



Opinions, Attitudes, and Prescribing Practices of Oral Contraceptive Pills of General Practitioners and Gynecologists in India

Sandeep Kumar^{1,2} Varsha Dwivedi³ Yashodhara Pradeep⁴ Abhijeet Pakhare⁵
Girdhar Gopal Agrawal⁶ Anil Kumar Saksena⁷ Vishwajeet Kumar⁸

¹ Department of Surgery, King George's Medical University, Lucknow, Uttar Pradesh, India

² All India Institute of Medical Sciences, Bhopal, Madhya Pradesh, India

³ Department of Surgery, King George's Medical College, Lucknow, Uttar Pradesh, India

⁴ Department of Obstetrics and Gynaecology, King George's Medical University, Lucknow, Uttar Pradesh, India

⁵ Department of Community Medicine, All India Institute of Medical Sciences, Bhopal, Madhya Pradesh, India

⁶ Department of Statistics, Lucknow University, Uttar Pradesh, India

⁷ Department of Pharmacology, King George's Medical University, Lucknow, Uttar Pradesh, India

⁸ Community Empowerment Lab, Lucknow, Uttar Pradesh, India

Address for correspondence Sandeep Kumar, MS, FRCS, PhD, MMSc, Department of Surgery, King George's Medical University, B 52, J Park, Mandir Marg, Mahanagar, Lucknow, 226 006 Uttar Pradesh, India (e-mail: profsandeepsurgeon@gmail.com).

Ann Natl Acad Med Sci (India) 2022;58:27–37.

Abstract

Background To study the prescription behavior of oral contraceptive pills (OCPs) by physicians, gynecologists, and alternative medicine practitioners (AMPs).

Materials and Methods Close-ended questionnaire-based cross-section study was performed between 1st September 2012 and 28th February 2014 in three groups of responders, i.e., AMP, general medical practitioners (GMPs), and obstetricians and gynecologists (ObGy). A stratified random cluster sample was used. Data of 400 subjects in all three groups were obtained using both univariate and multi-variate sophisticated statistical analyses for analyzing attitude and practices and were recorded on an ordinal scale using appropriate non-parametric test.

Results Of the 1,237 subjects surveyed, 400 completed questionnaires were received from each of the three groups viz; AMPs, GMPs, and ObGy. Remaining 37 incomplete questionnaires were not included in the final analysis.

Conclusion There are equal misconceptions regarding OCPs among users and prescribing physicians. Preference for OCPs in married and unmarried women is also equally low. OCP usage and their prescription practices can be improved by removing potential barriers, developing public–private partnership, and training promoters.

Keywords

- ▶ oral contraceptive pills
- ▶ birth rates
- ▶ prescribing behavior
- ▶ general practitioners
- ▶ gynecologists

published online
December 30, 2021

DOI <https://doi.org/10.1055/s-0041-1740924>.
ISSN 0379-038X.

© 2021. National Academy of Medical Sciences (India). All rights reserved.

This is an open access article published by Thieme under the terms of the Creative Commons Attribution-NonDerivative-NonCommercial-License, permitting copying and reproduction so long as the original work is given appropriate credit. Contents may not be used for commercial purposes, or adapted, remixed, transformed or built upon. (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

Introduction

India was one of the first countries to have launched the National Family Welfare Program (NFWP) in 1952, which aimed to reduce birth rates as a part of the First Five Year Plan (1951–56). The NFWP has since grown and undergone significant transitions especially in terms of financial investment, geographic reach and access, quality of services, and the range of contraceptive methods offered. Consequently, the national total fertility rate, which used to be as high as 3.2 in 2000 decreased to 2.3 in 2016. However, contraceptive choice remains limited, thereby restricting last mile coverage of the unmet need for family planning.

The family planning program currently offers seven contraceptive methods: six methods for spacing—condoms (for both males and females), oral contraceptive pills and emergency contraceptive pills (OCPs and ECPs), intra-uterine contraceptive device, injectable contraceptives, lactational amenorrhea method, and the standard days method, and permanent method for limiting—sterilization (vasectomy/tubectomy). However, female sterilization remains the most preferred method of contraception by and large, with male sterilization being the lowest. In fact, female sterilization has remained the choice method of contraception for women, in general, and specifically among poorly educated and illiterate women from lower socio-economic strata.¹ Family planning for the vast majority of Indians, therefore, remains female-centric and terminal method centric. Poor utilization of spacing methods leads to health complications resulting in poor maternal and child health.² OCPs contain low doses of two hormones; progesterin and estrogen like the natural hormones progesterone and estrogen in a woman's body. Their mechanism of action for contraception is primarily by preventing ovulation. Combined oral contraceptives are also called "the pill," low-dose combined pills, OCPs, and OCs. Their failure rate is less than one pregnancy per 100 women using OCPs over the first year (3 per 1,000 women), and there is no delay in return of fertility after OCPs are stopped.³ Therefore, OCPs are expected to be a more popular contraceptive, but in India, only 3.1% of married women in reproductive age (15–49 years) use this method.⁴

