JMSCR Vol||05||Issue||11||Page 30791-30805||November 2017

www.jmscr.igmpublication.org
Impact Factor 5.84
Index Copernicus Value: 71.58
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossref DOI: https://dx.doi.org/10.18535/jmscr/v5i11.164

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Original Research Article

Choice of Oral Contraception among Urban Women in Eastern India: A Prospective Observational Study

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Abstract
Background: *The use of contraceptive has been recognised as a key element in reducing fertility and control of population, which in turn is important for the development of the nation. Family planning means achieving the desired number of children with appropriate spacing and timing. Failure to plan a pregnancy can adversely affect the health of a woman by exposing her to high risk pregnancies, unsafe abortions, reproductive tract infections and sexually transmitted diseases.*
Objectives: *This study was aimed to assess the pattern of oral contraceptive usage among women in reproductive age group in relation to reason of use, choice of formulation, duration of use, practice of prior consultation before starting OCP and side effects.*
Results: *Total 672 samples have been questioned amongst which 367 active oral contraceptive pill users are included in this study. The average of contraceptive usage of OCP is 52 (SD=53.24). The requisite of emergency contraception is also peak within this age group. It has been observed that emergency pill is the most widespread choice amongst the users followed by combined pill. The average of combined pill usage is 33 (SD=35.80). The average of mini pill usage is 23.75 (SD=28.61).*
Conclusion: *OCP continues to be a popular choice among urban population. Myths and Misconception deter women from widespread use. Emergency contraception preferred by significant first time user. Study shows lack of knowledge about pills amongst educated urban population.*
Keywords: *Oral Contraception, Emergency pill, Mini pill, Centchroman, Urban Women, Usage.*

Introduction

India launched the National Family Welfare Programme in 1951 with the objective of reducing the birth rate to the extent necessary to stabilize the population at a level consistent with the requirement of the National economy. The Family Welfare Programme in India is recognized as a priority area, and is being implemented as a 100% centrally sponsored programme.[1]

Family planning can reduce maternal mortality by reducing the number of pregnancies, the number of abortions, and the proportion of births at high risk.[2, 3] It has been estimated that meeting women's need for modern contraceptives would prevent about one quarter to one-third of all maternal deaths, saving 140,000 to 150,000 lives a year.[4, 5]

Globally, family planning is promoted as a mechanism to address the reproductive needs of men and women as well as the crucial challenge of rapid population increase.[6] The use of different contraceptive methods was studied in 5 western European countries, along with knowledge of fertility, motives for choice and perceptions held by women (Riphagen and Lehert, 1989)[7]. The process of decision-making was analyzed in a knowledge, attitudes and practice (KAP) survey in a Mexican community and a wide gap between women's fertility desires and their actual fertility was observed (Schedlin and Hollerbach, 1988).[8] A study of the perceptions and practices of adolescent sexuality and fertility in Kenya showed the majority of subjects had a poor knowledge of this subject (Ajayi et al, 1991).[9] Studies in the Philippines (Casterline et al, 1997)[10] and Zambia (Biddlecom and Fapohunda, 1998)[11] showed perceptions of couples were important for the fulfillment of desired family planning objectives.

The current study was done to assess the pattern of oral contraceptive usage among women in reproductive age group in relation to reason of use, choice of formulation, duration of use, practice of prior consultation before starting OCP and side effects.

Material and Methods

Study Design- Prospective Observational Study

Study Venue – AMRI Mukundapur Hospital and Dr B C Roy Hospital, IIMSAR, Haldia

Study period- 8 months from June 2013 to February 2014

Inclusion Criteria: Female subjects those were within age group 20yrs to 45yrs & those were using OCPs for contraceptive and/or non-contraceptive purpose

Exclusion Criteria: Female above the age group 45 yrs. and below 20 yrs those were not using OCPS for any kind of purpose and Indoor patients

This study was based on an 11 item based questionnaire in women who visited AMRI Hospitals Mukundapur Kolkata and Dr B C Roy Hospital, IIMSAR, Haldia. Data collection was done by direct interaction and collecting the requisite information and filling up the questionnaire. Data collection was started from July 2013 and continued to February 2014. Institutional ethics committee permission was taken.

Data was collected from the subjects by one of the following method:

- Direct Interactions and collecting the requisite information
- Filling the questionnaires

The study was performed anonymously. The personal details of the subject persons' concerned were kept confidential.

Results

Data collection process for this project has been started from July 2013 and continued till February 2014 from a tertiary care teaching hospital, West Bengal. Total 672 samples have been questioned amongst which 367 active oral contraceptive pill users are included in this study.

Table 1: Total No of Users of OCP

Total no of samples	Users	Non-users
672	367	305

Table 1 shows that total 672 no. of samples have been included in this study amongst which 367 no. of samples (55%) are active oral contraceptive pill users and 305 no. of samples are non-users (45%) of oral contraceptive pill. The user: non-user ratio

is 1.20:1. The above table is graphically represented in figure 1.

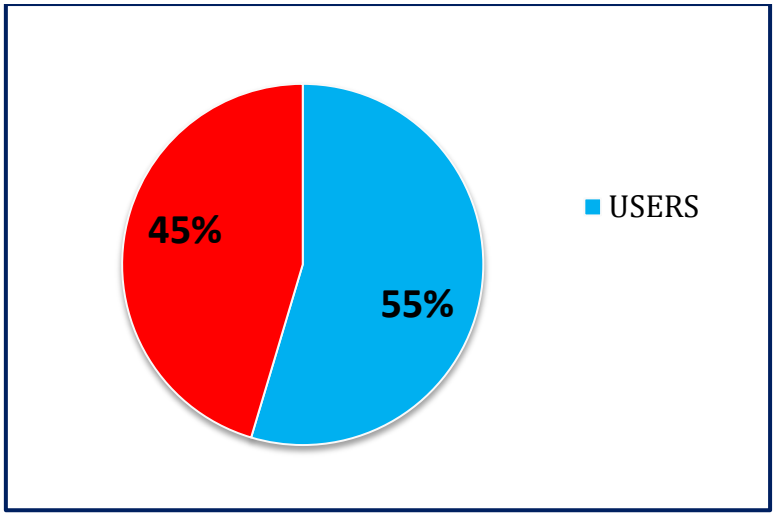

Figure 1. Graphical representation of total no of users of OCP

Table 2. Motives for not using OCP among study participants

Total no of non-users	Health problem	Myth of side effects	No need of contraception	Other method of contraception	Permanent Contraception
305	37	43	107	114	4

Table 2 shows that total 305 non users of OCP are present, amongst which 37 no. of non-users don't practice it for health problem, 43 no. of non-users don't depend on it for some myth of side effects, 107 no. of non-users don't require contraception, 114 no. of non-users have faith on other methods of contraception, and only 4 no. of non-users have under-gone permanent method of contraception. The above table is represented by a bar chart in figure 2.

