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Original Research Article

A comprehensive analysis of contraceptive safety: Implications for gynecological health and education levels

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ABSTRACT

Background: The use of contraceptives is essential for lowering the net reproduction rate and stabilizing population growth. Developing countries are characterized by high birth rates and rapid population growth. With lower contraceptive usage rates among eligible couples and resistance towards family planning methods, achieving population stabilization seems challenging. Therefore, this study aims to study the effects of various contraceptive methods on gynecological health and their safety profiles,

Materials and Method: The present observational study, was conducted in Department Obstetrics and Gynaecology at tertiary health care centre, Panjab, India. A total of 450 women were evaluated with the help of a pre-designed and pre-tested questionnaire to address knowledge, awareness, and perception of contraception among the rural and urban population in Punjab. The data were collected and analysed.

Results: All the participants were known to the traditional contraception and only few were aware about the modern contraception. Participants preferred tubal ligation (43.78%) over vasectomy (75.78%) and rarely considered hysterectomy (1.11%). Most knew about male condoms (99.56%) but fewer about female condoms (0.44%). Among the participants, 59.78% were aware of contraception side effects. Regarding condom use, opinions were divided, with 48.67% in favor and 51.33% against.

Conclusion: Educated individuals were aware of contraception but not its major side effects. Therefore, we suggest investigating social, cultural, and knowledge aspects to improve understanding.

1. Introduction

Contraception means using a method to lower the likelihood of getting pregnant after sexual intercourse.[1] For instance, oral contraceptives not only prevent pregnancy but also lower the risks of endometrial and ovarian cancer while providing protection against pelvic inflammatory disease and ectopic pregnancies. However, they may increase the risk of cardiovascular disease. It's essential to be aware of these factors for informed decision-making.[2]

India, the second-most populous country globally, has a rapidly growing population increasing by approximately 16 million each year. India is still having trouble controlling the baby boom, even though it was the first nation to introduce a comprehensive population control program in 1952.[3]

In 2005, a study representing the entire nation revealed that India achieved 70% satisfaction in meeting the demand for family planning through modern contraceptive methods.[4] Notably, there was a predominant dependence on female sterilization as opposed to reversible contraceptive methods.[5] Historically, India's family planning policies prioritized population control over women's reproductive rights. The focus was primarily on promoting female sterilization. However, the 2014 Family Planning 2020 action plan signifies a shift, still endorsing sterilization with financial incentives but also incorporating reversible modern contraception methods.[6]

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In the National Family Planning program, three new contraceptives were introduced: injectables, a non-hormonal weekly pill, and progesterone-only pills for breastfeeding mothers, all provided for free. Despite their long availability through public health services, the use of intrauterine devices (IUDs) remains low. Condom use increased after HIV prevention efforts. However, reversible contraceptives and male sterilization are still less common in India. Female sterilization remains the primary method, making up two-thirds of total contraceptive use. [7,8]

Family planning reduces maternal ill-health and deaths by preventing unintended pregnancies. It benefits young girls and older women by reducing health risks. It also lowers the need for unsafe abortions and decreases HIV transmissions. Additionally, it promotes girls' education and women's participation in society. Therefore, this study aims to analyze contraceptive safety and its implications for gynecological health and education levels.

2. Materials and Methods

This observational study was conducted at the tertiary care center in Patiyala district of Punjab over a period of one year, from July 2021 to July 2022. In the present study, approximately 450 females of reproductive age between 18 and 45 years were included, and females outside this age group and who were not giving informed consent were excluded. Ethical approval of the study was obtained prior to the initiation of the study.

This was a questionnaire-based study in which predesigned questionnaires were asked to the patients about their knowledge and perception of the use of contraception and results were noted.

3. Results

Table 1: No of participant involved in the study group according to education level

Education Level	No. of cases	Percentage
Primary	242	53.78%
Higher secondary	133	29.56%
Graduate	75	16.67%
Total	450	100.00%

The study investigated how people's understanding and views on contraception varied based on their education levels. It included 450 participants, with the majority (53.78%) having completed only primary education. The next largest group (29.56%) had finished higher secondary education, while 16.67% were graduates.