A systematic view of the factors that influence access to and uptake of various methods of contraception necessitates the understanding of both client and provider perspectives. Although providers are essential partners in service programs, their perspectives have received remarkably little attention. Client–providers interactions have been found to be a major factor in clients' subsequent uptake of contraception. Not only do the providers' technical skills and knowledge affect service, but their opinions, attitudes, and advice strongly influence what services clients receive and their clients' subsequent behavior.⁵ As the literature about the provider's perspective is sparse and both gynecologists and general practitioners have unique opportunities to provide family planning, there is a strong need to study their opinions, attitudes, and prescribing

behavior for OCPs. Therefore, this study was planned with objectives:

- to study OCP prescription behavior among gynecologists, general medical practitioners (GMPs), and alternative medicine practitioners (AMPs) of a large capital city Lucknow (population 4 million), and
- to develop strategies of popularizing the use of OCP in India both from provider's and end user's perspectives by provider's cross-sectional survey of availability, unmet needs of the users, perceived barriers, qualitative research, and focus group interviews of providers, married, and unmarried users.

Materials and Methods

- *Study design:* This was a cross-sectional survey.
- *Settings and study participants:* Gynecologists, general practitioners, and practitioners of other systems of medicine, practicing in Lucknow city were included in the study.
- *Study period:* The duration of the study was from September 2012 to April 2014.
- *Sampling and sample size:* Stratified sampling procedure was adopted to include gynecologists, general practitioners, and practitioners of other systems of medicine. The sample size was estimated for descriptive studies. As there were no data available, a proportion of 50% providers was assumed to have greater than 75% score (third quartile median score) toward prescribing OCP. Accepting the type I error equal to 0.05 and expecting the absolute precision equal to 5%, a sample size of 384 was calculated. Approximately, 400 providers from each group of gynecologists, general practitioners, and AMPs were considered the appropriate number of subjects for the study.
- *Data collection instrument:* The study used a questionnaire as a tool to record opinion, attitude, and practices of the prescriber. A questionnaire with a total of 25 closed-ended questions and five open-ended questions was finalized after pilot testing on 20 subjects. Test–retest reliability and inter-observer reliability displayed more than 85% agreement.
- *Data collection process:* A list of gynecologists, private practitioners, and practitioners of other systems of medicine were obtained from various hospitals including King George Medical University (KGMU) Hospital, Lucknow, Indian Medical Association, Associations of Private Gynaecologists, Lucknow, Nursing Home Association, and practitioners working in Lucknow and nearby areas. Gynecologist and private practitioners, women practitioners, qualified practitioners of Unani, Homeopathy, and Ayurveda (AYUSH) in government hospitals, clinics, and private practice both in urban and rural Lucknow were included. Subjects and responders were mostly busy doctors and had to be visited several times. Block filling of the questionnaire was also used at a time of conferences and meetings of the above associations. Several visits were made to the clinics of doctors after

prior appointments, and, in some cases, impromptu drop-ins at their clinics were also employed for collecting data. Thus, overall, this data collection was a sampling of convenience; however, the objectives and study outcomes are unlikely to be biased by this method of sampling.

- **Statistical analysis:** Descriptive statistics are presented as counts and percentages for categorical variables. The chi-square test was used to test differences among different groups. IBM-SPSS-21 Software was used for statistical analysis. For open-ended questions, themes were identified, categorized, and presented as counts and percentages.
- **Ethics issues:** The study protocol was approved by the Institutional Human Ethics Committee of KGMU Lucknow. All data collection was done after obtaining written informed consent from the participant.