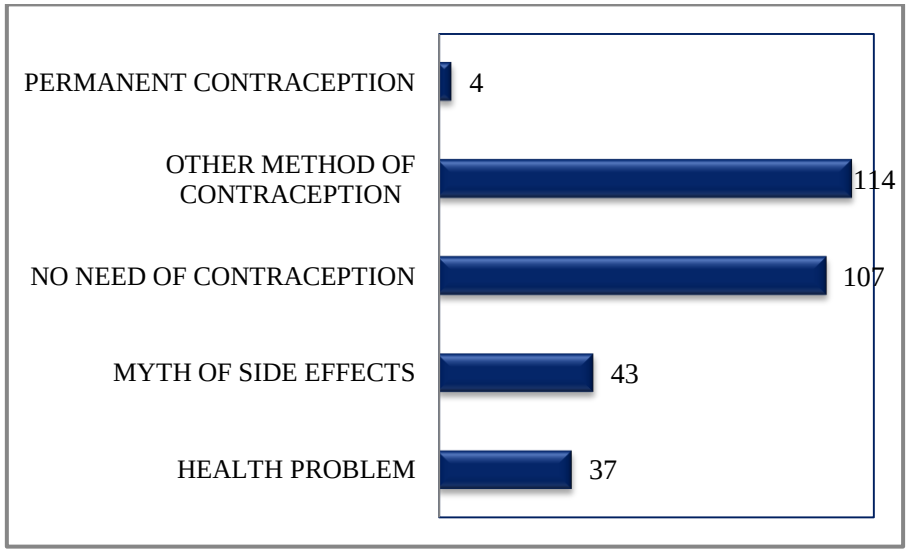

Figure 2: Graphical representation of motives for not using OCP

Table 3: Objects of usage of OCP

Age group of users	Contraception	Contraception/bleeding control during menses	Contraception/ PCOS	Emergency contraception	Permanent contraception
20-25	14	0	0	28	0
26-30	118	22	6	53	0
31-35	72	9	4	31	2
36-45	4	0	2	2	0

Table 3 shows the objective of usage of OCP. The requirement of OCP varies with age group. The above table shows that necessity of OCP for contraception is highest within age group 26-30, 118 users fall in this category. The average of contraceptive usage of OCP is 52 (SD=53.24). The requisite of emergency contraception is also peak within this age group. The average of emergency contraceptive practice is 28.5 (SD=20.89). It is odd that only 2 no. of total users use OCP as permanent method of contraception. The above table is represented graphically in figure 3.

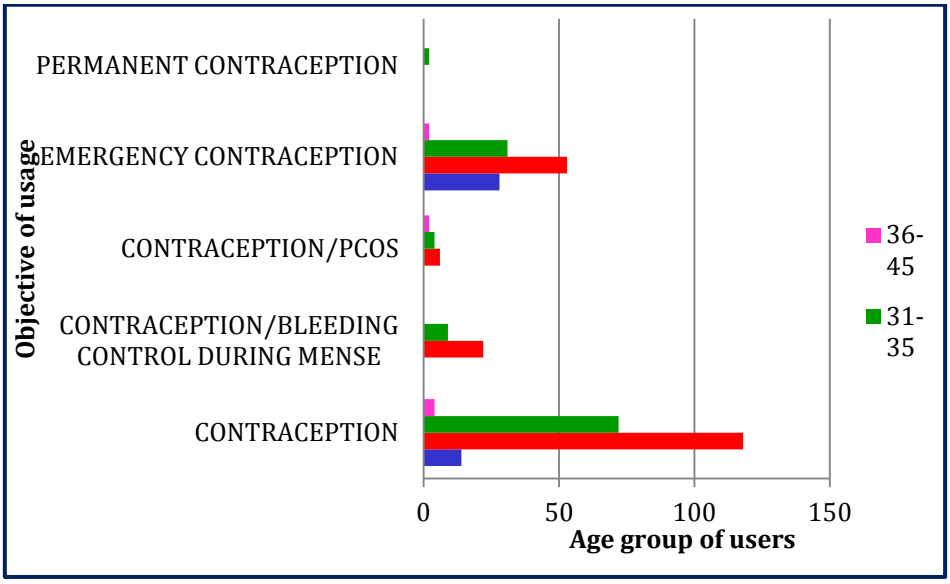

Figure 3: Graphical representation of objects of usage of OCP

Table 4: Category of OCP users (other than E. pill users)

Age group of users	1st user	Switcher	Repeater	Habitual user
20-25	3	6	2	3
26-30	45	35	16	51
31-35	16	18	9	44
36-45	0	2	2	2

Table 4 categorises the OCP users in four category, 1st user of OCP, switcher to OCP from other contraceptive method, repeater i.e. who has previous experience to OCP and habitual user of OCP i.e. using OCP for more than six months. The average of 1st user is 16 (SD=20.54). The average of switcher is 15.25 (SD=14.81). The average of repeater is 7.25 (SD=6.70). The average of habitual is 25 (SD=26.14). The above table is represented graphically in figure 4.

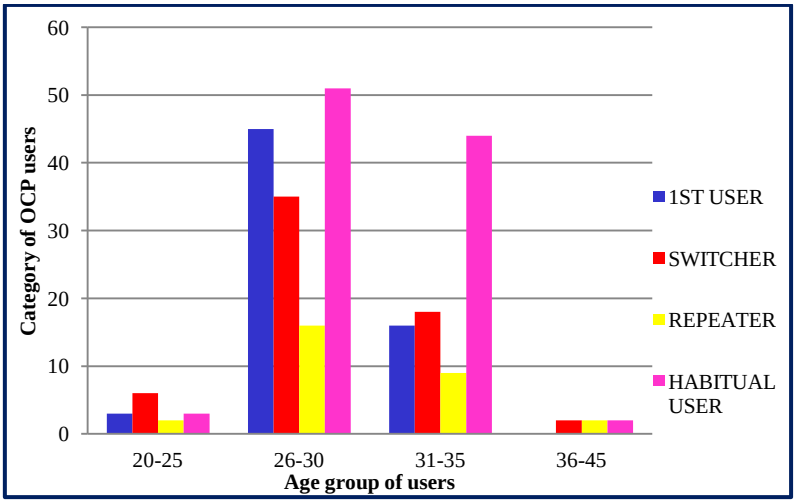

Figure 4: Graphical representation of category of OCP users (other than E. pill users)

Table 5: Category of emergency pill users

Age group of users	1st user	Regular user
20-25	19	9
26-30	27	25
31-35	18	13
36-45	1	1

Table 5 categorises the emergency pill users in two categories. First users are those who are using emergency pill for the first time and regular users are those who have been using emergency pill for more than one time. From the table it is prevalent that both first time users of emergency pill and regular user of emergency pill are highest in the age group of 26-30. The average of 1st user is 16.25 (SD=10.94). The average of regular user is 12 (SD=10). The above table is graphically represented through bar chart in figure 5.

