

“MARKET SURVEY OF ORAL CONTRACEPTIVES WITH SPECIAL PERSPECTIVES”

A PROJECT WORK SUBMITTED TO

NIRMA UNIVERSITY

In partial fulfilment of the requirements for the degree of

Bachelor of Pharmacy

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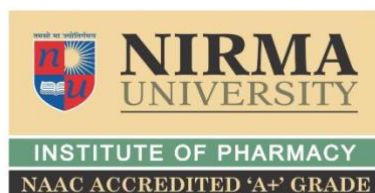
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Semester VIII

UNDER THE GUIDANCE OF

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May 2023

CERTIFICATE

This is to certify that the Project Work entitles "MARKET SURVEY OF ORAL CONTRACEPTIVES WITH SPECIAL PERSPECTIVES" is the bonafide review work carried out by, DHVANIL RADADIYA (19BPH034), JAYDEEP JADAV (19BPH051), MARMIK KANSARA (19BPH074), SNEHA GORANIA (19BPH101), OM MIRANI (20BPH131), B. Pharm semester VIII under my guidance and supervision in the Institute of Pharmacy, Nirma University, Ahmedabad under our guidance and supervision during the academic year 2022-23. This work is up to my satisfaction.


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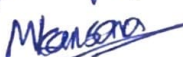
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DECLARATION

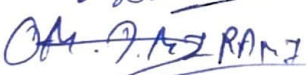
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ABSTRACT

This research explores the emerging trends in oral contraceptives. Oral contraceptives are a method of contraception to prevent unwanted pregnancy and they are claimed to be the most efficient way if compared to other methods of contraception, which are physical contraceptives like condoms, diaphragms, Intrauterine devices or injections. There seems to be growth seen in the use of oral contraceptives in the Indian market, therefore this research survey aims to collect, interpret and analyse data based on perspectives of different demographics of the Indian society. This survey also aims to understand the marketing of oral contraceptives by collecting the viewpoints of different doctors, medical representatives and industrialists.

Oral contraceptives benefits are not just limited to contraception, but it has many other advantages in the treatment of acne, alopecia, etc. There are mainly two types of oral contraceptive pills, which are hormonal and non-hormonal. Moreover, oral contraception plays a crucial role in family planning in India, as India is the highest populated country in the world, with population of more than 1.4 billion people. Under different government schemes, oral contraceptive pills like Saheli, Mala D, etc. are free for the public. Counselling sessions are also provided by skilled professionals to increase the awareness of oral contraception.

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1. INTRODUCTION TO ORAL CONTRACEPTIVES

India's population has recently overtaken China and has become the highest populated country in the world. Oral contraceptives are much known method globally and are used for safe sexual intercourse and to stop the sperm from fertilizing the embryo. The first oral contraceptive tablet was made and sold in 1960. After that, many newer versions of pills have been formulated like Progestin Only Pills (POPs) and Combined Oral Contraceptives (COCs) [1]. POPs have a very small dose of progestin and is prescribed to breast feeding mothers. The invention of the first non-steroidal oral contraceptive pill was done by CDRI, Lucknow [1]. Emergency oral contraceptive pills are also available in the market which can be ingested for up to around 72 hours after the sexual intercourse in order to avoid the risk of unwanted pregnancy. These pills contain progesterone and oestrogen both or only progesterone.

According to the UN's report, it was found that around 90% of women from around the world use advanced method of contraception, which included oral contraceptives [1]. This method surpasses other methods in continents such as Africa, Oceania and Europe. However, the usages of oral pills are relatively pretty low. On the contrary, the use of ECPs is rapidly increasing around the globe. In America alone, the ratio jumped from 4.2% to 11% from 2002 to 2010. In India, the sales of ECPs surged to 88% from 2009 to 2014 and stood third in line after USA and China.[1].

According to the National Institute on Drug Abuse, misuse of prescription drugs means "taking a medication in a manner or dose other than prescribed; taking someone else's prescription, even if for a legitimate medical complaint such as pain; or taking a medication to feel euphoria". Not proper use of medicines could lead to mental and physical abuse conditions. Drug abuse is the using of a drug substance for non-clinical purposes to experience psychotropic effects. OTCs are highly prone to be used adversely as these drugs are available in the market and can be bought without a prescription from a Pharmacy.[2]

Apart from contraceptive benefits, it has been proven that hormonal contraceptives are beneficial for other primary diseases. Oral contraceptives (OCs) containing anti-androgenic progestogens were shown to be useful mode of

for treatment of androgenisation symptoms like (seborrhoea, acne, alopecia). And suppression of the hypothalamic-pituitary-ovarian axis OCs have proven to be effective in the removal of follicular cysts.[3]

There are mainly two major methods of oral contraceptives; *hormonal and non-hormonal*.

Hormonal: [1]

COC	Contains ESTROGEN+PROGESTERONE
POP	Contains only PROGESTERONE It is safe for usage of breast-feeding mothers.
ECP	Contains only PROGESTERONE To be taken in single doses, in emergency situations only.

Non-Hormonal: [1]

ORMELOXIFENE	It is non-steroidal. Safe for breast feeding mothers. Taken x2 in a week for initial 3 months.
--------------	--

1.1 Oral contraceptives in family planning

The first country to establish the “Family Planning Programme” in the year 1951 was India [1]. This programme was originally established to control the population; however, it shifted its focus to more important issues like improving the quality of health of mothers and babies and decreasing the risk of life-threatening diseases affecting pregnant women and new-borns.

Under the Ministry of Health and Family Welfare, this programme was launched and the main interventions of this particular programme were safe pregnancy, adequate spacing between two babies and increased neo natal care. Even though oral contraception has been proven to be the safest and most effective way of avoiding unwanted pregnancy, the use of it is as low as only 4% in India.

Along with postnatal sterilization and postnatal IUDs, other postnatal family planning options can be oral pills which are safe for breast feeding mothers, which contains only progesterone i.e., POPs and once a week pill i.e., Ormeloxifene. These are all included under the National Family Planning Programme schemes. Many policies were made, to increase the awareness of oral contraception among women by providing them with sufficient information, easy access to the oral pills, counselling and removing unwanted restrictions in buying of these pills.

Counselling played a very crucial role in this programme as it is a patient-oriented approach and allowed for the counsellor, (who is a skilled and trained personnel) to understand the attitude, psychology, ethics, beliefs, priorities and needs of the patient and provided them with the best non-judgmental advice. And the confidentiality was also maintained during and after the sessions. Counselling is a skill, which requires understanding of factors that anticipate the patient's decision-making psychology, as it is related to their medication's regime. Counselling differs from one person to other.[4]

There are mainly 3 stages of counselling; [1]

<u>STAGE 1;</u>	General counselling	<p>Counsellor helps in selecting the desired family planning method.</p> <p>To build a safe environment with the patient.</p> <p>Usage of pictures, samples, graphs etc and rule out methods which are not suitable for the patient.</p>
<u>STAGE 2;</u>	Method specific counselling	<p>Providing details about the methods which are not ruled out.</p> <p>Remove and clear out any misconceptions and disbeliefs.</p> <p>Address any questions and queries.</p>

		<p>Ask and give complete details of the method selected by the patient.</p> <p>Conduct HIV tests if the patient shows any symptoms of STDs.</p> <p>Give follow up guidance.</p>
<u>STAGE 3;</u>	Follow-up counselling	<p>Discuss if the client is facing any problems or adverse effects and help them manage it.</p> <p>Motivate the patient to be consistent.</p>

¹*Counselling for special groups* [1]

<u>Teenagers and young adults</u>	This group of people needs specific and youth understanding counsellor who can understand their ideology fully.
<u>Males</u>	Understanding the male perspective is also very important in family planning and it should not be ignored.
Sexism affected patients	Violence and rape affected victims are included under this category and ECPs are prescribed to them.

1.2 Exploring Birth control Techniques

1.2.1 Introduction:-

The intentional use of methods, tactics, or contraceptives is called birth control. It is an important aspect of reproductive health since it allows people to organise their families, space out their kids, and avoid unplanned pregnancies. From hormonal techniques to barrier approaches, there are many different birth control options accessible. This essay will examine several birth controls options, their benefits and drawbacks,

A. Oral contraceptives:- usually referred to as "the pill," are a common method of birth control. They have artificial hormones that stop ovulation, which makes it challenging for sperm to fertilise an egg. When used properly, they are quite successful, with an annual failure rate of less than 1%. Different formulations of oral contraceptives are available, including progestin-only pills and combination pills that contain both progestin and oestrogen. They also offer non-contraceptive advantages include controlling periods, lowering acne, and easing premenstrual syndrome symptoms. However, they could result in negative side effects like nauseousness, weight gain, and mood swings. Additionally, they must be taken every day and might interact with other medications.