Results

A total of 1,500 participants were contacted of which 1,237 responded, therefore giving a response rate of 82.46%. Out of these, 1,200 filled the questionnaires fully and were included in analysis. This included 400 respondents from each of the three groups, viz obstetrics and gynecologists (ObGy) (group-1), GMPs (group-2), and AMPs (group-3). This was intentionally done, to keep the numbers same across the groups and achieve the minimum sample size. All group-1 respondents were at least MBBS and Masters or Diploma holders in Gynecology and Obstetrics. In group-2, 144 of the respondents were MD or had completed some other postgraduate qualification. All group-3 respondents were qualified practitioners who had received a bachelor's degree in one of the branches of AYUSH, viz, Bachelor of Homeopathic Medicine and Surgery, Bachelor of Ayurvedic Medicine and Surgery, or Bachelor of Unani Medicine and Surgery.

Distribution of females among three groups was 10.7, 0.5, and 12.1%.

► **Table 1** summarizes respondents' opinions and attitudes about OCP utility and their readiness for its prescription to their clients. ► **Table 2** shows OCP prescription practices and opinions regarding correct practices. ► **Fig. 1** depicts respondents' first preference of contraception for married and unmarried women. ► **Table 3** summarizes attitudes and practices of respondents toward OCP promotion. ► **Table 4** highlights themes about perceived OCP prescription barriers among respondents.

OCPs or contraceptive methods directly or indirectly reduce unwanted pregnancies and, thereby, reduce the risk of abortion and birth-related morbidity and mortality.² Overall, AMPs and GMPs had less favorable opinions toward advantages of OCPs in comparison to gynecologists. Most of the AMPs, GMPs, and some of the gynecologists also opined that the liberal use of OCPs would lead to increased sexual activity. More than two-thirds of AMPs and GMPs were unaware of the availability of OCPs in urban and rural areas. Only one-thirds of AMPs and GMPs advocated for easy

accessibility of OCPs, while most of the gynecologists favored easy accessibility (► **Table 2**).

World Health Organization (WHO) and various national guidelines have advocated contraceptive counseling using the "GATHER" approach and after thorough history taking and examination.³ However, AMPs and GMPs seem to be hesitant in doing so since more than half of them thought that thorough examination and history taking are not necessary for all women being considered for OCPs and they do not usually counsel to everybody. A less favorable attitude of AMPs and GMPs is also reflected in their OCP prescription practices, wherein more than one-third of them do not readily prescribe OCPs and their prescription is casual or even only verbal (mentioning the brand name) (► **Table 3**).

All three groups of respondents majorly chose to go with barrier contraception and did not prefer OCPs for either married or unmarried women (► **Fig. 1**).

Information regarding missed pills and side effects is given during counseling by only one-third of AMPs and GMPs and by most of the gynecologists. More than half of the respondents opined about the positive impact of information about side effects on OCP usage. Proper follow-up and thorough history taking and examination of OCP users are expected for the long-term continuation of OCPs. However, about two-thirds of AMPs and GMPs did not call clients for follow-up visits. Overall, gynecologists were found to be more alert about pill counseling, history taking, examination, explaining side effects, asking for follow-up, and in opportunistic scrutiny for the usage of OCPs and their examination (► **Table 3**).

Most of the participants were eager to update their knowledge about OCPs through various sources like mainly medical representatives (MRs) for AMPs and GMPs, and MRs as well as continuing medical education for gynecologists. More than half of AMPs and GMPs were reluctant to use posters, while three-fourth of gynecologists displayed them strategically. Most of the participants advocated all kinds of communication modes like print and multimedia for spreading the knowledge of OCPs and also endorsed the need for training of all health workers in OCP use and management. Two-third of gynecologists felt that prescriptions for longer durations such as 3 months instead of 1 month will help in improving compliance and reducing costs. Respondents had a mixed opinion regarding the strategy of distributing OCPs in the unnamed package to increase its acceptability and usage in rural areas, orthodox communities, and sexually active adolescents. Only half of the respondents favored joint sessions of sex education and OCP promotion.

Discussion

Our study shows less favorable attitudes and opinions and sub-optimal practices regarding OCP prescription among AMPs and GMPs. However, gynecologists have more favorable attitudes and most of them adhere to the standards of practice for OCP prescription.