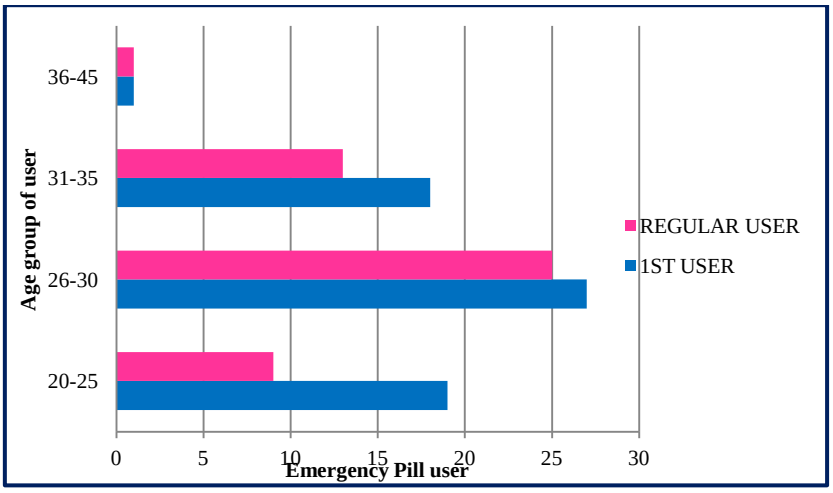

Figure 5: Graphical representation of category of emergency pill users according to the age group of users

Table 6: Types of oral contraceptive pill usage

Age group of users	Combined pill	Mini pill	Centchroman	Emergency pill
20-25	2	3	9	28
26-30	74	62	11	52
31-35	52	29	6	31
36-45	4	1	1	2

Table 6 characterizes the categories of oral contraceptive pill. The basic four types of OCP are prevalent among users. It has been observed that emergency pill is the most widespread choice amongst the users followed by combined pill. The average of combined pill usage is 33 (SD=35.80). The average of mini pill usage is 23.75 (SD=28.61). The average of centchroman usage is 6.75 (SD=4.35). The average of emergency pill usage is 28.25 (SD=20.5). The above table is graphically represented in figure 6.

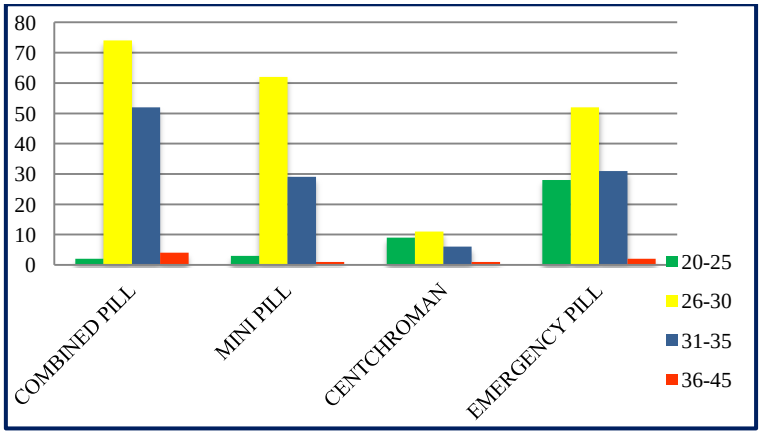

Figure 6: Graphical representation of types of oral contraceptive pill usage according to the age group of users

Table 7: Period of usage of OCP (other than emergency pill users)

Pill formulation	1-6 months	7-12 months	>1year
Combined pill	70	38	24
Mini pill	53	33	9
Centchroman	18	6	3

Table 7 represents duration of OCP usage amongst users which varies a.c.t to the pill formulation. It has been noted that up-to six months of usage is very common between this three combinations but it varies when the time period exceeds six months. Only combined pill users are highest in no. whose have continued the pill formulation for more than a year. Figure 7 graphically represents the above table.

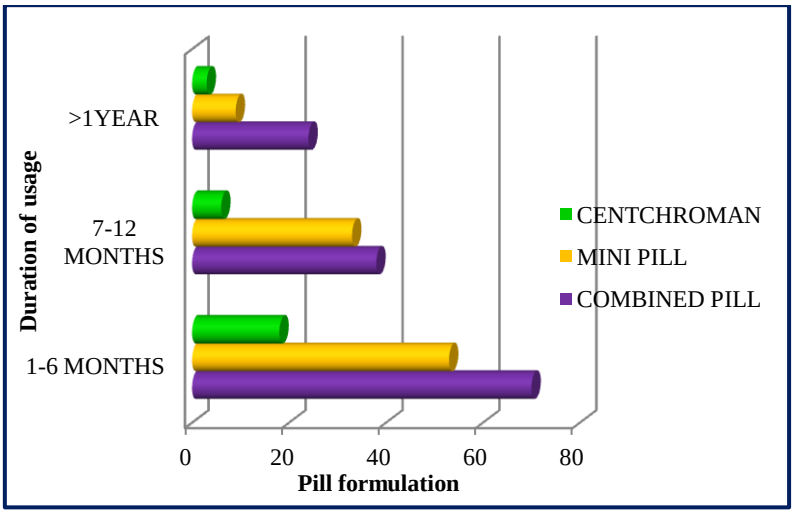

Figure 7: Graphical representation of period of usage of OCP (other than emergency pill users) according to the pill formulation

Table 8: Number of usage of emergency pills

1st time	2 times	>2 times
64	21	28

Table 8 displays no. of usage of emergency pill. It has been noted that 64 users have used emergency pill for 1st time (57%), 21 users have used for two times (18%) and 28 users have used for more than 28 times (25%). The ratio of no. of usage is 3.04: 1: 1.33. Figure 8 signifies above table through pie diagram.