B. Injections and Implants:- Long-acting birth control options include injectable contraceptives like Depo-Provera and implants like Nexplanon. They have artificial hormones that stop ovulation and make cervical mucus thicker to impede sperm. With fewer than 1% failure rate annually, they are quite successful. Implants are placed beneath the skin and can last up to three years, whereas injectable contraceptives are administered every 12 weeks. They provide discretion, comfort, and don't need regular maintenance. However, they might result in mood swings, weight gain, and irregular bleeding. They may potentially cause issues including infection or ejection and need a medical professional to administer.

1.2.2 Barrier techniques include

A. condoms:-which offer protection against both pregnancy and STDs. Condoms are a common type of barrier technique. They are worn over the penis or put into the vagina and are constructed of latex or polyurethane. By erecting a barrier between the penis and vagina, they stop sperm from entering the vagina. Many people use condoms as it is accessible, inexpensive, and simple to use. They don't need a prescription and provide privacy. However, they might reduce sensitivity during sex, break or come off, and some people might develop allergies as a result.

B. Diaphragms and Cervical Caps:- These barrier devices, which are inserted into the vagina to cover the cervix and prevent sperm from entering inside the uterus, are known as cervical caps and diaphragms. They are constructed of silicone or

latex and call for a doctor's prescription. When used properly, they are effective, with a failure rate of 6-12% annually. They provide discretion and don't have adverse systemic hormonal effects. They can be tricky to use properly and must be inserted prior to sex. They could also raise the risk of urinary tract infections.

Intrauterine Devices (IUDs):

1.2.3 IUDs: Intrauterine devices

a. copper IUD:-it is put into the uterus to prevent conception. Copper IUDs like ParaGard are non-hormonal devices. They have copper in them, which poisons sperm and hinders fertilisation. With fewer than 1% failure rate annually, they are quite successful. They can endure up to ten years and provide long-term protection. They can be used as emergency contraception and do not have any adverse systemic hormonal effects. They may also raise the risk of pelvic inflammatory disease, as well as heavier periods and cramps.

b. Hormonal IUDs:-Hormonal IUDs, like Mirena and Skyla, are inserted into the uterus and release hormones that thicken cervical mucus and stop ovulation. With fewer than 1% failure rate annually, they are quite successful. They can last up to five years and provide long-term security. Additionally, they provide non-contraceptive advantages like reducing menstrual bleeding.

2. MARKETING PERSPECTIVES OF ORAL CONTRACEPTIVE IN INDIA

Unwanted 21 have been marketing its products for quite some time.

With its description on the You Tube channel, Mankind Pharma clearly tells their intent of marketing- “Go for sex if you want to, have lots of it, just don't procreate, if you don't want to. Just use a contraceptive, use Unwanted21days contraceptive tablets.” Unwanted 21 Days, from the house of Mankind Pharma, had launched campaign #UnwantedGyaanSeSavdhaan in 2021. The campaign was aimed at young couples to increase awareness about family planning and the importance of family planning.

The video campaign has a wedding ceremony as the central theme and showcases two individuals getting married and the immediate question asked by

their respective families, 'how soon will they get to see a grandchild? The two views, from the older generation and one from the modern generation are then debated upon in form of quick, witty, catchy phrases. The campaign ends with a simple, clear message: be aware of unwanted opinions from elders, only plan a family when you as a couple are ready.

The campaign video is launched in Hindi and adapted in three other languages: Marathi, Bhojpuri, and Bengali. This allows the pharmaceutical companies to target more rural areas and increase sales in the villages and small towns, by raising awareness about their products.

Joy Chatterjee, general manager - sales and marketing, Mankind Pharma, said, "There has been a lot of debate around the right time to conceive and we feel that every couple has the freedom to choose when they can plan their pregnancy. As a contraceptive brand, we are trying to raise the awareness towards family planning as it helps in improving maternal health, child survival, reducing number of abortions and woman empowerment."

However, with the awareness focuses more on family and the Indian perceptions of family planning, the main essence of informing of what the contraceptive is seems to be lost. An interested individual would have to research more on what the contraceptive is, how to use it and what the side effects of using the contraceptives would be.

Another campaign was launched by the pharma company prior to this, with its tagline being, #ShhisNotOkay, which aimed at clearing the taboo around family planning and normalising talks about family planning. However, again the use of contraceptives and safety and efficacy of the contraceptive regime were not highlighted.

This seems to be the trend with these campaigns, they focus more on social awareness about the use of oral contraceptives and when to use them, but lack focus on what oral contraceptives are and what effects they could have on the individual including their adverse effects.

Furthermore, SHOPS Plus partnered with the Ministry of Health and Family Welfare in India to create a TV campaign on oral contraceptive pills. This

advertisement highlighted the taboo around pills and showed that the pills were safe to use. The family welfare

Emergency Contraceptives

The biggest marketing advantage of unwanted 72 is its name. The pill name is very self-explanatory, direct and simple to understand when to take it, within 72 hours of intercourse. However, looking at recent advertisement campaigns, Unwanted 72 has been somewhat quiet, maybe due the allegations of violating the Drugs and Cosmetics act in 2010. I-pill too has reduced heavy marketing of its products after 2010.

The government seems to be focusing more on safer contraceptives rather than emergency contraceptives. The only activity was seen from Tata 1mg recently, who demonstrated the pros and cons of unwanted 72 and a full descriptive guide on the uses of the pill on there you tube channel. A complete ethically marketing video was put out with ample information.

3. DRUGS USED IN ORAL CONTRACEPTIVES

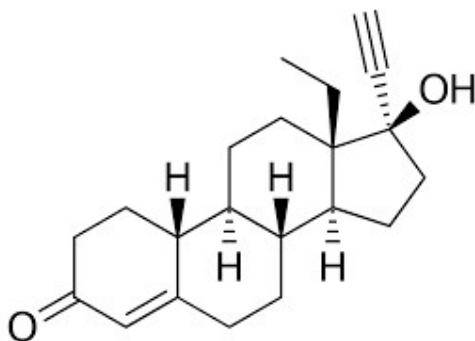
Drug name: Levonorgestrel

Trade names:

UNWANTED-72 tab; MANKIND

PILL 72 tab; CIPLA

Structure:



IUPAC name: (8R,9S,10R,13S,14S,17R)-13-ethyl-17-ethynyl-17-hydroxy-1,2,6,7,8,9,10,11,12,14,15,16-dodecahydrocyclopenta[*a*]phenanthren-3-one

Stereo chemistry: LNG is a levo isomer of Norgestrel. (SaikiaHiteswar, 2011)

Pharmacokinetics:

“After administration, progesterone is quickly absorbed regardless of the route. Its plasma half-life is around 5 minutes, and minor amounts are momentarily retained in body fat. It is converted to pregnanediol and conjugated with glucuronic acid almost entirely in the liver. It is eliminated as pregnanediol glucuronide in the urine. The majority of synthetic progestins undergo significant metabolism and are primarily eliminated in the urine as inactive products. LNG must be administered orally. Action lasts for one to three days. Androgenic, antiestrogenic, and anabolic effects are present. The half-lives of synthetic progestins are substantially longer; for example, norethindrone has a half-life of about 7 hours, norgestrel of about 16 hours, gestodene of about 12 hours, and MPA of about 24 hours.” (SaikiaHiteswar, 2011)

Mechanism of action:

“The active ingredient in the racemic combination of norgestrel is levonorgestrel (LNG—17alpha-ethynyl-18-methylestr-4-en-17beta-ol-3-one), a second-generation synthetic progestogen. It binds to androgen and progesterone receptors, delaying the release of gonadotropin-releasing hormone from the hypothalamus. The luteinizing hormone surge that takes place during the pre-ovulatory phase is tempered by this activity. In the end, it prevents fertilisation by suppressing follicular rupture and releasing a viable egg from the ovaries, which delays or inhibits ovulation. The pre-ovulatory stage is also where it can be taken for maximum effectiveness. Levonorgestrel also causes the cervical mucus to thicken, which assists by obstructing sperm movement and passage. Recent research has found no proof that levonorgestrel significantly alters the endometrium in order to prevent conception.” (Vrettakos& Bajaj, 2023)

Contraindications:

“The emergency contraceptive version is contraindicated in a number of situations, including allergy, hypersensitivity, and severe liver illness, pregnancy,

and drug-drug interactions with medications that induce liver enzymes.” (Back & Orme, 1990)

“The contraindications for the intrauterine device include pregnancy, active cervicitis or vaginitis, probable cervical dysplasia, breast cancer, and uterine malformations (fibroids, cysts).” (Beatty & Blumenthal, 2009)

“Emergency contraception form: Although it is not recommended for use by women who are certain they are pregnant, there is no evidence or information to suggest that accidental exposure to the drug during pregnancy would have any negative consequences on the mother or foetus.”(Curtis et al., 2016)

“IUD use during pregnancy: It is not recommended to use an IUD if you are pregnant or fear you might be. Pregnancy category X is ethinylestradiol and levonorgestrel together.