Table 1 Opinions and attitude about OCP utility and readiness for prescription

Variable	Alternative medical practitioners		General medical practitioners		Obstetrics and gynecologist		p-Value
	n	%	n	%	n	%	
<i>Impact on maternal and infant mortality rates by spreading the knowledge of OCP</i>							
MMR and IMR will increase	14	3.50	11	2.80	7	1.80	<0.001
Hardly any change	23	5.80	29	7.30	22	5.50	
Some decrement in MMR but not on IMR	69	17.30	49	12.30	21	5.30	
Definitely MMR and IMR will decrease but not only with OCPs	129	32.30	136	34.00	95	23.80	
OCP will play a major role in decreasing MMR and IMR	165	41.30	175	43.80	255	63.80	
<i>Liberal prescription of OCP will help in the reduction of abortion-related morbidity</i>							
No effect	21	5.30	22	5.50	7	1.80	<0.001
Reduction in urban clients	46	11.50	30	7.50	9	2.30	
Reduction in literate clients	75	18.80	72	18.00	22	5.50	
Reduction in all women	90	22.50	105	26.30	32	8.00	
Yes, significant reduction in abortion-related morbidity and its complication in women	168	42.00	171	42.80	330	82.50	
<i>Liberal prescription of OCP will support liberal sexual activity</i>							
Yes, definitely in women of every age group	73	18.30	63	15.80	55	13.80	<0.001
Yes, significantly in literate women	39	9.80	74	18.50	32	8.00	
Partially in literates	97	24.30	96	24.00	33	8.30	
Partially in adolescents	68	17.00	85	21.30	36	9.00	
No effect. It is happening any way with or without OCP	123	30.80	82	20.50	244	61.00	
<i>Availability of OCP in rural and urban areas</i>							
Poor availability	65	16.30	54	13.50	23	5.80	<0.001
Available at chemist shop only	110	27.50	104	26.00	31	7.80	
Available free of cost at urban health setup with limited supply but not available in rural areas	52	13.00	78	19.50	49	12.30	
Readily available in urban health setup but not in rural and remote areas	56	14.00	57	14.30	92	23.00	
Readily available free of cost both in urban, rural, and remote areas	117	29.30	107	26.80	205	51.30	
<i>Agreeing to accessibility of contraceptive methods to all women</i>							
Not so readily	55	13.75	26	6.50	15	3.80	<0.001
Only if they demand	183	45.75	128	32.10	39	9.80	
Only to married women	47	11.75	24	6.10	34	8.50	
All types to contraception readily available	79	19.75	107	26.80	146	36.50	
All contraception should be actively promoted	36	9.00	64	16.00	166	41.50	

Abbreviations: IMR, infant mortality rate; MMR, maternal mortality rate; OCP, oral contraceptive pills.

Table 2 OCP prescription practices and opinions about correct practices

Variable	Alternative medical practitioners		General medical practitioners		Obstetrics and gynecologist		p-Value
	n	%	n	%	n	%	
<i>Is history taking and internal pelvic examination important before prescribing oral contraceptive pill?</i>							
No, not necessary	129	32.30	119	29.80	10	2.50	<0.001
Yes, if patient have some complaint	106	26.50	91	22.80	13	3.30	
Yes, only history taking is good enough	30	7.50	63	15.80	21	5.30	
Yes, both history taking and pelvic examination in high-risk patient only	52	13.00	57	14.30	91	23.80	
Yes, both are mandatory	83	20.80	70	17.50	261	65.30	
<i>Is pill counseling essential before prescribing OCP?</i>							
Not essential	50	12.50	39	9.80	4	1.00	<0.001
Only when patient insists	64	16.00	32	8.00	7	1.80	
It is optional	67	16.80	51	12.80	24	6.00	
Only in high-risk patient	26	6.50	24	6.00	23	5.80	
Always essential	193	48.30	254	63.50	342	85.50	
<i>Prescribing oral contraceptive pill</i>							
Not so readily	65	16.30	121	30.30	7	1.80	<0.001
Avoid due to side effect	96	24.00	65	16.30	14	3.50	
Depends on the type of client	184	46.00	132	33.00	188	47.00	
Most of times	43	10.80	63	15.80	112	28.00	
Easily prescribe	12	3.00	19	4.80	79	19.80	
<i>Pill counseling practice</i>							
Never	19	4.80	51	12.80	5	1.30	<0.001
If client demands	116	29.00	85	21.30	21	5.30	
Occasionally	91	22.80	59	14.80	12	3.00	
Most of times	100	25.00	131	32.80	137	34.30	
Never prescribe OCP without counseling	74	18.50	74	18.50	225	56.30	
<i>Providing information for missed pills</i>							
No	57	14.30	53	13.30	4	1.00	<0.001
In missed pills only	76	19.00	48	12.00	22	5.50	

(Continued)

Table 2 (Continued)