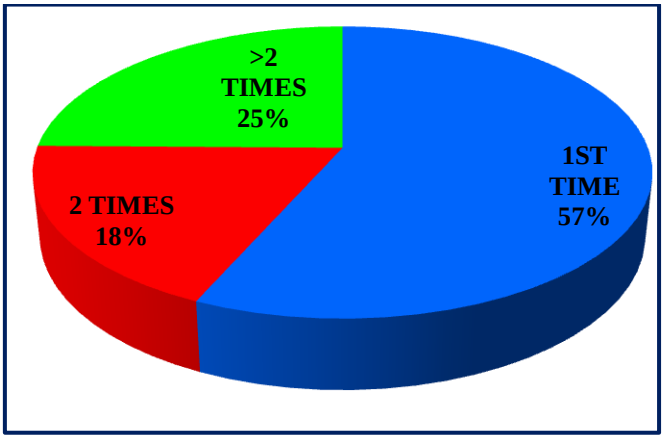

Figure 8: Graphical representation of no. of usage of emergency pills

Table 9: Distribution of OCP users regarding consultation method of the choice of pill

Pill formulation	Medical	Social-media	Self-consult
Combined pill	131	0	1
Mini pill	94	0	1
Centchroman	25	1	1
Emergency pill	22	23	68

Table 9 shows the consultation method about OCP as contraception. Medical consultation is most predominant from others. The average of users following medical consultation for OCP as contraception is 68 (SD=53.57). The table also shows that most of the emergency pill users follow self-consultation, and then social media and lesser no. of users follow medical consultation. Figure 9 graphically shows the above table.

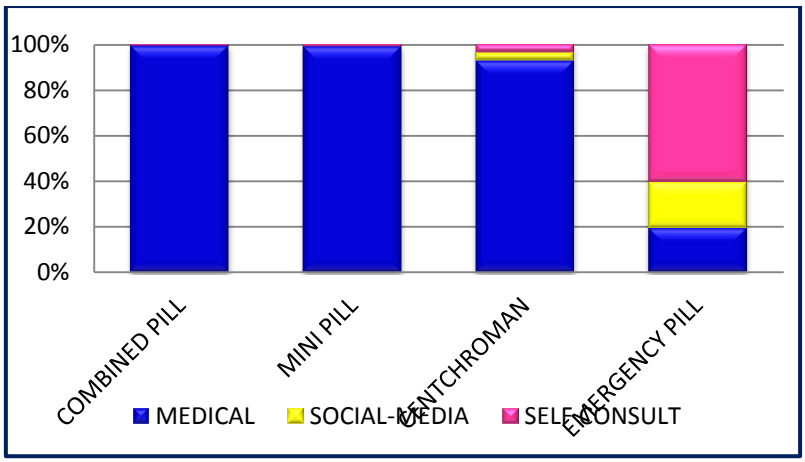

Figure 9: Distribution of OCP users regarding consultation method of the choice of pill according to the pill formulation

Table 10: Medical check-up data of OCP users

Medical check-up	Yes	No
Before starting OCP	238	129
Continuation during usage of OCP	188	179

Table 10 shows the medical check-up practice of OCP users. 238 users under-go medical check-up before starting OCP and among them 188 continue the medical check-up through-out OCP usage interval. 129 users don't under-go medical check-up. 179of total users (both who have initiated medical check-up before OCP usage and who don't initiated check-up) never continue medical check-up. Figure 10 graphically represents the above table.

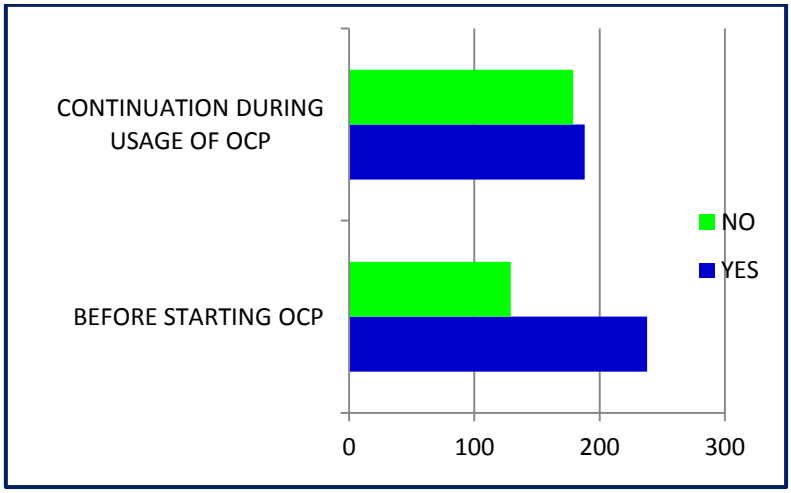

Figure 10: Graphical representation of medical check-up data of OCP users

Table 11: Effectiveness of OCP

Pill formulation	Effective	Non-effective
Combined pill	122	10
Mini pill	77	18
Centchroman	25	2
Emergency pill	106	7

Table 11 represents effectiveness of oral contraceptive pill. The data shows that all pill formulations are highly effective though some ineffectiveness is also present. Combined pill is effective for 92% of users and ineffective for 8%

users. Mini pill is effective for 81% users and ineffective for 19% users. Centchroman is effective for 93% users and ineffective for 7% users. Emergency pill is effective for 94% users and ineffective for 6% users. Figure 11 signifies the above table.