Levonorgestrel is available in breast milk during breastfeeding; however, the relative infant dose is just 8%. When the relative baby dose of a medicine is less than 10%, breastfeeding is acceptable.” (Hinya&To, n.d.)

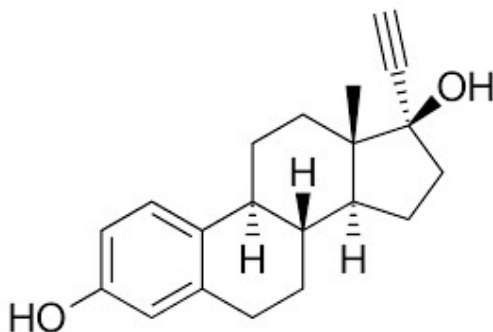
Drug name: Ethinyl Estradiol

Trade names:

Progyonon C (0.02 mg) ; Zydus Cadila

Provironum (25 mg) ; Zydus Cadila

Structure:



IUPAC name:

(8*R*,9*S*,13*S*,14*S*,17*R*)-17-ethynyl-13-methyl-7,8,9,11,12,14,15,16-octahydro-6*H*-cyclopenta[*a*]phenanthrene-3,17-diol

Mechanism of Action:

“The main hormone responsible for preventing pregnancy is progesterone. The primary mode of action is ovulation prevention; they impede follicular growth and stop ovulation. The hypothalamus uses progesterone negative feedback to reduce the gonadotropin-releasing hormone's pulse frequency. This, in turn, will limit the secretion of luteinizing hormone (LH) and follicle-stimulating hormone (FSH) (LH). There is no rise in estradiol levels if the follicle is not growing (the follicle makes estradiol). The mid-cycle LH surge is prevented by the progestogen negative feedback and the absence of oestrogen positive feedback. Ovulation is inhibited because no follicle has formed and no LH surge has occurred to release the follicle.”

“Because oestrogen slows the anterior pituitary's ability to secrete FSH, it has some effect on follicular development, though it is less pronounced than progesterone's. The capacity of progesterone to prevent sperm from getting through the cervix and upper vaginal canal by making the cervical mucus hostile is another major mode of action. Although there is no evidence that progesterone-induced endometrial atrophy prevents implantation, it should.” (Baird & Glasier, 1993)

Adverse effect:

“No sexually transmitted diseases are shielded from by these medications (STDs). Therefore, it is strongly advised to use a condom, especially if the partner is a stranger. It's important to regularly check on the patient to make sure she isn't experiencing any negative side effects.” (McCarthy et al., 2019)

“POP users have mentioned follicular ovarian cysts and an increase in acne. The most frequently reported negative effects of POP are changes in menstruation and unexpected, irregular bleeding.” (TAYOB Research Fellow et al., 1985)

“Progestogen-only OCs frequently result in menstrual alterations but have fewer systemic side effects than combination OCs. Their long-term consequences are still unknown.” (Baird & Glasier, 1993)

“Both COC and POP have significant drug interactions, and hence patient medication history should be taken thoroughly before prescribing OC, including supplements. For example, co-administering OC with anti-seizure medicines (phenytoin, carbamazepine, oxcarbazepine, lamotrigine, barbiturates) can result in a lower level of OC in blood and reduce the effectiveness of OC” (Crawford, n.d.)

4. SURVEY ON ORAL CONTRACEPTIVES

4.1 Female perspective on oral contraceptives

This survey was carried out to understand the females (i.e. patients) perspective on oral contraceptives. The survey was available for females of age 16 and onwards and of all backgrounds. Total of 70 responses was collected (Figure 1). This survey was aimed to understand and evaluate the awareness of oral contraceptives in the Indian market.

What is your age?

70 responses

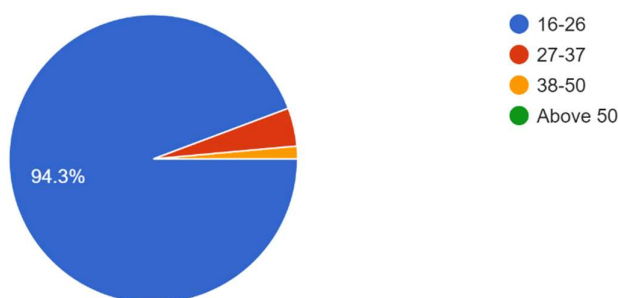


Figure 1. The pie chart shows the range of age of females covered under the perspective of female for the present survey on oral contraceptives.

Majority of the females (around 95%) who participated in the survey were between the age of 16 to 26 years as it is evident from the pie chart above (Figure 1).

Do you know what are oral contraceptives?

70 responses

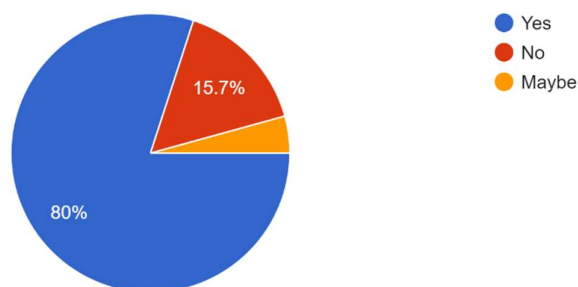


Figure 2. The pie chart reveals the data on whether the participants knew about the oral contraceptives beforehand or not.

Around 80% of females were aware about oral contraceptives according to the survey and around 15% were not about oral contraceptives. (Figure 2)

From what source have you received this information?

70 responses

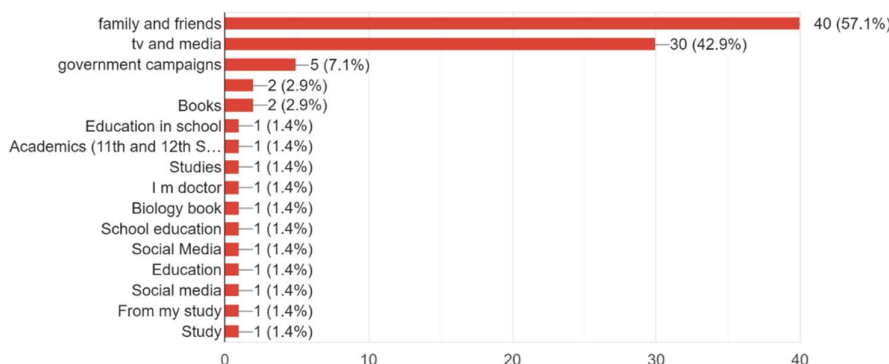


Figure 3. The bar graph displays the sources from which the participants may have received the information on oral contraceptives.

The survey asked the volunteers to select the source from which they have heard about oral contraceptives. And it was found that majority of the patients i.e.; around 57% knew about it from family and friends. Around 43% had heard from tv and media. And the rest from other sources like government campaigns, school, social media etc. (Figure 3).

Have you ever taken any oral contraceptive?
70 responses

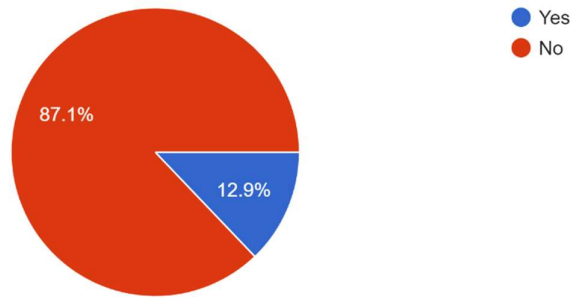


Figure 4. Given pie chart gives insights about whether the participants have ever taken an oral contraceptive or not.

According to the survey, it was found that 87% of the female patients had never taken an oral contraceptive in their lifetime but around 13% did. (Figure 4)

If yes, was it prescribed by your doctor?
44 responses

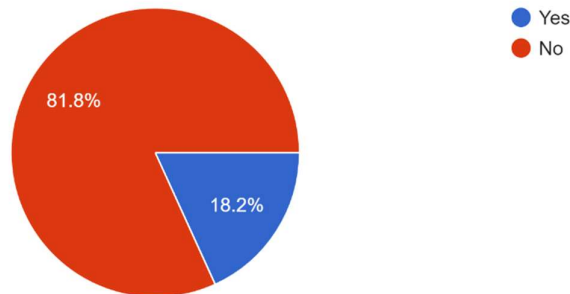


Figure 5. If the oral contraceptive which was taken by the participant was prescribed by a professional doctor or not is shown in the pie chart.