Variable	Alternative medical practitioners		General medical practitioners		Obstetrics and gynecologist		p-Value
	n	%	n	%	n	%	
If client demand	97	24.30	68	17.00	10	2.50	
Educating client	9	12.30	75	18.80	31	7.80	
To all with pill counseling	121	30.30	156	39.00	333	83.30	
<i>How do you prescribe OCP</i>							
Casually do	129	32.30	119	29.80	10	2.50	<0.001
Verbalize and take a commercial name	106	26.50	91	22.80	13	13.30	
Write it and ask assistance to explain its use	30	7.50	63	15.80	21	5.30	
Write it and thoroughly explain its use	52	13.00	57	14.30	95	23.80	
Carry out check-up and do counseling with written prescription	83	20.80	70	17.50	261	65.30	
<i>Advice of side effect of OCP to user</i>							
Simply mention SE	133	33.30	90	22.50	22	5.50	<0.001
Hand over written information of SE in vernacular	34	8.50	29	7.30	11	2.80	
Exclude high-risk clients and explain SE without over-emphasizing	25	6.30	27	6.80	34	8.50	
Emphasize SE to all clients	123	30.80	125	31.30	67	16.80	
Emphasize SE to OCP prescription user	85	21.30	129	32.30	266	66.50	
<i>Impact of OCP on family planning after explaining its side effect</i>							
Negative impact	20	5.00	10	2.50	12	3.00	<0.001
Negative impact in illiterates and less educated	72	18.00	57	14.30	25	6.30	
No impact	73	18.30	67	16.80	34	8.50	
Insignificant impact	40	10.00	62	15.50	31	7.80	
Positive impact	195	48.80	204	51.00	298	74.50	
<i>Follow-up of patients after prescribing oral contraceptive pill</i>							
Do not call patient for follow-up	72	18.00	91	22.80	1	0.30	<0.001
Seldom call if patient have problem	189	47.30	133	33.30	48	12.00	
Regularly at 6 months	41	10.30	50	12.50	31	7.80	
Regularly at 3 months	36	9.00	77	19.30	75	18.80	
First in third month, second at sixth month, and then annual follow-up	62	15.00	49	12.30	245	61.30	

Table 2 (Continued)

Variable	Alternative medical practitioners		General medical practitioners		Obstetrics and gynecologist		p-Value
	n	%	n	%	n	%	
<i>Usual follow-up practice in OCP user client</i>							
History of side effect only	255	63.80	277	69.30	46	11.50	<0.001
History and IPE	8	2.00	5	1.30	12	3.00	
History, IPE, and BP	52	13.00	46	11.50	31	7.80	
History, BP, IPE, and breast examination	42	10.50	28	7.00	103	25.80	
History, BP, IPE, breast examination, and PAP smear	43	10.80	44	11.00	208	52.00	
<i>In gynecological consultation other than contraception practice, what do you do if the patient is using OCP?</i>							
Consider OCP	70	17.50	43	10.80	2	0.50	<0.001
Casually listen and do not take interest	28	7.00	21	5.30	11	2.80	
Thorough history of OCP usage	146	36.50	167	41.80	42	10.50	
Thorough history of OCP usage and do physical examination	72	18.00	100	25.00	108	27.00	
Thorough history, do physical examination, PAP smear, IPE, and reinforce continue usage of OCP	84	21.00	69	17.30	237	59.30	

Abbreviations: BP, blood pressure; IPE, internal pelvic examination; OCP, oral contraceptive pills; PAP smear, Papanicolaou smear; SE, side effect.