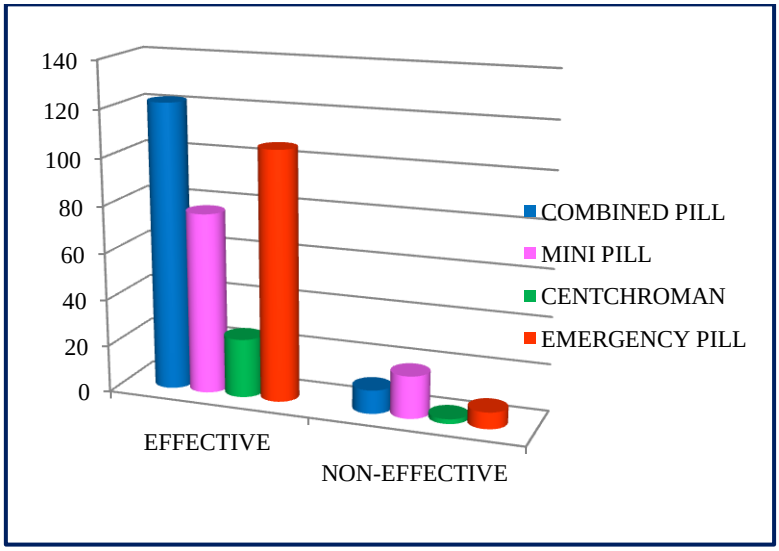

Figure 11. Graphical representation of effectiveness of OCP

Table 12: Practice of additional method along with OCPS

Additional method	No additional method
57	310

Table 12 shows practice of additional method along with OCP for contraceptive purpose. It shows from the data that 16% of users also have added contraceptive protection along with OCP and 84% of users don't require any additional contraception. Figure 12 represents the above table graphically through pie diagram.

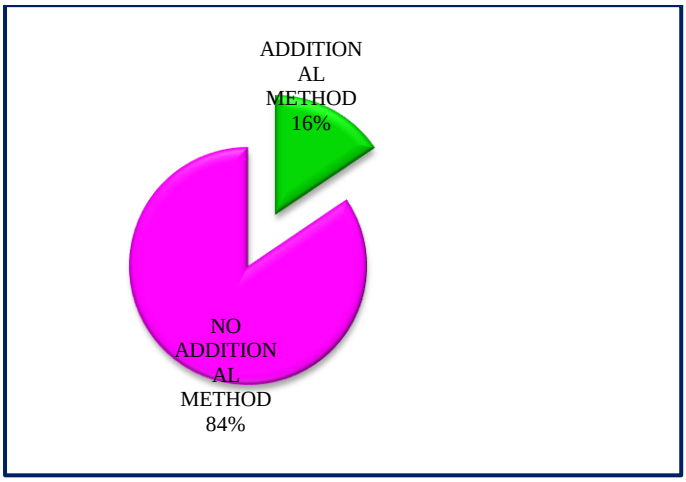

Figure 12: Graphical representation of practice of additional method along with OCPS.

Table 13: Number of users facing complications

Total users	Complication	No-complication
367	188	179

Table 13 represents the no. of users those are having complication. Amongst the total users 51% have faced complications and 49% don't face any sort of complication. The ratio is 1.05: 1. The above table is represented graphically by a pie diagram in figure 13.

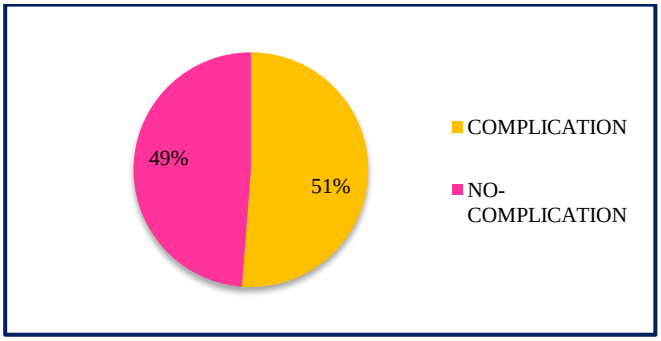

Figure 13: Graphical representation of no. of users facing complication

Table 14: Complication classification referring to pill formulation

Pill formulation	Complication
Combined pill	68
Mini pill	51
Centchroman	8
Emergency pill	61

Table 14 demonstrates the no users those are having complications in continuation of OCP usage with respect to their pill formulation. Amongst the total users facing complications, 36% users are continuing combined pill formulation, 33% users have taken emergency pill, 27% users are on mini pill and 4% are on centchroman. The above table is represented graphically in figure 14.

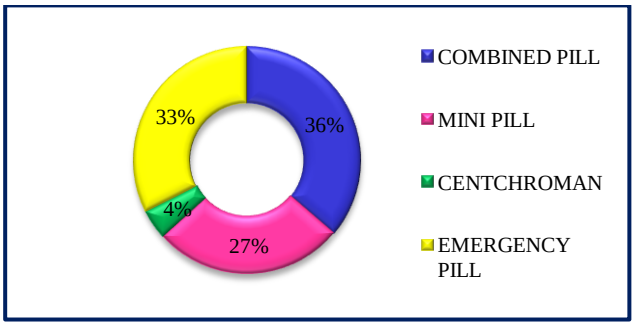

Figure 14: Graphical representation of complication classification referring to pill formulation

Table 15: Nature of complications of OCPs

Nature of complications	Combined pill	Mini pill	Centchroman	Emergency pill
Weight gain	12	1	0	0
Anaemia	0	0	3	0
Nausea, vomiting, appetite problem	5	0	0	0
Dizziness, headache, sleeping disorder, migraine	29	14	1	5
Mood swing, mood disorder	14	6	0	0
Lower abdominal pain, break through bleeding, menstruation irregular	8	29	4	56

Table 15 represents the kind of complications associated with OCP. The nature of complication varies with the pill formulation. It is observed that lower abdominal pain, break through bleeding, irregular menses are very common with emergency pill and mini pill. Whereas dizziness, headache, sleeping disorder these are common with combined pill and then mini pill. Weight gain and mood disorders are associated generally with combined pill. Anaemia is observed only in centchroman users. The above table is represented graphically in table 15.