According to the survey, out of the 87% of females who had taken an oral contraceptive, around 82% of them were not prescribed by the doctor and only 18% of them had been. (Figure 5).

Did you experience any side effects after taking an oral contraceptive?
38 responses

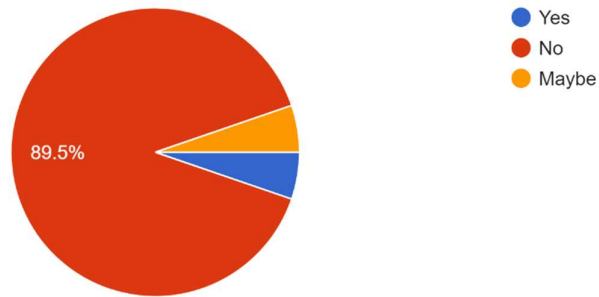


Figure 6. Above given pie chart depicts information on any side effects were observed or not by taking the oral contraceptives.

According to the survey, 89.5% of the patients did not experience any kind of side effects. However, around 5% of them did experience some side effects. (Figure 6).

Are oral contraceptives easily available in your nearest pharmacy store?
56 responses

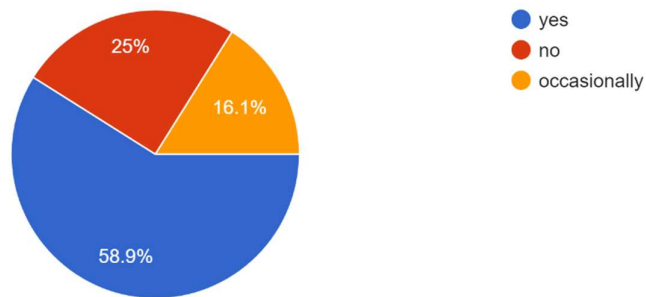


Figure 7. Pie chart shows the data about easy availability of oral contraceptives in the nearest pharmacy store.

It was found from the survey that in the Indian market, oral contraceptives were only available in the nearest pharmacy store of 58.9% of participants, whereas 25% of females didn't have access to it at their nearest pharmacy. (Figure 7).

Do you think oral contraceptives are more efficient than physical contraceptives (eg; condoms etc.)?
62 responses

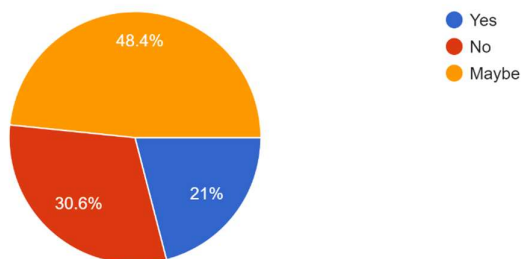


Figure 8. The patients view on efficiency of oral contraceptives compared to physical contraceptives are shown in above pie chart.

According to the survey, 48.4% agreed that oral contraceptives are more effective than physical contraceptives, but 30.6% of females disagreed to this. (Figure 8).

Would you recommend oral contraceptives to other females?
58 responses

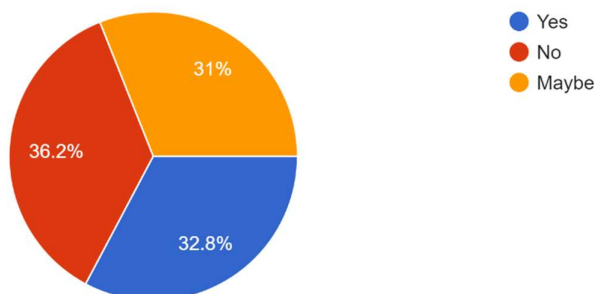


Figure 9. Patients point of view on recommending oral contraceptives to other females is depicted in above pie chart.

According to the survey, 32.8% females agreed that they would be recommending oral contraceptives to other females, whereas, more than 36% said they wouldn't be recommending this to their other fellow female friends. (Figure 9).

4.2 General perspective on oral contraceptives

The use of oral contraceptives has become increasingly prevalent among

women worldwide. With a variety of options available, such as combination pills, progestin-only pills, and extended cycle pills, it is important to understand the preferences and experiences of women who use these contraceptives. In this study, we conducted a market survey to gather information on the usage patterns, perceptions, and attitudes towards oral contraceptives among women. We collected 190 responses from a diverse sample of women, and our findings provide valuable insights into the current landscape of oral contraceptive usage. By understanding the needs and preferences of women who use oral contraceptives, healthcare providers and pharmaceutical companies can better tailor their products and services to meet the needs of their target audience.

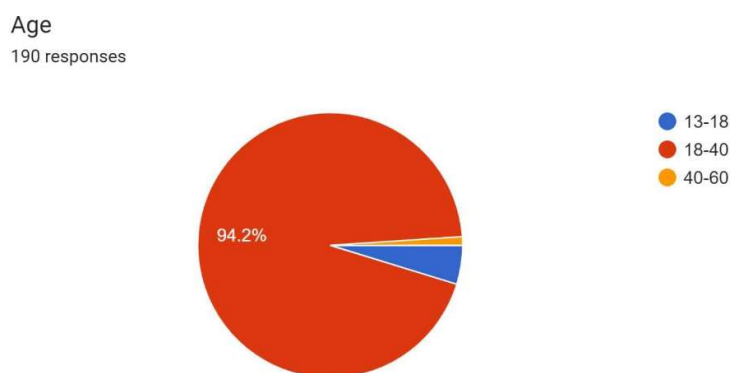


Figure 10. The age range of the general public participating in the survey is illustrated in given pie chart.

The data shows that the majority of respondents (94.2%) fall within the age range of 18-40, with a small percentage (4.7%) falling within the 13-18 age range and an even smaller percentage (1.1%) falling within the 40-60 age range. This suggests that companies and healthcare providers may need to tailor their marketing and educational materials to the specific needs and preferences of women in the 18-40 age range. Additionally, the low percentage of respondents in the 13-18 and 40-60 age ranges indicates a potential need for further research and education on the use of oral contraceptives for these groups. (Figure 10).

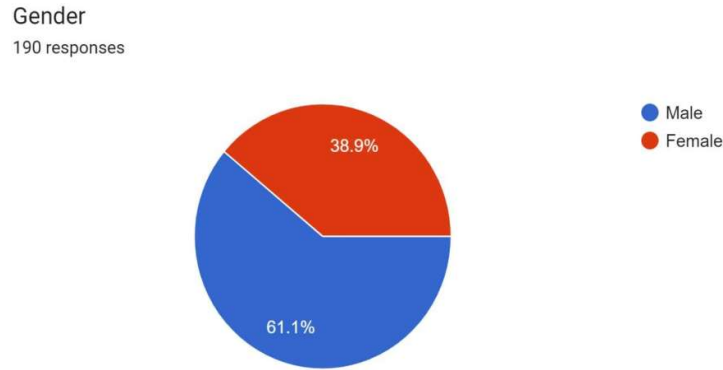


Figure 11. The given pie chart shows the gender of the participants participating in the survey.

The data shows that the majority of respondents (61.1%) identified as male, while the remaining 38.9% identified as female. However, it is important to note that the sample of respondents may not be representative of the overall population of women who use oral contraceptives, given the higher percentage of male respondents. This may impact the generalizability of the findings to this population. Further investigation may be needed to understand the reasons for the higher percentage of male respondents and whether this has affected the responses to other survey questions.

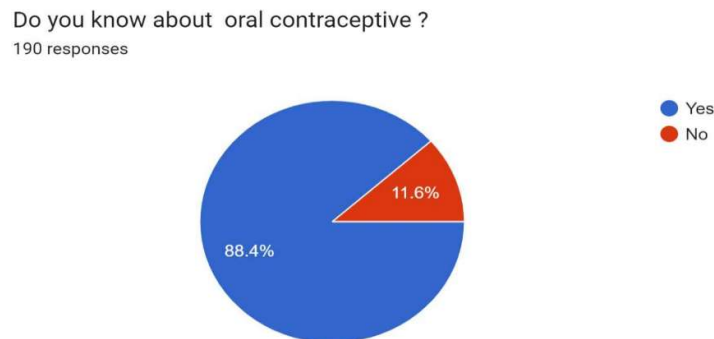


Figure 12. A glance at given pie chart reveals the information on whether the participants knew about oral contraceptives or not.

The data shows that 88.4% of respondents indicated that they know about contraceptives, while the remaining respondents did not. This suggests that most respondents may be familiar with oral contraceptives. However, it's important to keep in mind that knowing about contraceptives does not necessarily mean that respondents have accurate knowledge about their effectiveness or potential side effects. Further exploration of potential knowledge gaps or barriers to accessing

information about contraception could be useful.

(Figure 12).

From where do you know ?