The age distribution showed that the majority of participants fell within the age groups of 18-26 years (35.11%) and 26-36 years (40.44%) and above 36 years (24.44%). Most participants were from rural areas (77.56%), while a minority resided in urban areas (22.44%). In terms of occupation, the majority were homemakers (77.33%), while a smaller portion were private jobs (22.67%). Marriage duration was divided into less than five years (53.33%) and more than five years (46.67%). Majority of participants were married (99.33%), with very few are classified as unmarried, divorced, or widowed.

All participants across education categories indicated awareness of contraception, with no reported cases of unawareness. Social circles (47.11%) being the most common source of information followed by media (33.78%), health workers (16.00%), and educational institutions (3.11%). Regarding contraception usage, all participants affirmed its use. Barrier methods were the most prevalent (27.56%), followed by OCP (22.44%), and rhythm methods (12.67%). (IUCD) and withdrawal were also commonly used (13.78% and 21.56% respectively), while injections were less common (2.00%). No participants reported using implants.

Table 4 showed that (43.78%) of participants across all education levels expressed willingness to opt for Tubal Ligation while a majority were inclined against vasectomy (75.78%). (1.11%) considered hysterectomy as a contraceptive method. As barrier methods, particularly condoms, (99.56%) of participants were aware of male condoms with fewer knowing about female condoms (0.44%). In case of condom spillage or rupture, participants predominantly reported taking emergency contraceptive pills (57.11%) or doing nothing (42.89%). (59.78%) portion was aware about side effects.

Regarding oral contraceptive pills (OCP), (83.56%) of participants were aware of Mala D while fewer knew about Mala N (16.44%) but were unaware about the side effects of OCP (62.44%). (37.11%) participant expressed interest willingness to opt for OCP while a majority refused (62.89%). Participants were largely aware of IUCD; CuT (100.00%), while (0.67%) knew about Multiload. Only (73.56%) were aware the side effects of IUCD and only few wanted to opt for it.

A majority of respondents had not heard of injectable (96.89%) or implants. Similarly, awareness of specific injectable options was low, with only a small percentage having heard of DBMA (3.11%). None of the participant reported being aware of NTEN. Less proportion of participants had heard of I pill (23.33%). Similar percentage of participant had experienced unintended pregnancies. (23.78%) had prior MTP. 23.11% of the respondents reported opting for medical termination method, while none for surgical method.

4. Discussion

Using contraception lowers the chance of health problems during pregnancy for women, especially teenagers. Babies born within 2 years after their older sibling have a 60% higher risk of dying as infants. Babies born within 2-3 years

Table 2: Demographic characteristics of the participant according to education level

Characteristics	Education Level (No. of Cases)				
	Primary	Higher Secondary	Graduate	Total	Percentage
Age					
(18-26) Years	79	34	45	158	35.11%
(26-36) Years	111	51	20	182	40.44%
(>36) Years	52	48	10	110	24.44%
Total	242	133	75	450	100.00%
Address					
Rural	206	100	45	349	77.56%
Urban	36	33	32	101	22.44%
Total	242	133	75	450	100.00%
Occupation					
Homemaker	198	102	48	348	77.33%
Private Jobs	44	31	27	102	22.67%
Government Jobs	0	0	0	0	0.00%
Total	242	133	75	450	100.00%
Marriage duration					
<5 Years	163	62	15	240	53.33%
>5 Years	79	71	60	210	46.67%
Total	242	133	75	450	100.00%
Marital status					
Married	241	131	75	447	99.33%
Unmarried	0	0	0	0	0.00%
Divorce	1	1	0	2	0.44%
Widow		1		1	0.22%
Total	242	133	75	450	100.00%

Table 3: Questionnaire based on awareness about contraception at education level

Awareness Statement	Responses according to Education Level				
	Primary	Higher Secondary	Graduate	Total	Percentage
Are you aware about Contraception?					
Yes	242	133	75	450	100.00%
No	0	0	0	0	0.00%
Source of information					
Social circle	114	62	36	212	47.11%
Health Worker	45	17	10	72	16.00%
Media	78	46	28	152	33.78%
Educational Institute	5	8	1	14	3.11%
Total	242	133	75	450	100.00%
Do you use any contraception?					
Yes	242	133	75	450	100.00%
Which contraception do you use?					
Barrier	62	33	29	124	27.56%
OCP	49	29	23	101	22.44%
RHYTM	43	13	1	57	12.67%
IUCD	29	23	10	62	13.78%
Injection	7	2	0	9	2.00%
Withdrawal	52	33	12	97	21.56%
Implant	0	0	0	0	0.00%
Total	242	133	75	450	100.00%