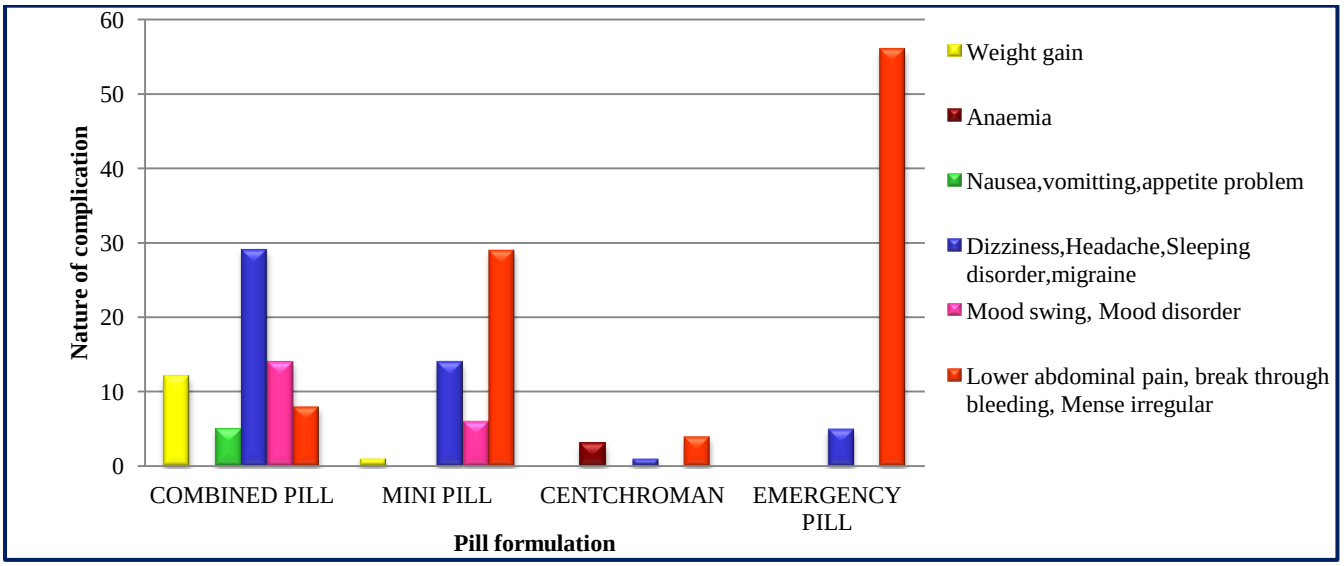

Figure 15: Graphical representation of nature of complications of OCPS

Table 16: Pattern of missed pill per cycle

Pill formulation	0	1	>1
Combined pill	47	53	32
Mini pill	36	50	9
Centchroman	7	14	6

Table 16 shows the pattern of missed pill per cycle among the OCP users. For combined pill users the ratio of no pill missed: one pill missed: more than one pill missed is 1.57: 1.67: 1. For mini pill users the ratio of no pill missed: one pill

missed: more than one pill missed is 4: 5.66: 1. For centchroman users the ratio of no pill missed: one pill missed: more than one pill missed is 1.27: 2.33: 1. The above table is illustrated graphically by table 16.

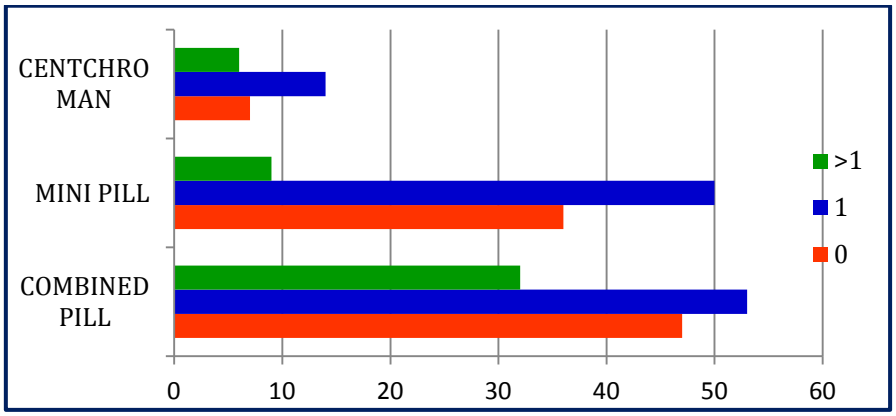

Figure 16: Graphical representation of pattern of missed pill per cycle

Table 17: Age group classification of OCP users

20-25	26-30	31-35	36-45
42	200	118	8

Table 17 classifies the OCP users according to their age group. It is being observed that maximum no. of users are under the age group of 26-30 followed by the age group of 31-35. 12% users are under the age group of 20-25, 54% users are under the age group of 26-30, 32% users are under the age group of 31-35 and only 2% users are under the age group of 36-45. Figure 17 represents the above table through pie-diagram.

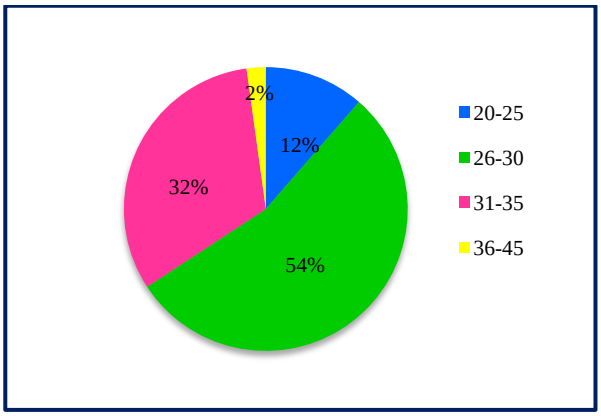

Figure 17: Graphical representation of age group classification of OCP users

Table 18: Grouping of users with respect to educational status

Non-graduate	Graduate	Post-graduate	Doctorate
19	197	144	8

Table 18 categorises the users with respect to their educational background. 5% users are non-graduates, 54% users are graduates, 39% users are post graduates and 2% users are doctorates. The above table is graphically represented through a pie-diagram in figure 18.

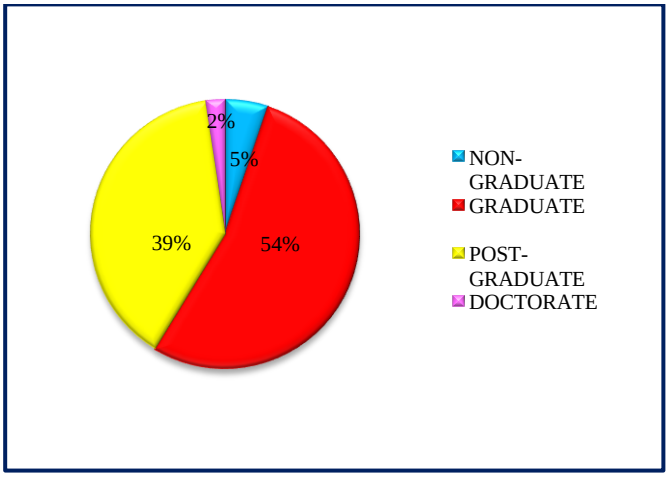

Figure 18: Graphical representation of grouping of users with respect to educational status

Table 19: Grouping of users with respect ot their professional status

Higher education	Home-maker	Service
20	203	145

Table 19 classifies the users according to their occupational background. It is observed that 55% users are home-maker, 39% users are in service and 6% are involved with higher education. The above table is represented graphically in figure 19.