190 responses

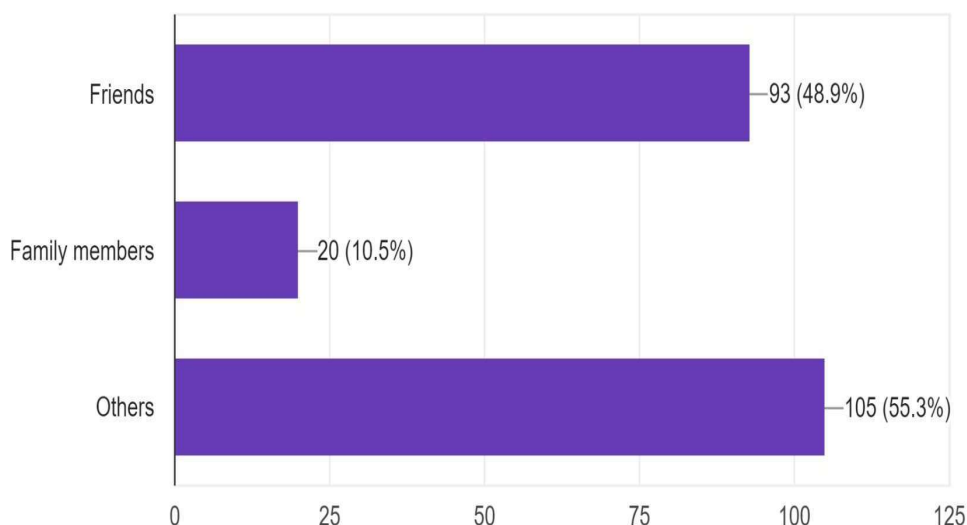


Figure 13

The bar graph shows the source of information from which the general public was aware about the oral contraceptives.

Of the respondents who answered the question about sources of information, 48.9% indicated that they learned about contraceptives from friends, 10.5% learned from family members, and the majority (55.3%) learned from other sources. This data can be useful in understanding the sources of information that people commonly use to learn about oral contraceptives, which could help healthcare providers and educators tailor their messaging to reach different groups of people. However, further investigation may be needed to understand which specific sources of information are most commonly used and trusted by respondents in the "others" category. (Figure 13.)

Do you know what oral pills are given free under national programme ?

190 responses

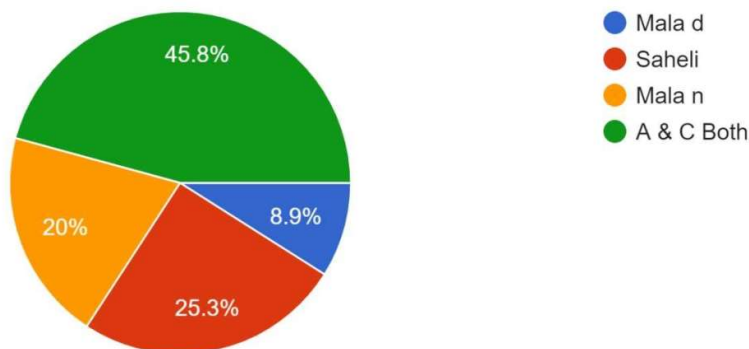


Figure 14. The responses on awareness of the general public on the free oral contraceptives given by the government are shown in given pie chart.

Certainly! Based on the responses provided, it appears that "Saheli" was the most commonly known oral contraceptive among the respondents (25.3%). "Mala N" was the second most commonly known (20%), followed by "Mala D" (8.9%) and a combination of "Mala D" and "Saheli" (45.8%). It's important to note that these results may not be representative of the population as a whole, as the respondents were likely selected from a specific region or demographic. Further research may be needed to confirm these findings and understand the factors that contribute to differences in awareness and usage of specific types of oral contraceptives.

Do you know that from which day you have to start oral pills?

190 responses

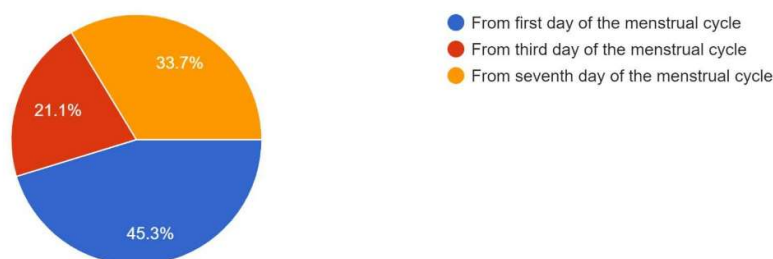


Figure 15. A glance at given pie chart clears information on the awareness of taking the medicine at right time.

The data you provided indicates that the majority of respondents who answered the question about when they started taking oral contraceptive pills

began on the first day of their menstrual cycle (45.3%). The second most common start date was on the seventh day of the menstrual cycle (33.7%), followed by the third day of the menstrual cycle (21.1%). It's important for healthcare providers to be aware of these findings and educate their patients on the correct timing of oral contraceptive pill use to ensure maximum effectiveness in preventing pregnancy(Figure 15).

Mini pill or micro pill contains?

190 responses

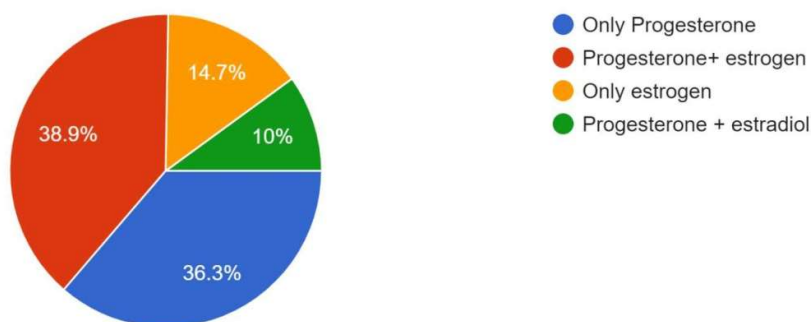


Figure 16. The responses on asking about general awareness on the content of mini and micro pills are depicted in given pie chart.

According to the data you provided, the most common answer among respondents about what the micro pill or mini pill contains was a combination of progesterone and estrogen (38.9%), followed by only progesterone (36.3%), only estrogen (14.7%), and a combination of progesterone and estradiol (10%). It's important to note that the correct answer is that the mini pill or micro pill contains only progesterone.

The data suggests that there may be some misunderstanding among the respondents about the contents of the mini pill or micro pill, highlighting the importance of educating the public about different types of oral contraceptives and their mechanisms of action, as well as the potential side effects and benefits of each type. (Figure 16.)

Non steroidal oral contraceptive pills

190 responses

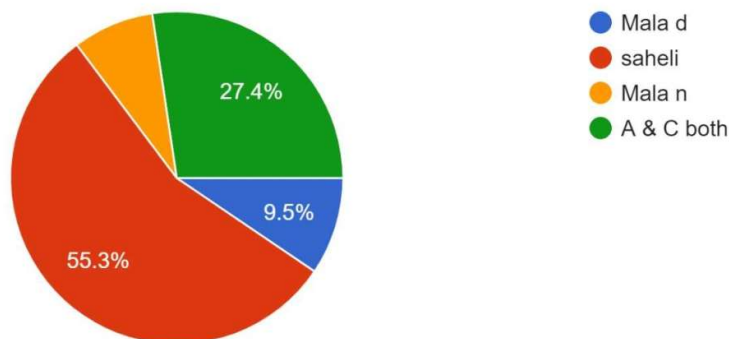


Figure 17. The pie chart shows the data obtained from survey about awareness on the types of non-steroidal pills available in the market.

Based on the above survey, it is evident that 55.3% of the participants correctly identified Saheli as a non-steroidal pill. A smaller proportion of the public identified Mala D and Mala N as non-steroidal oral contraceptives.(Figure 17).

4.3 Industrial perspective on oral contraceptives

What is your age?

53 responses

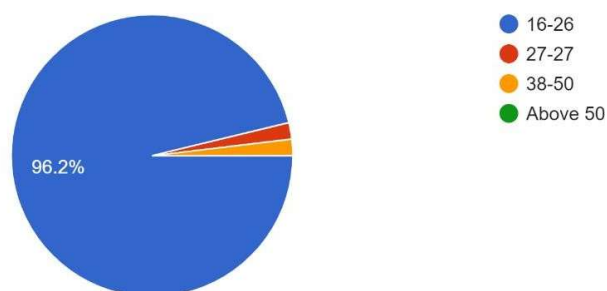


Figure 18. Age range of industrialists participated in the survey are highlighted in the given pie chart.