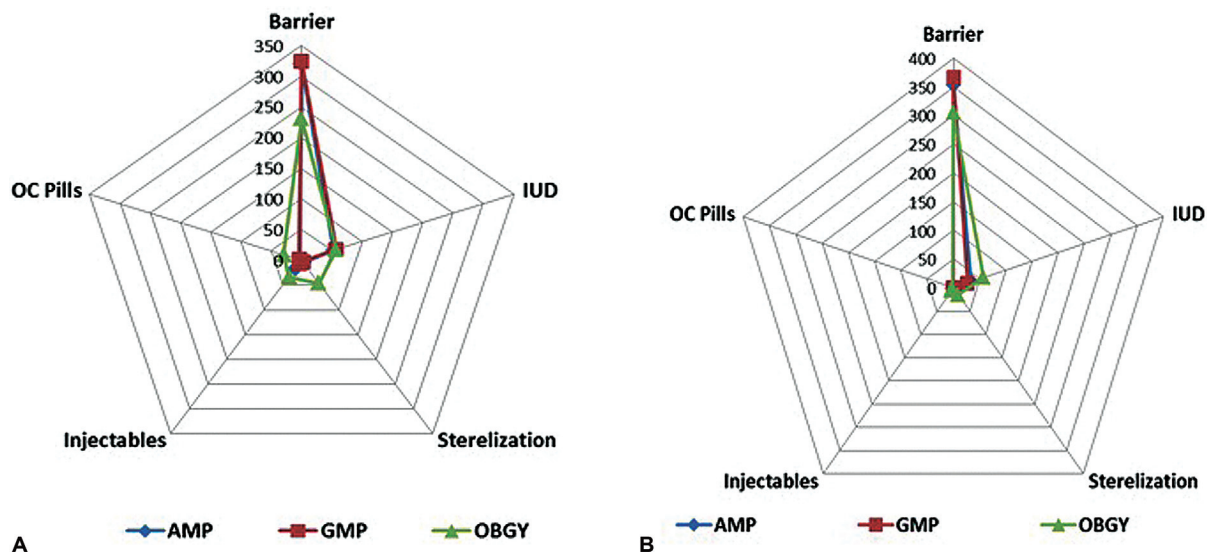


Fig. 1 (A, B) First preference contraceptives for married and unmarried women.

Our study shows that AMPs and GMPs undermine direct and indirect non-contraceptive benefits of OCPs and it gets reflected in their lesser willingness and actual practice of ready prescription of OCPs. There were distinct differences regarding the knowledge of OCP prescription protocols among gynecologists and other practitioners. It is a known fact that knowledge improves attitudes which, in turn, influence practice. Other investigators have also reported that when compared with other specialists, gynecologists are more likely to prescribe OCPs as compared with GMPs.^{6–8}

We have found inconsistencies in practices like not providing counseling to all users, informing about missed pills only on demand, not asking everyone to come to follow-up, not carefully assessing history at follow-up, and not performing opportunistic screening for OCP usage. Using standardized checklists and formats as envisaged in WHO Family Planning Global Handbook for Providers would facilitate the adoption of uniform practices.³

OCPs are cost-effective, reversible, and safe choices both for married and unmarried women. However, it still is not a popular mode among users of contraception, which was reflected in our study. Most of our study participants did not consider it as the first preference for contraception. This could be explained with perceived out-of-proportion apprehensions of providers for side effects, necessity of strict compliance, and regular follow-up. Hamani et al have reported similar misconceptions regarding OCPs among users and prescribing physicians.^{9,10} These misconceptions regarding side effects, breakthrough bleeding, compliance, and failure rates might be playing a role in reducing OCP preference in both providers and clients.

Our study respondents particularly gynecologists advocated continuous prescription for 3 months instead of 1 month for improving compliance and reducing cost. Some studies which have explored OCP compliance over a long time suggest that prolonged adherence to OCP regimes

is threatened by the same factors which derail other long-term therapeutic medications—demographic factors, costs, and side effects. On the contrary, increased compliance and adherence were seen in women who designated a daily time slot for consuming OCPs.¹¹ However, long-term prescription for OCPs has been found to be more affordable than monthly prescriptions.¹² These studies, however, explore uptake and adherence to OCPs in different (western) socio-cultural and economic contexts. In countries like India where contraception uptake is tied to socio-cultural norms and government facilities provide OCPs almost free of cost, factors that govern poor consumption of OCPs need to be explored.¹³ The strategy to distribute OCPs in unnamed packages elicited mixed responses. Our respondents unanimously agreed on the need to train all health workers on OCP prescription, usage, and management. Currently, medical officers, staff nurses, auxiliary nurse midwives, and accredited social health activists working in government-run health centers are periodically trained in family welfare programs. Private hospitals also employ many paramedics and they can be engaged in counseling, follow-up, and promotion of contraception methods to ease the workload of private practitioners. Therefore, mechanisms for the training of these paramedics from the private sector need to be evolved, which would definitely increase the quality of care in OCP prescription and management.

Conclusion

Opinions and attitudes of AMPs and GMPs are less favorable toward OCP usage, and their prescription practices are suboptimal as well. This is despite the fact that the government of India is trying to promote OCP usage through intensive mass media and national guidelines. This can be improved by developing public–private partnership and imparting targeted training to them, via the use of specific service guidelines,