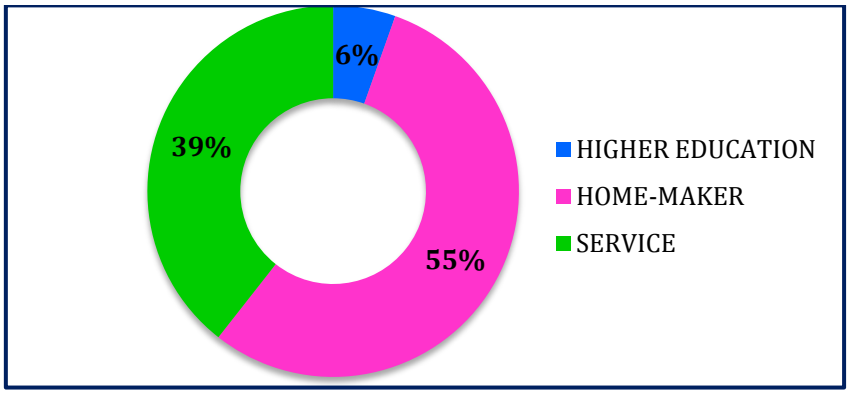

Figure 19: Graphical representation of grouping of users with respect to their professional status

Table 20: Addiction history of users

Age group of users	Addicted	Non-addicted
20-25	4	38
26-30	31	169
31-35	16	102
36-45	1	7

Table 20 demonstrates the addiction pattern amongst the users with respect to their age group. The average of the addicted users is 13 (SD=13.64). The average of non-addicted users is 79 (SD=72.77). Figure 20 graphically represents the above table.

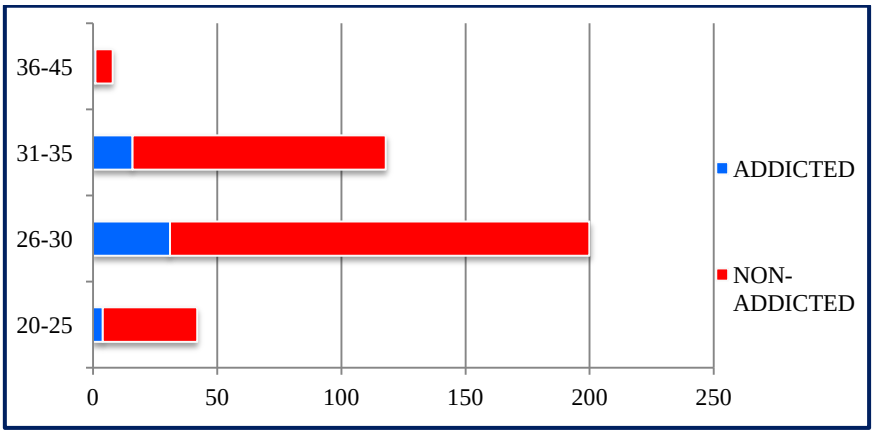

Figure 20: Graphical representation of addiction history of users

Table 21: Health history of users

Age group of users	Health problem	No complication
20-25	15	27
26-30	84	116
31-35	47	71
36-45	4	2

Table 21 represents the OCP users who have some additional health complication present. Average 37.5 users (SD=36.08) have some health problem and consuming OCP. Average 50 users (SD=50.22) have no health related complication. Figure 21 represents graphically the above table.

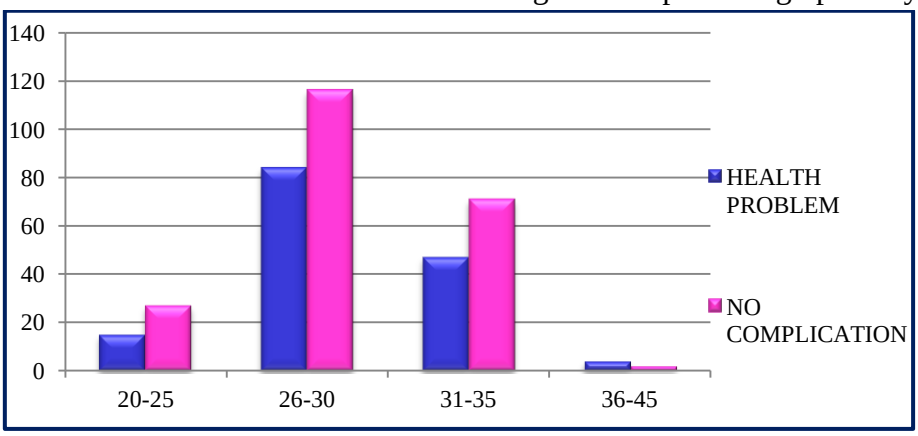

Figure 21. Graphical representation of health history of users

Table 22. No. of users in category 4 of WHO guidelines of OCP usage (refrain from the usage of OCPs) still using OCPS

No of users not refrain from use	No of users refrain from use
327	40

Table 22 demonstrates the no. of users those fall under WHO category 4, i.e. refrain from the usage of OCP but still it continuing with or without under medical surveillance. Amongst the users 89% don't refrain from OCP usage. 11% users refrain from the OCP usage as they fall under WHO category 4 who should not be given OCP. The above table is represented through a pie-diagram in figure 22.

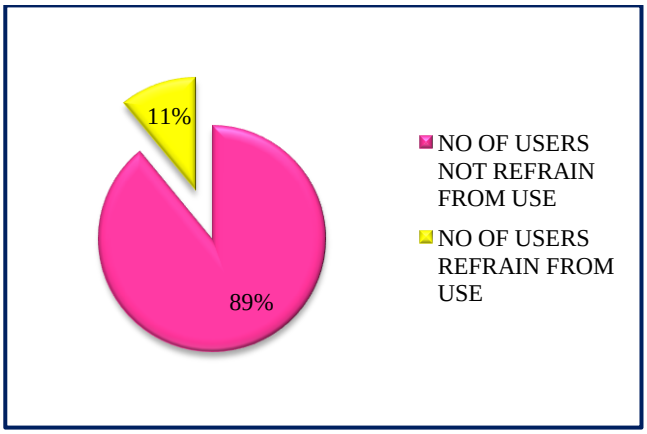

Figure 22: Graphical representation of no. of users in category 4 of WHO guidelines of OCP usage (refrain from the usage of OCPs) still using OCPS

Discussion

The concept of "choice" in the area of population policy has received prominence after the International Conference on Population and Development (ICPD), 1994. The ICPD also "stressed gender equity as a precondition for health and to address women's subordination in reproductive health programmes" (Sciortino, 1998:33).[12] Reproductive choice in India is synonymous with fertility regulation using contraceptive devices. Choosing a contraceptive method superficially may seem to be a personal matter, however studying choice behaviour can help Family Planning Programmes to meet the need of fertility regulations through expanding the choice basket (Ashford, 2008).[13] Choice behaviour of couples is shaped by a number of contextual factors; psychological, social, cultural, economic and political. Gender is an important part of culture, eventually intra-household dynamics as well as exogenous factors give birth to a particular contraceptive choice.