As per the findings of my survey , a total of 53 responses were analyzed results indicates that the majority of the respondents, accounting for 96.2%, belonged to the age group of 16-26 years. The subsequent age group of 27-3 years constituted 1.9% of the respondents. The age group of 38-50 years accounted for 1.9% of the respondents. (Figure 18)

Have you noticed any changes in the rate of use of oral contraceptives in the past year?

53 responses

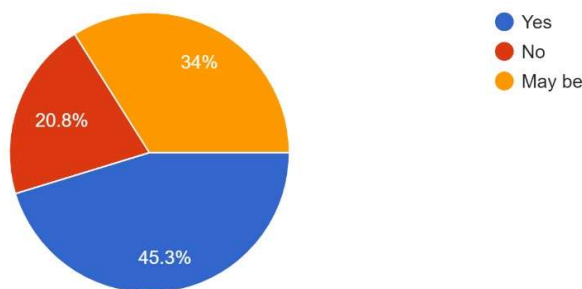


Figure 19. The given pie chart depicts the changes observed in the usage of oral contraceptives over the past year.

In accordance with the survey's findings, 45.3% of respondents said they agreed with the shifts in oral contraceptive use. While 34 percent of respondents were unsure about the changes' 20.8 percent of respondents disagreed with the same. We might therefore conclude that a third of the target group may not be aware of the current situation. (Figure 19)

Have you seen any differences in marketing strategies between established brands and newer brands in the oral contraceptives market?

53 responses

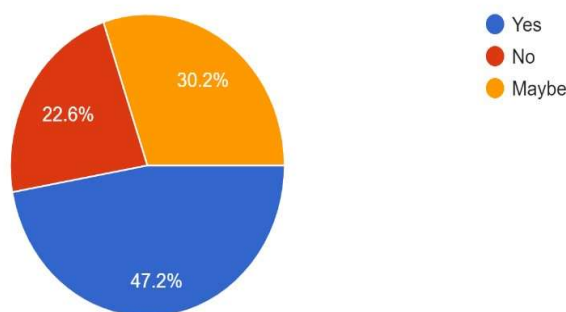


Figure 20. The responses obtained on asking the respondents about their knowledge on different marketing strategies between established brands and newer brands in the oral contraceptive market are shown in given pie chart.

In the current and upcoming formulations of various brands, according to 22.6 Percent of respondents , no changes or new concepts of marketing strategies can be seen : however . 4.2% of respondents are undoubtedly in favour of seeing various oral contraceptive marketing strategies. Whether 30.2 percent noticed the difference is unknown. (Figure 20).

Have you observed any regulatory changes that have impacted the marketing and rate of use of oral contraceptives?

53 responses

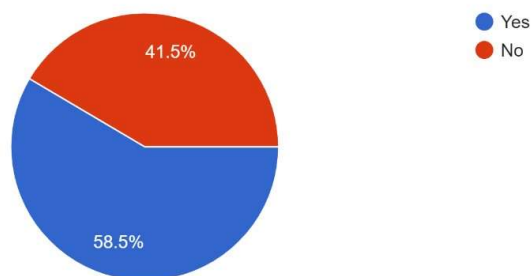


Figure 21. The given pie chart reveals the knowledge of regulatory guidelines that has impacted the marketing and rate of use of oral contraceptives.

Based on this study, we may estimate that the market for oral contraceptives is affected by observed regulatory changes and unobserved regulatory changes at a ratio of 60:40.(Figure 21).

How important do you think it is for the oral contraceptives industry to address issues related to access and affordability in their marketing efforts?

53 responses

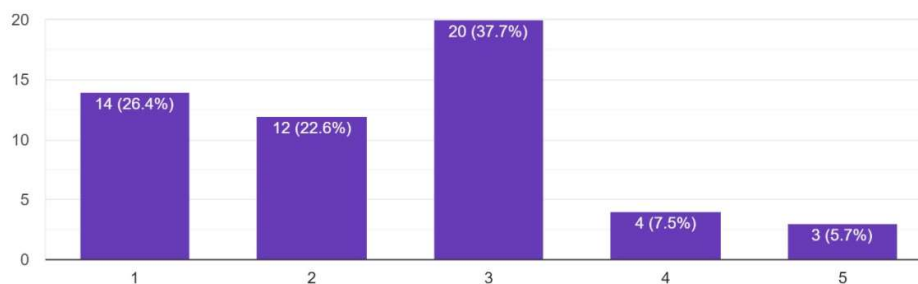


Figure 22. The bar chart shows the importance of accessibility and affordability of oral contraceptives.

The oral contraceptives industry's marketing initiatives should take availability and affordability into account; 13.2 percent of people disagree, while 4 percent of people believe it is crucial to consider when determining how consumers would behave while making purchase, and the rest population falls somewhere in the centre. (Figure 22).

Have you seen any specific marketing campaigns that have been particularly effective in promoting oral contraceptives?

30 responses

No (3 responses)

Yes (2 responses)

Figure 23. Having knowledge about specific marketing campaigns for the advertisement of oral contraceptives is depicted in given data.

As a result, we may conclude that although the public is aware of oral contraceptives, their use, ads, etc., they were not exposed to a targeted marketing campaign for the product.(Figure 23).

In your opinion, what challenges does the oral contraceptives industry face in marketing their products, and how can these challenges be addressed?

26 responses

Most of time they are unable convey their information about oral contraceptive among people in the market they should take more good marketing skill stop or more the usage of oral contraceptive in market

Oral contraceptives industry faces the lower use of oral contraceptives. So, they should provide the knowledge of use of these drugs to people in good manner.

Giving patient true knowledge about of its use

Side effects of oral contraceptive

No idea (5 responses)

Figure 24

Challenges faced by the industries for advertising of oral contraceptives. (Figure 24).

In your opinion, what steps could the oral contraceptives industry take to further increase the rate of use of their products?

New Drug production

They can properly address the people in market about oral contraceptive so that people can get proper knowledge about it without hesitation

They should increase or change their marketing skills in good manner. yes, increase it

Advertisement

Make the product like some changes in old formulation so it's made better and like make that changes so we protect also sexually transmitted diseases

Public awareness

Figure 25

Steps to be taken by the industries to increase the use of oral contraceptives in the Indian market.

From the poll; the word "awareness" appears in the majority of the responses; respondents thought that in order for the contraceptive to be effective, people must first be made aware about reproduction and its usage, as well as how to use it and how to distribute it to couples. (Figure 24, Figure 25).

4.4 Medical representative's perspective on oral contraceptives

Are oral contraceptives effective according to your opinion ?
42 responses

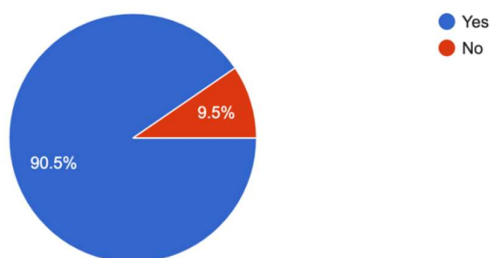


Figure 26. The pie chart reveals the effectiveness of oral contraceptives according to the respondents.

According to medical representative oral contraceptives are 90.5% effective. And according to medical representative oral contraceptives are 9.5 non-significant.(Figure 26)

How much % are they effective ?

42 responses

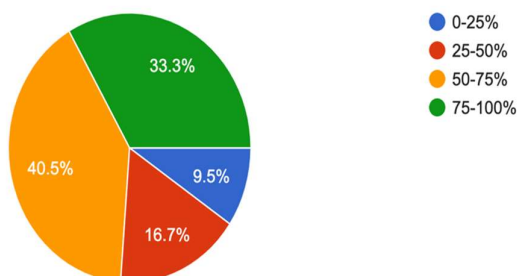


Figure 27. Pie-chart of the percentages of effectiveness of oral contraceptives covered in the present survey.

- According to 9.5% of them oral contraceptives are 0-25% effective
- According to 16.7% of them oral contraceptives are 25-50% effective
- According to 40.5% of them oral contraceptives are 50-75% effective
- According to 33.3% of them oral contraceptives are 75-100% effective. (Figure 27)

How long does it take for oral contraceptives to start working?

42 responses

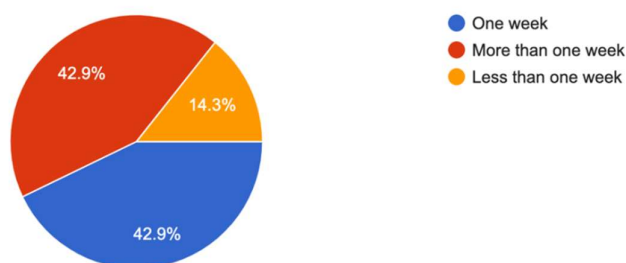


Figure 28. The pie chart about the time duration for oral contraceptives to start working is shown.

