that education, marital status, and provider discussion were strongly associated with contraceptive behaviour among slum-dwelling PLHIV in Nairobi. In contrast to studies emphasizing the dominance of individual-level factors, the present study highlighted the influence of the spouse's HIV status, where sero-concordance was significantly associated with higher contraceptive use. Chakrapani et al[7]. also identified partner's preference and post-test counselling as important determinants of dual-method use, with husband involvement and mutual decision-making being vital enablers. Similar results were seen by Bhoosal et al[13], where full disclosure of HIV status to partners and mutual consent in reproductive decisions were strongly linked to contraceptive uptake in Nepal. Their study showed a 100% disclosure and highlighted that non-use was often due to disagreement or denial from the partner. In accordance with our findings, Ashore et al[14]. noted that open communication with partners plays a vital role in encouraging HIV status disclosure, clarifying future reproductive intentions, and helping individuals manage their lives more effectively.

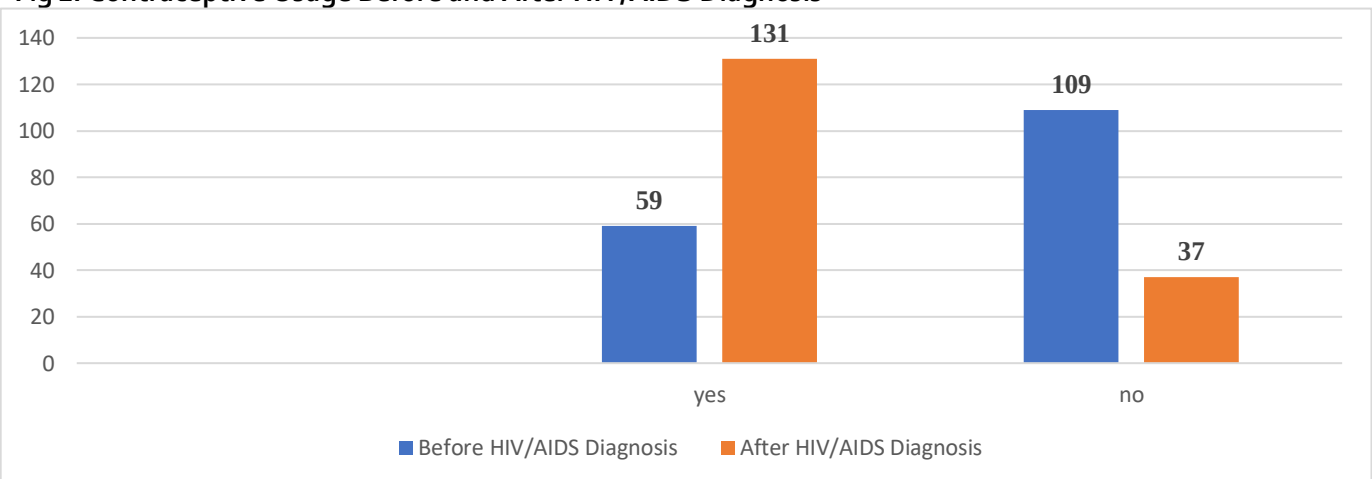
Despite improvements, the present study noted ongoing barriers to contraceptive use including irregular sexual activity, discordant partner status, and fear of side effects—factors commonly cited across studies. For example, the lack of provider

discussion about non-condom methods and the burden of contraception falling primarily on women were major limitations identified by Chakrapani et al[7]. Furthermore, Beena Joshi et al[8]. underscored that while 69% of women expressed interest in dual methods, access and appropriate counselling were inadequate. Additionally, Saleem et al[15], in their systematic review, emphasized that values and preferences of women living with HIV are shaped not just by knowledge but also by fears of hormonal side effects, infertility, ART interactions, and provider bias—factors that must be addressed through individualized, respectful counselling.Lastly, the integration of family planning into HIV services remains a key strategy for improving outcomes. The systematic review by Grant-Maidment et al[16]. showed that integrated services increased modern and dual contraceptive use by ≥8% in low-middle-income countries , reinforcing recommendation for a client-centred, partner-inclusive model. Similar conclusions were drawn by Wekesa et al[12]., who found that integrated service delivery was associated with better uptake and continuity of use. A global review by Saleem et al[15]. further emphasized that values-based, integrated care models that respect client preferences and fertility desires, while offering comprehensive contraceptive options, are essential for both equity and efficacy in HIV care.