Contraception is one of the proximate determinants of fertility and the most important predictor of fertility transition. The choice of the contraceptive method, however, is influenced by a host of interdependent demographic, cultural, economic, and social factors which means that a multidimensional approach needs to be adopted for analysing the contraceptive use pattern. Any analysis based on a single indicator is unlikely to capture all the dimensions of contraceptive method choice.[14, 15]

Contraception is one of the major determinants of fertility levels. In the developing world, an estimated 122.7 million women have an unmet need for contraception.[16] Almost half of the Asian countries had a contraceptive prevalence of 60% or higher.[17] This represents a continuous challenge for governments and agencies concerned about ensuring access to contraceptives. Unplanned/ mistimed pregnancies generally result from a high unmet need and ineffective use of contraceptives that end in induced abortions.[18] Each year, about 79 million unintended pregnancies occur world-wide.[19] According to the new worldwide estimates of abortion rates and trends, the overall abortion rates are almost similar in both developing and developed world. However, unsafe abortions are dominating in developing countries.[20]

Post-coital emergency contraception may be defined as the use of a drug or a device to prevent pregnancy after intercourse, which has been shown to be safe and effective.[21, 22] Sooner the first dose was taken after intercourse, the greater is the effectiveness. No single mechanism of action for emergency contraception has been identified.

R Baveja et al (2000) study of method-mix approach was used to evaluate informed contraceptive choices in the present study. A total

of 8,077 potential clients were given a balanced presentation of all available contraceptive methods in the national program, i.e., the CuT 200 intrauterine device (IUD), low-dose combined oral pills (OC), condom, and sterilization (female/ male) along with a new method, Norplant®.1 The majority of women opted for spacing methods; among them, the IUD was preferred by about 60% of clients, followed by condoms (9%), OC (6%), and Norplant (5%). Sterilization, mainly female, was accepted by about 17% of the women making an informed choice.[23]

Emergency contraceptive pills may contain higher doses of the same hormones (estrogen, progestin, or both) found in regular combined oral contraceptive pills. Taken after unprotected sexual intercourse or contraceptive failure, such higher doses may prevent pregnancy from occurring. There are three types of ECPs: combined ECPs containing both estrogen and progestin, progestin-only ECPs, and ECPs containing an anti-progestin (either mifepristone or ulipristalacetate).[24]

In present scenario contraception is a very significant awareness among the population. In the midst of various contraceptive methods the impact of oral contraceptive pill as a contraceptive choice is the entity of this study. The study was based in the eastern region of India, in a tertiary care hospital of a metropolitan city. The study had shown the nature of oral contraceptive pill usage amongst the women of fertile age group. The influencing aspects behind the choice, purpose of usage, medical guidelines, and complications regarding the pills were many factors those had been elucidated in this study. How the knowledge influenced the contraceptive choice, users' opinion about the oral contraceptive pill and medical consultations behind the choices had also been discussed in this study.

A main reason for non-usage of OCP was no necessity of contraception (107 non-users) amongst them; which was greatly affected by education and knowledge. Along with that 43 no. of users didn't rely on it for myth of side effects which was also correlated with lack of knowledge. So education, knowledge, cultural backgrounds had great influence behind the choice. This particular fact coincided with the study of Hennink et al upon the contraceptive usage pattern of Asian women. They had also shown that Non-professional women had less knowledge regarding contraception and they were least cautious until their first birth or not even after that. Their choices and methods of family planning were totally influenced by their cultural and religious background.[25]

The objective of usage of OCP is found from table 3; other than contraception bleeding control during menses and PCOS were one of the major reasons of choice of OCP. The objects correlated with the study of P.G.Crosignani which also showed that OCs may be used to treat menorrhagia or symptomatic endometriosis. Use of OCs was associated with a long lasting reduction in the risk of developing cancer of the ovary and the endometrium.[26] Tatjana Gazibara et al had shown in their study that 61 % used the pill as a therapy for dysmenorrhea, though only 8% users were found in this study as using OCP for this purpose.[27]

It was observed from the data that 16% of users also added contraceptive protection along with OCP and 84% of users didn't require any additional contraception. Woods et al conducted a study and to examine pill-taking and condom use during method transitions. Among stable users, only 45% of coital events were associated with both OCP and condom use. Over one-fifth of coital events in all groups were protected by no method of contraception. So they concluded dual use of OCP and barrier contraception remains an elusive goal. However, concurrent missed pills and condom non- use increase pregnancy and infection risk even among stable OCP users.[28]

Limitations of the Study

The study was mainly a questionnaire based survey, so accuracy couldn't be achieved. The study was restricted in the upper class and upper-

middle class of society (as it was a single centred base study) so the data didn't signify the total scenario. Difficulty was faced during study conduction as some of the users failed to remember the pill formulations. There was also hindrance amongst some users regarding continuing the survey about contraception.

Conclusion

Combined pill was effective for 92% of users and ineffective for 8% users. Mini pill was effective for 81% users and ineffective for 19% users. Centchroman was effective for 93% users and ineffective for 7% users. Emergency pill was effective for 94% users and ineffective for 6% users. Probably even more women would use the pill if they had more accurate information regarding the higher failure rates with barrier methods (especially the condom), if misperceptions about OC safety were put to rest, and if greater awareness of the Non-contraceptive health benefits of oral contraceptives could be achieved. Increased education and awareness of women as well as their healthcare providers had the potential to positively affect future contraceptive use. Imperfect oral contraceptive pill (OCP) regimen adherence may impair contraceptive effectiveness. The study described daily adherence patterns of oral contraceptive pill use, analysedoral contraceptive pill protection on an event level basis, and examined pill-taking during method transitions. Unrestrained emergency contraceptive pill usage was also very high amongst the users, which may incline towards a major health crisis in society. A proper medical consultation and through health check-up is very much essential for appropriate oral contraceptive pill usage. Educational background had a major impact upon the choice of oral contraceptives and its usage pattern.

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