Table 3 Attitude and practices for OCP promotion

Variable	Alternative medical practitioners		General medical practitioners		Obstetrics and gynecologist		p-Value
	n	%	n	%	n	%	
<i>Update oneself with recent guidelines for OCP prescription</i>							
Do not require	41	10.30	32	8.00	4	1.00	<0.001
MRs	132	33.00	82	20.50	27	6.80	
Colleagues and peers	30	7.50	46	11.50	13	3.30	
News, publications, print media, and conferences	89	22.30	86	21.50	66	16.50	
CMEs, MRs, colleagues, peers, news, etc.	108	27.00	154	38.50	290	75.50	
<i>Use of posters of OCP for promotion</i>							
Not take care, let it languish	18	4.50	9	2.30	0	0.00	<0.001
Casually put it	92	23.00	90	22.50	18	4.50	
Put in my chamber	94	23.50	90	22.50	28	7.00	
Put it both in my chamber and patient waiting lounge	75	18.80	91	22.80	161	40.30	
Choose the most important one for display	121	30.30	120	30.00	193	48.30	
<i>Methods to spread knowledge of OCP usage</i>							
Newspaper, booklets	33	8.30	19	4.80	5	1.30	<0.001
TV advertisement and radio	54	13.50	36	9.00	14	3.50	
Group discussion	35	8.80	43	10.80	19	4.80	
One-to-one counseling	32	8.00	15	3.80	11	3.50	
All of above	246	61.50	287	71.80	351	87.80	
No, waste of money	70	17.50	45	11.30	12	3.00	<0.001
Not significantly	110	27.50	114	28.50	47	11.80	
Improved continuation at a higher cost of dispensing	58	14.50	87	21.80	36	9.00	
Reduce drop outs without affecting cost of dispensing	54	13.50	69	17.30	74	18.50	
Improved continuation with lower cost of dispensing	108	27.00	85	21.30	231	57.80	
Decrease OCP usage	17	4.30	29	7.30	8	2.00	<0.001
Cannot say	168	42.00	123	30.80	73	18.30	
No significant effect	78	19.50	120	30.00	81	20.30	
Significant effect on increasing OCP usage	51	12.80	67	16.80	96	24.00	
OCP should be available in camouflage packets	86	21.50	61	15.30	142	35.50	
Not necessary	8	2.00	9	2.30	3	0.80	<0.001
Only if they are interested	48	12.00	29	7.30	10	2.50	
Only female health workers	70	17.50	44	11.00	19	4.80	
Compulsory to female and optional to male workers	89	22.30	97	24.30	53	13.30	
All health workers	185	46.30	221	55.30	315	78.80	

(Continued)

Table 3 (Continued)

Variable	Alternative medical practitioners		General medical practitioners		Obstetrics and gynecologist		p-Value
	n	%	n	%	n	%	
No, OCP have nothing to do with sex education	38	9.50	9	2.30	3	8.00	<0.001
Yes, only as method of contraception	66	16.50	47	11.80	41	10.30	
Yes and would emphasize on other methods of contraception too	60	15.00	58	14.50	26	6.50	
Definitely and will verbally provide information on OCP usage	122	30.50	178	44.50	95	23.80	
Educate about OCP usage by written information	114	28.50	108	27.00	235	58.80	

Abbreviations: CME, continuing medical education; MR, medical representative; OCP, oral contraceptive pills.

Table 4 Themes about OCP prescription barriers—open-ended question analysis

	Obstetrics and gynecologist	General practitioners	Practitioners of alternative medicine
Q26 Barriers in prescribing OCPs	Social barriers, high cost. Compliance and side effects. Logistic barrier, lack of awareness, and education. No barriers.	Social, custom, and logistic barriers. Compliance and side effects. Improper counseling and practice barriers. No barrier	Compliance and logistic barriers. Side effect and lack of information. Custom and practice barriers
Q27 Major drawbacks of present-day OCPs	Breakthrough bleeding and side effects. Missed pill and daily intake. Improper counseling and lack of education. High cost. Not easily accessible.	Poor compliance, side effects, and daily intake. No drawbacks. High cost and lack of availability.	Side effects. No drawback. Lack of education and awareness, high cost, and poor availability.
Q28 Switching from one type of contraception to OCPs	Breakthrough bleeding, compliance, and side effects. Never. Sometimes if patient demands.	Never. Poor compliance. Depends on patients. Not frequently. OCP is not a perfect method of contraception.	Never. If patient demand.
Q29 Fears/doubts in your mind in prescribing OCPs	Breakthrough bleeding, compliance, and side effects. No doubts. Missed pill, daily intake, and poor follow-up. Interference in the natural process	No fear. Side effect. Patient compliance, poor availability, and failure of OCP.	No doubts. Side effect. Lack of education and awareness.
Q30 Free and frank opinion on liberal use of OCP	Free is usage recommended on medical ground after proper counseling, education, and follow-up to prevent unwanted pregnancy. Should be made readily available. Free usage in a monogamous relationship but not helpful in preventing sexually transmitted diseases. Free usage will help in reducing MMR and IMR. Apart from OCP other barrier methods should also be used.	Free usage or liberal use of OCP must be encouraged after proper counseling, education, and awareness after medical examination and on medical prescription, which can help in population control. Free usage can lead to more liberal sex; therefore, free usage is not recommended.	Encouragement of good-quality OCP for liberal use to prevent unwanted pregnancies and control population under strict medical prescription and education. Liberal usage of OCP can lead to its misuse.