Table 4: Association Between HIV-Related Factors and Current Utilization of Family Planning Methods

HIV Related Information		Current Utilization of Family Planning Method				P Value
		Yes		**No**		
		Frequency	Percentages	Frequency	Percentages	
Time Since Diagnosis	< 2 years	25	18.8%	9	25.7%	0.647
	2-5 years	50	37.6%	14	40.0%	
	6-10 years	44	33.1%	8	22.9%	
	> 10 years	14	10.5%	4	11.4%	
Spouse HIV status	Positive	95	71.4%	18	51.4%	**0.03***
	Negative	20	15.0%	13	37.1%	
	Not Known	4	3.0%	0	.0%	
	Unmarried	14	10.5%	4	11.4%	
Current HIV Stage	1	114	85.7%	31	88.6%	0.734
	2	7	5.3%	1	2.9%	
	3	9	6.8%	3	8.6%	
	4	3	2.3%	0	.0%	

Fig 1: Contraceptive Usage Before and After HIV/AIDS Diagnosis



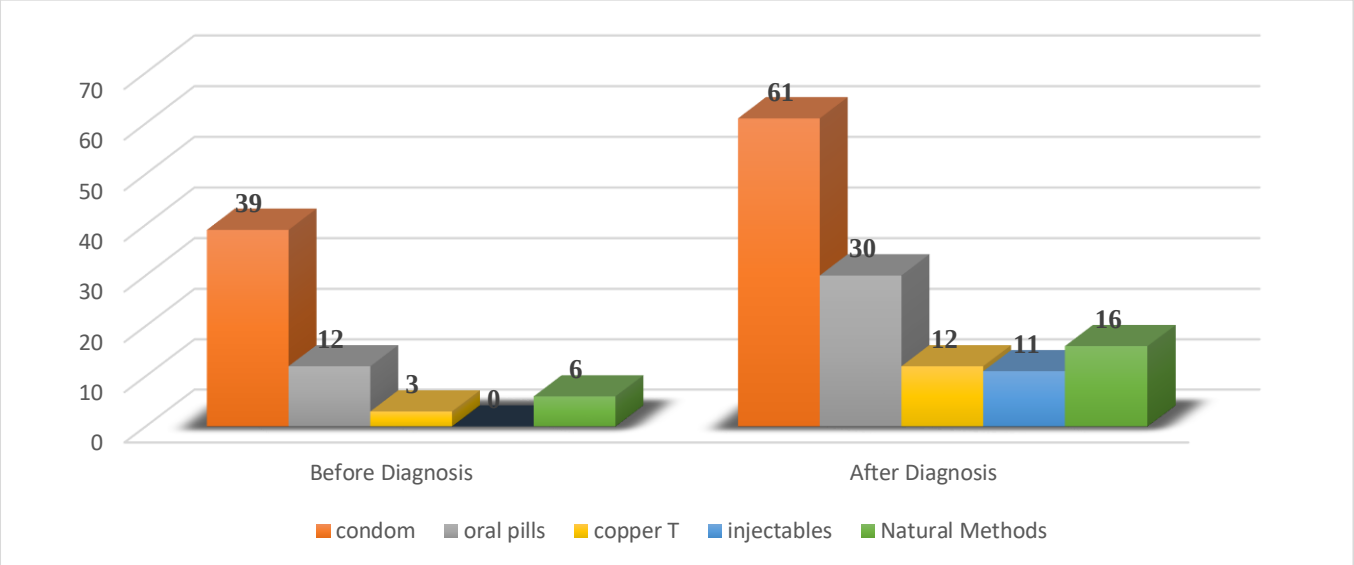


Fig 2: Comparison of Family Planning Methods Utilized Before and After HIV Diagnosis Among Study Participants