- 42.9% MR believe that oral contraceptives are start working in one week (**Error! Reference source not found.**)
- 42.9% MR believe that oral contraceptives are start working in more than one week

- 14.3% MR believe that oral contraceptives are start working in less than one week.(Figure 28)

Are there any factors that can affect the effectiveness of oral contraceptives?

42 responses

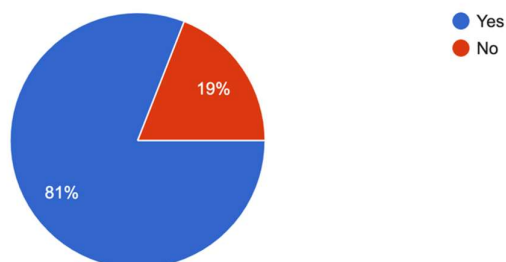


Figure 29. Factors affecting the effectiveness of oral contraceptives are depicted in pie chart.

81% of MR claims that there maybe are factors that may affect the effectiveness of oral contraceptives. While 19% of MR claims that there are no factors that may affect the effectiveness of oral contraceptives. (Figure 29)

Which oral contraceptive are most widely used ?

42 responses

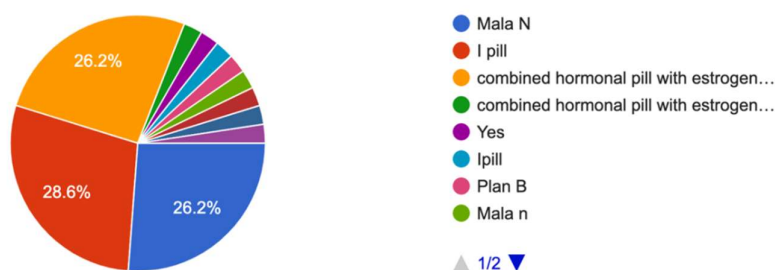


Figure 30. According to respondents, the most widely used oral contraceptives is shown in pie chart.

Widely used oral contraceptives (Mala N - 26.2%, i-pill - 28.6%, Combined hormonal pill estrogen and progesterone - 26.2% and Others – 19%). (Figure 30)

Can oral contraceptives be used to treat medical conditions other than contraception?
42 responses

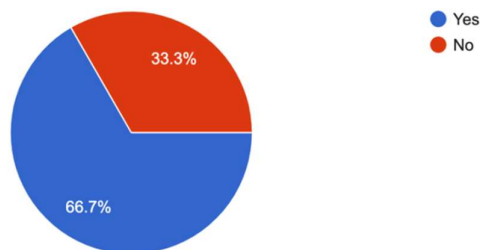


Figure 31. Information about whether oral contraceptives be used to treat medical conditions other than contraception is shown in pie chart.

66.7% MR gave positive reply. And 33.3 % MR gave a negative reply. (Figure 31)

Do oral contraceptive have any side effects ?
42 responses

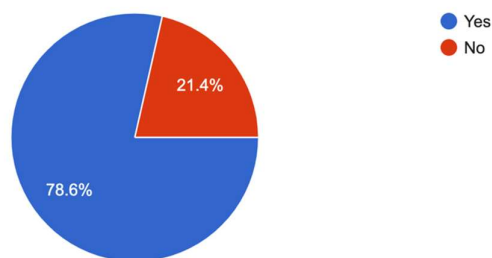


Figure 32. Side effects of oral contraceptives are shown in pie chart.

- According to 78.6% of them claim that oral contraceptives have some side effects
- According to 21.4% of them claim that oral contraceptives have not any side effects (Figure 32).

Are there any interactions with other medications that should be considered when taking oral contraceptives?

42 responses

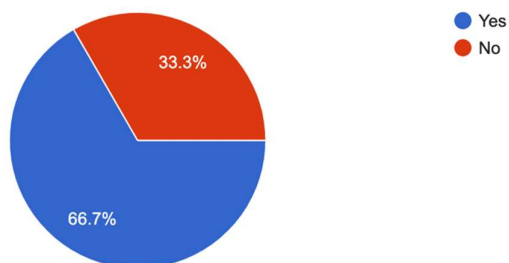


Figure 33. Respondents view on interaction with other medications that should be considered when taking oral contraceptives is shown in pie chart.

66.7% of them believe that oral contraceptives may have interactions with some medication and 33.3% of them believe that oral contraceptives have not any interactions with any medication. (Figure 33)

Are oral contraceptive safe to use ?

42 responses

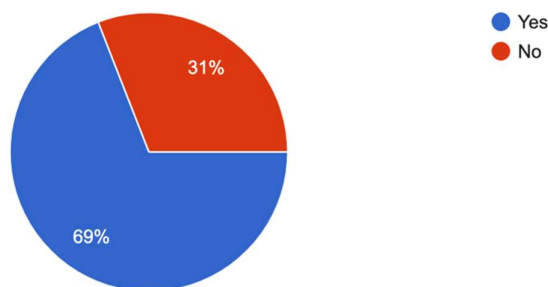


Figure 34. Safety of oral contraceptives are shown in pie chart.

- Around 70% MR claim that oral contraceptives are safe for usage, whilst, around 30% MR claim that oral contraceptives are dangerous to use. (Figure 34)

4.5 Doctors perspective on oral contraceptives

How do you feel about the growing market for Oral Contraceptives in India?

25 responses

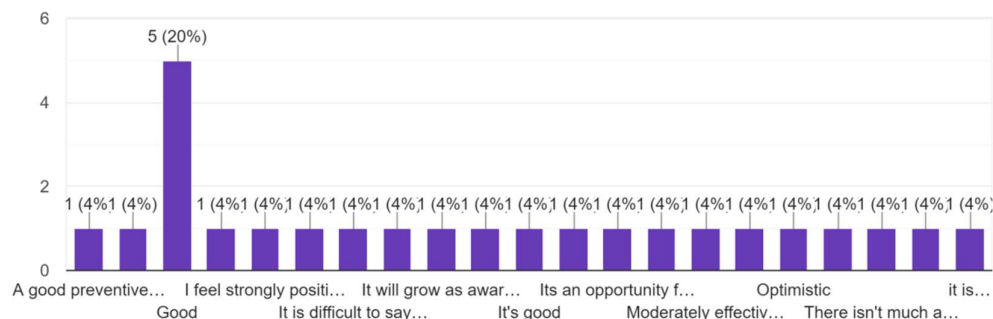


Figure 35. Information about growing market for oral contraceptives in India is given in bar chart.

The general feeling about the growing market seems to be good with major positive responses being collected from the doctors. About 80% of the doctors said that it is a good market with plenty of opportunities and it could grow with proper marketing as well.

However only a couple of doctors said the market was minimal due to minimal knowledge about the contraceptives. (Figure 35)

How relevant do you think the advertisements are? (5 for very relevant - 1 for irrelevant)

25 responses

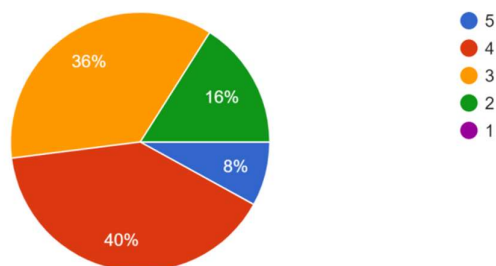


Figure 36. Ratings about advertisements are shown in given pie chart.

There seems to be an even split between the practitioners regarding the relevance of the campaigns with 48% of the doctors finding the campaigns relevant enough. (Figure 36)

Do you think they highlight the purpose and use of the contraceptives?

25 responses

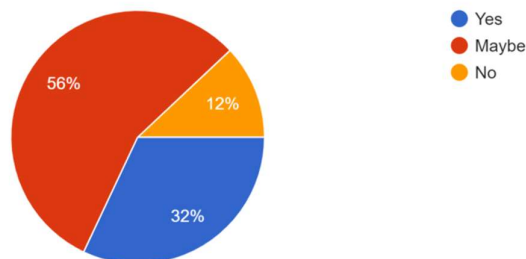


Figure 37. Data regarding the purpose and use of contraceptives is in given pie chart.

56% of the doctors were unsure of whether the advertisements were doing any good and fulfilling the purpose of explaining the use of oral contraceptives. While 32% agreed on the fact but 12% completely disagreed. (Figure 37)

Do they highlight the side effects of the contraceptives?

25 responses

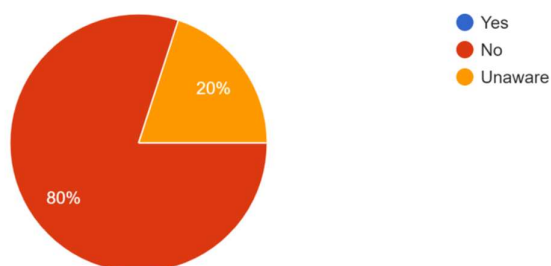


Figure 38. The pie chart shows data on awareness about side effects of oral contraceptives pills.