Table 4: Knowledge and awareness of contraception in at education level

Awareness Statements	Responses according to education level				
	Primary	Higher Secondary	Graduate	Total	Percentage
Would you opt for Tubal Ligation?					
Yes	108	59	30	197	43.78%
No	134	74	45	253	56.22%
Total	242	133	75	450	100.00%
Would you opt for vasectomy?					
No	194	95	52	341	75.78%
Yes	48	38	24	110	24.44%
Total	242	133	75	450	100.00%
Do you think hysterectomy can be used as a method of contraception?					
Yes	1	0	4	5	1.11%
No	241	133	71	445	98.89%
Total	242	133	75	450	100.00%
Which barrier contraception you know about?					
Male condom	241	133	74	448	99.56%
Female condom	1	0	1	2	0.44%
Total	242	133	75	450	100.00%
What do you do if spillage/rupture of condom					
Takes pill	132	67	58	257	57.11%
do nothing	110	66	17	193	42.89%
Total	242	133	75	450	100.00%
Do you know it's side effects					
Yes	153	73	43	269	59.78%
No	89	60	32	181	40.22%
Total	242	133	75	450	100.00%
Would you use condom					
Yes	129	61	29	219	48.67%
No	113	72	46	231	51.33%
Total	242	133	75	450	100.00%

after their sibling have a 10% higher risk. It's safer for babies when there's a 3-year gap or longer between births.

The present study investigated 450 participants based on their education levels, including those with primary education (53.78%), higher secondary education (29.56%), and graduate education (16.67%). The participants were aged between 18-26 years (35.11%), 26-36 years (40.44%), with fewer above 36 years (24.44%). Most participants lived in rural areas (77.56%) and very few in urban areas (22.44%). The majority were homemakers (77.33%), followed by those in private jobs (22.67%). In terms of marital duration, 53.33% were married for fewer than five years and 46.67% for more than five years, indicating a about equal split. Almost all participants (99.33%) were married, with only a few people single, divorced, or widowed.

All participants, irrespective of education level, were aware about contraception. The key sources of information included social circles (47.11%), media (33.78%), health workers (16.00%), and educational institutions (3.11%).

According to the study of Seidu et al.,[9] they included 691 participants in their study. More than half (56.73%) had not received sexual and reproductive health education, yet most (77.28%) had used contraceptives. Women without sex education had lower odds of using contraception (OR = 0.641, 95% CI 0.443, 0.928), even after adjusting for demographic factors (AOR = 0.652, 95% CI 0.436, 0.975). Non-married women and those exposed to media were more likely to use contraceptives. They concluded that, the need for improved education using local media and social networks in urban slums.

Participants used various contraceptives such as barrier methods (27.56%), oral contraceptive pills (22.44%), rhythm methods (12.67%), IUD (13.78%), withdrawal (21.56%), and injections (2.00%). No one used implants. These findings underscore the importance of diverse contraceptive options for promoting reproductive health.

The knowledge and awareness was varied according to the education level of the participants. Many people were willing to undergo tubal ligation, while they opposed to vasectomy and very few considered hysterectomy as contraception. Male condoms were known by most of the participants and very less people known about the female condoms 99.56% and 0.44% respectively. These results

Table 5: Knowledge and awareness about contraception at education level

Awareness Statements	Responses according to education level				
	Primary	Higher Secondary	Graduate	Total	Percentage
Which OCP you know?					
Mala D	206	107	63	376	83.56%
Mala N	36	26	12	74	16.44%
Total	242	133	75	450	100.00%
Do you know side effect of OCP?					
Yes	82	51	36	169	37.56%
No	160	82	39	281	62.44%
Total	242	133	75	450	100.00%
Which side effect do you know of OCP?					
Irregular period	4	4		8	1.78%
Headache	4	7	1	12	2.67%
Nausea	8	8	4	20	4.44%
Weight gain	47	19	17	83	18.44%
Acne	4	1	2	7	1.56%
Total	67	39	24	130	28.89%
Would you opt for OCP?					
Yes	98	55	14	167	37.11%
No	144	78	61	283	62.89%
Total	242	133	75	450	100.00%
Which IUCD do you know of?					
CuT	242	133	75	450	100.00%
Multiload	2	1	0	3	0.67%
Total	244	134	75	453	100.67%
Do you know side effect of IUCD?					
Yes	58	38	23	119	26.44%
No	184	95	52	331	73.56%
Total	242	133	75	450	100.00%
Would like to go for IUCD?					
Yes	70	33	6	109	24.22%
No	172	100	69	341	75.78%
Total	242	133	75	450	100.00%

were in concordance with the results of the NFHS-4 results for NCT Delhi and India[10] and Gore et al.[11] the most common method of contraception used was male condoms.