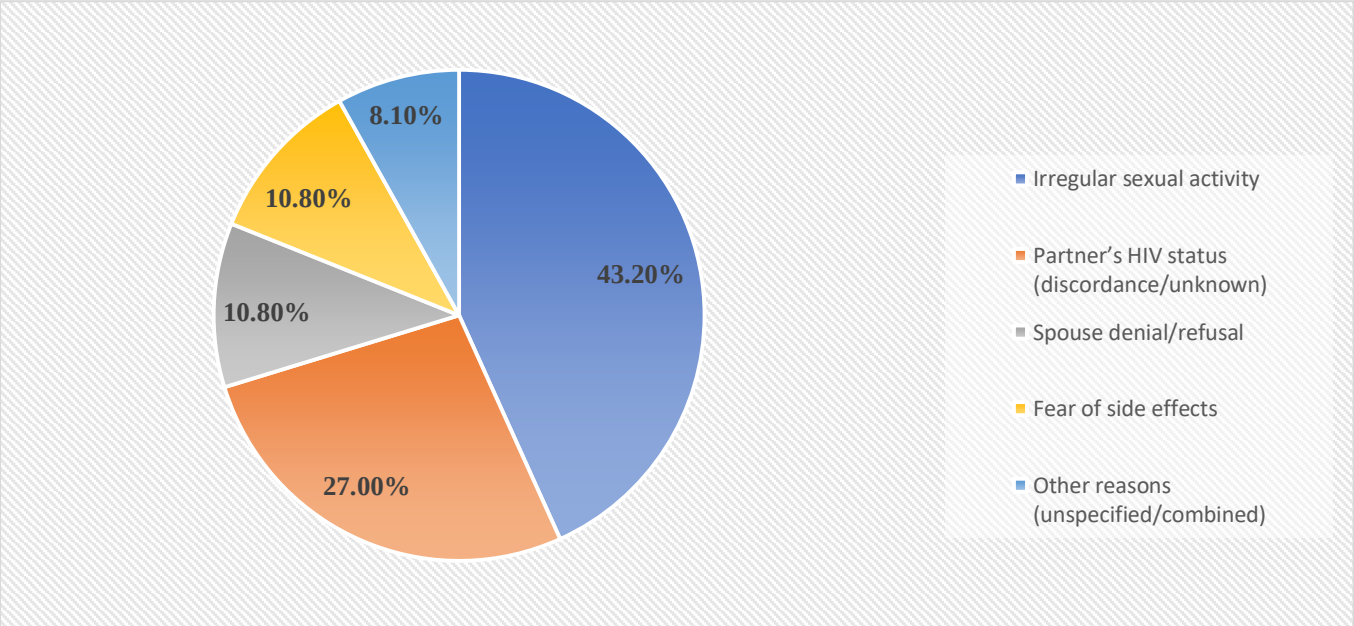


Fig 3: Reported Barriers to Contraceptive Use Among Current Non-Users (N = 37)

CONCLUSION

This study highlights a clear rise in contraceptive uptake among PLHIV after diagnosis, with condoms remaining the most common method while use of oral pills, copper-T, injectables, and natural methods also increases. By comparing practices before and after diagnosis, the analysis reveals how reproductive behaviour evolves once individuals become aware of their HIV status. Education and a partner's HIV status emerge as the only variables significantly linked to current contraceptive use, underscoring the value of health literacy and partner involvement in informed decision-making, whereas other socio-demographic and clinical factors show no meaningful association. Importantly, the study's thorough data collection sheds light on barriers faced by non-users—namely irregular sexual

activity, lack of partner support, and fear of side-effects—pointing to the need for client-centred, partner-inclusive counselling. Integrating such tailored family-planning services into routine HIV care, addressing misconceptions, and empowering clients through education are essential to boost both uptake and continuity of contraception. Taken together, these findings provide evidence to guide locally adapted, integrated sexual and reproductive health interventions within ART settings, ultimately advancing comprehensive care and safeguarding the reproductive rights of PLHIV.

LIMITATIONS AND RECOMMENDATIONS

This cross-sectional study cannot establish causal relationships, and purposive sampling may limit generalizability. Self-reported data may be influenced by recall or social desirability bias. It is recommended to conduct multi-centric longitudinal studies for more generalizable and causal insights. Integrating tailored, partner-inclusive family planning counselling within HIV care services is also suggested to address identified barriers and improve contraceptive uptake.

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