According to 80% of the doctors, the campaigns do not highlight the side effects of contraceptives. (Figure 38)

Do the advertisements include any support on the use of contraceptives for the patients? (Telephone/e-mail support for example)
25 responses

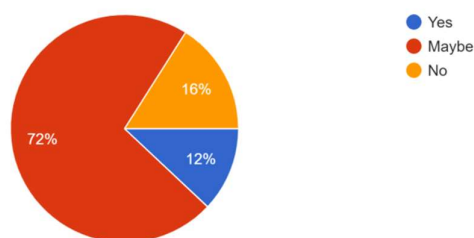


Figure 39. Requirement of additional support to advertisement for use of oral contraceptives is depicted in given pie chart.

Only 12% of the doctors agreed to the fact that advertisements of oral contraceptives include additional support, while 72% were unsure. (Figure 39)

Would you recommend oral contraceptives as a first treatment of choice to the patients compared to other alternative treatments?
25 responses

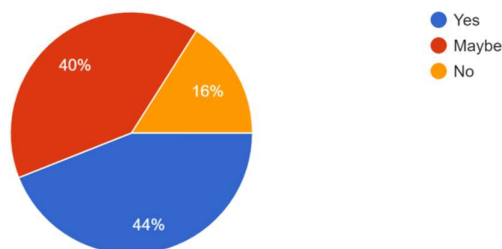


Figure 40. Viewpoints on oral contraceptives as first choice of treatment to patient compared to other alternatives is shown in pie chart.

The doctors show that they have a good attitude towards the contraceptives and do not mind recommending them immediately or maybe after evaluation. (Figure 40)

What are the average number of patients that seek this kind of treatment per month? (A rough estimate)

25 responses

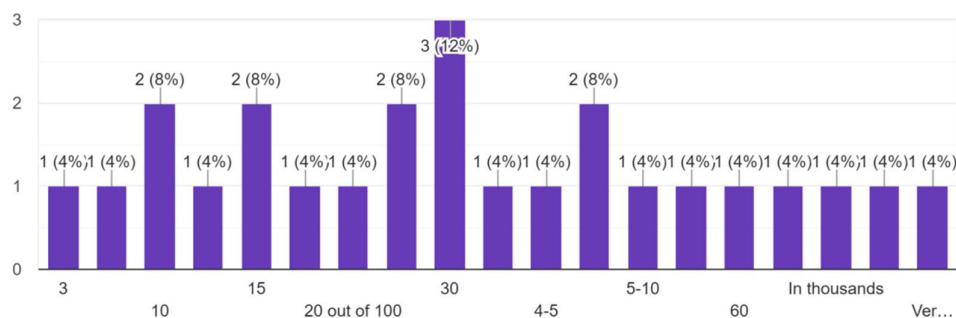


Figure 41. The bar graph shows number of patients seeking aid on the use of contraceptives or have queries related to it.

A good number of patients seem to be seeking aid on the use of contraceptives or have queries related to it. The median statistic comes out to about 30 patients per month. (Figure41)

How readily are the patients available to use the contraceptives?

25 responses

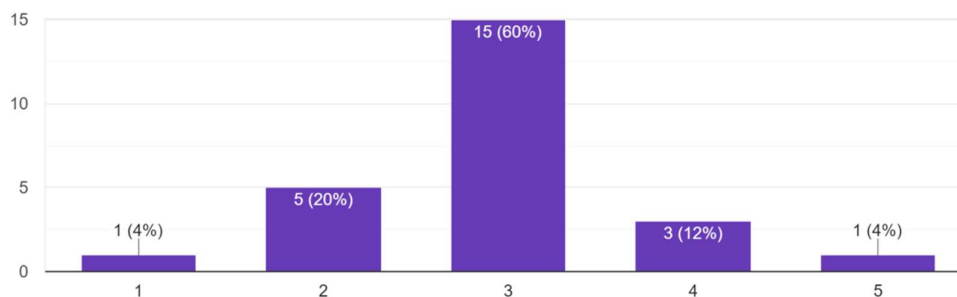


Figure 42. The bar graph shows data on readiness of patients to use oral contraceptives.

The patients are somewhat ready to use these contraceptives but not immediately with 60% waiting further and about 24% using the contraceptives immediately. (Figure 42)

Do you think there will be a further increase in the use of oral contraceptives in the future due to the marketing of the contraceptives?

25 responses

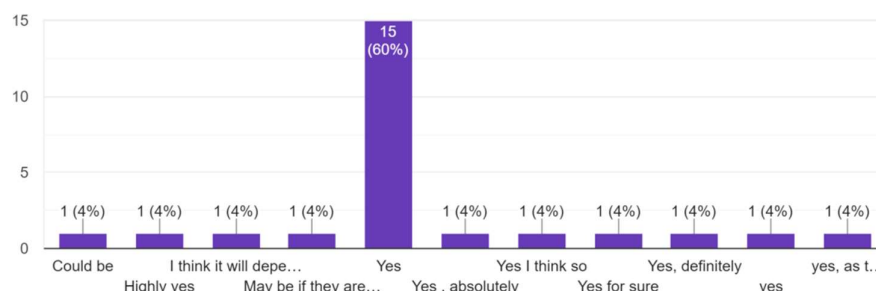


Figure 43. The bar graph shows responses on viewpoint of respondents regarding the increase in use of oral contraceptives in future.

The most common answer here was yes, with a good 88% including a “yes” in their answer. The other 12% of doctors felt uncertainty towards the growth of the market or stated that market growth was conditioned on methods of marketing. (Figure 43)

5. ABBREVIATIONS

CDRI	Central Drug Research Institute
COC	Combined Oral Contraceptives
ECP	Emergency Contraceptive Pill
FSH	Follicle Stimulating Hormone
HIV	Human Immunodeficiency Virus
IUD	Intra Uterine Device
LH	Luteinizing Hormone
MR	Medical Representative
OC	Oral Contraceptives
OTC	Over The Counter
POP	Progestogen Only Pill
STD	Sexually Transmitted Disease
UN	United Nations

6. CONCLUSIONS

From the survey, it is evident that the majority of the participants taking part in the survey were between the ages of 16 to 26 years. Around 80% of the females participating in the survey were aware of oral contraceptives; however, only around 13% of them had tried an oral contraceptive in their life. It was found from the survey that most of the females got the information and education related to the oral contraceptives from family and friends. It is also claimable from the survey that oral contraceptives did not have any kind of side effects on 80% of the female patients. But, only 21% of the responders agreed that oral contraceptives are much more efficient than physical contraceptives.

Based on the survey of general public, it was also concluded that regarding the types of oral contraceptives, the respondents were most familiar with Saheli (25.3%) and Mala D (8.9%). In addition, 45.3% of the respondents reported starting the pills from the first day of the menstrual cycle. When asked about the composition of mini pills, 36.3% of the respondents knew that it contains only progesterone. Lastly, 55.3% of the respondents correctly identified Saheli as a non-steroidal contraceptive pill. These findings provide insights into the level of knowledge and awareness of oral contraceptives among the surveyed population, which can be useful for health professionals and policymakers to improve contraceptive education and access.

According to the industrialists, only 45.3% of them had observed a change in the rate of usage of oral contraceptives. But, only 15% of them agreed that marketing can affect the usage of oral contraceptives in the Indian market. And around 47% also noticed different market trends for these pills. Also, 45% of them stated that affordability and accessibility has to be considered whilst marketing oral contraceptive pills. Also, a lack of challenges are faced by the industries like lack of awareness and shyness, so in order to change that they should provide sufficient information to the patients while marketing and advertising of oral contraceptives.

The majority of the MRs feels as though oral contraceptives are an effective method of contraception. The most common contraceptives that they sell were highlighted to be Mala N and i-Pill, showing the wide network of these contraceptives amongst all available products. A key conflict is highlighted through this data that although MRs feels that contraceptives are effective and efficient in birth control, they

may cause reactions with other medicines and caution about their side effects must also be taken. To conclude, the medical representatives perceive on contraceptives is that they are safe to use as 70% say so, but more care and insight on their alternative uses and side effects could be taken.

Oral contraceptives do have a lot of side effects but they are better than reaching the stage of abortions. Physical contraceptives are safe and best options. However, the main problem with the marketing that was highlighted by the doctors was the fact that the contraceptives did not get marketed enough. There seems to be a good acceptance by both the public and the doctors but there needs to be sufficient marketing to increase the outreach of contraceptives in the market. Furthermore, it was also highlighted that no company showed the side effects of the contraceptives and that could be a major concern as self-medicating might be a problem.

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