Abbreviations: IMR, infant mortality rate; MMR, maternal mortality rate; OCP, oral contraceptive pills.

which may lead to increased adherence to standard prescription practices among gynecologists, in turn increasing the preference for OCPs in married and unmarried women.

Compliance with Ethical Standards

The study was conducted as part of the Indian Council of Medical Research project, and complete adherence to prescribed ethical standards was followed including institutional ethical clearance and informed consent of all participants.

Author Contributions

S.K. conceived the study, wrote the research proposal, and was the principal investigator. V.D. with the help of all other authors designed and tested the questionnaire, conducted the survey, and computed the data. Y.P. provided the technical and clinical inputs. G.G. and A.P. did the statistical analyses. A.P. facilitated and provided inputs in content validity and logistics of data collection.

Funding

The above work was supported by an ad hoc research scheme funded by the Indian Council of Medical Research –ICMR, New Delhi (Ref No.: 5 / 10 / 12 / 2009-RHN). The work of S.K. was funded as a research project by the ICMR.

Conflict of Interest

V.D. received a salary as a research officer from the ICMR. The other authors report no conflict of interest.

References

- Singh P, Singh KK, Singh P. Factors explaining the dominion status of female sterilization in India over the past two decades (1992-2016): a multilevel study. *PLoS One* 2021;16(03):e0246530
- Family Health International. India Brief 1- the status of family planning in India: an introduction. Accessed June 10, 2021 at: <https://www.fhi360.org/sites/default/files/media/documents/india1-family-planning-status.pdf>
- WHO. | Family planning - a global handbook for providers. WHO Accessed August 23, 2021 at: <http://www.who.int/reproductive-health/publications/fp-global-handbook/en/>
- International Institute for Population Sciences (IIPS) and Macro International. NFHS-3 Fact Sheet. 2009. Accessed June 10, 2021 at: <http://rchiips.org/nfhs/pdf/India.pdf>
- Calhoun LM, Speizer IS, Rimal R, et al. Provider imposed restrictions to clients' access to family planning in urban Uttar Pradesh, India: a mixed methods study. *BMC Health Serv Res* 2013;13(01):532
- Sulak PJ, Buckley T, Kuehl TJ. Attitudes and prescribing preferences of health care professionals in the United States regarding use of extended-cycle oral contraceptives. *Contraception* 2006;73(01):41-45
- Seval DL, Buckley T, Kuehl TJ, Sulak PJ. Attitudes and prescribing patterns of extended-cycle oral contraceptives. *Contraception* 2011;84(01):71-75
- Wiegatz I, Galiläer K, Sängler N, Rody A, Kuhl H, Schleussner E. Prescribing preferences and personal experience of female gynaecologists in Germany and Austria regarding use of extended-cycle oral contraceptives. *Eur J Contracept Reprod Health Care* 2010;15(06):405-412
- Yang X, Li X, Wang Y, He X, Zhao Y. Practices and knowledge of female gynecologists regarding contraceptive use: a real-world Chinese survey. *Reprod Health* 2018;15(01):115
- Hamani Y, Sciaki-Tamir Y, Deri-Hasid R, Miller-Pogrud T, Milwidsky A, Haimov-Kochman R. Misconceptions about oral contraception pills among adolescents and physicians. *Hum Reprod* 2007;22(12):3078-3083
- Choi A, Dempsey A. Strategies to improve compliance among oral contraceptive pill users: a review of the literature. *Open Access J Contracept* 2014;5:17-22
- Judge-Golden CP, Smith KJ, Mor MK, Borrero S. Financial implications of 12-month dispensing of oral contraceptive pills in the veterans affairs health care system. *JAMA Intern Med* 2019;179(09):1201-1208
- Ghule M, Raj A, Palaye P, et al. Barriers to use contraceptive methods among rural young married couples in Maharashtra, India: qualitative findings. *Asian J Res Soc Sci Humanit* 2015;5(06):18-33