According to the study of Haldar A et al.[12] in West Bengal (58.4%) Consistent contraceptive use is essential to achieve the effectiveness of a particular contraceptive method, which can further influence the choice, and decision of eligible couples to continue or discontinue the used contraceptive method in the future.

In present study, side effect of the OCP was not known to a considerable population 62.44% and those who were aware they only know the common side effects such as irregular periods, headache, nausea, weight gain, and acne. The participants who were interested in opting for OCP were 37.11% while a notable portion decline for it (62.89%). Peoples are largly aware about the ICUD and CuT, while only few knew about the Multiload. A considerable percentage of individuals (73.56%) were uninformed of the negative effects of IUCD. Despite this, a small fraction (24.22%) indicated interest in IUCD, while the bulk (75.78%) was against. In a study conducted by Khatri et al.,[13] nearly half (48.25%) participants who were aware about IUCD as a modern contraceptive but not willing to use it.

Large participants were not heard about the injectable and implants. This shows the potential literature gap regarding to these contraception. Awareness of specific injectable options was low, with only a less percentage having heard of DBMA (3.11%) and none of the participant reported being aware of NTEN. Response for awareness about emergency contraception, showed less proportion of participants had heard of I pill (23.33%), indicating some awareness of this option for preventing unintended pregnancies.

Mogan et al.,[14] more than half of eligible couples had used contraception in the previous six months, with 54.7% using it regularly. Gordon et al.[15] in their study, they concluded that, Women with more education tend to like the idea of family planning, know more about contraceptives, and visit clinics more often, leading them

Table 6: Knowledge and awareness about contraception at education level

Awareness Statements	Responses according to education level				
	Primary	Higher Secondary	Graduate	Total	Percentage
Have you heard of injectable?					
Yes	6	3	5	14	3.11%
No	236	130	70	436	96.89%
Total	242	133	75	450	100.00%
Which injectable have you heard of?					
DBMA	6	3	5	14	3.11%
NTEN	0	0	0	0	0.00%
Total	242	133	75	450	100.00%
Have you heard of Implant?					
Yes	0	0	0	0	0.00%
No	242	133	75	450	100.00%
Total	242	133	75	450	100.00%
Have you heard of I pill (emergency pill)?					
Yes	50	35	20	105	23.33%
No	195	97	53	345	76.67%
Total	245	132	73	450	100.00%
Did you ever had unintended pregnancy?					
Yes	50	35	20	105	23.33%
No	195	97	53	345	76.67%
Total	245	132	73	450	100.00%
Any prior MTP?					
Yes	49	37	21	107	23.78%
No	191	99	53	343	76.22%
Total	240	136	74	450	100.00%
How did you deal with unintended pregnancy?					
Medical Method	49	35	20	104	23.11%
Surgical Method	0	0	0	0	0.00%

to use contraceptives more.

Also, according to the WHO, between 2000 and 2020, the number of women using a modern contraceptive method increased from 663 million to 851 million. An additional 70 million women are projected to be added by 2030. During the same period, the contraceptive prevalence rate (percentage of women aged 15–49 who use any contraceptive method) increased from 47.7% to 49.0%.[16]

In this study none of the respondents reported using surgical termination procedures. These findings emphasized the necessity of focused educational initiatives to raise awareness and comprehension of various contraceptive choices, especially among people with poor expertise.

5. Conclusion

According to this study, education is the key factor for the family planning. All the participants were aware about the traditional contraception but only few of them were aware about the modern contraception. In order to encourage continuous use of contraceptives, it is important to investigate social and cultural aspects as well as knowledge levels. Identifying obstacles to the adoption of contemporary contraception can be aided by qualitative and implementation studies.

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None.

7. Conflict of Interest

None.

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