



## Contraceptive devices in India

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### ABSTRACT

Contraception as a process of preventing pregnancy, in the last decades and increase use of contraceptives methods has been display in developed and less-developed countries. Barrier methods, hormonal methods and sterilization, plus new contraceptive products or methods are available today. These are new implants, a medicated intrauterine device, contraceptive vaginal rings, transdermal patches and several new regimen of combined oral contraceptives. These new or improved methods have been developed to expand the contraceptive choices available to women and men, as well to respond to the unmet need for contraceptives and to the protection against sexually transmitted diseases. Various contraceptive methods are being used in India today and are effectively prevent unwanted pregnancy but there is a need to generate awareness and a better sexual and reproductive education that can serve to the general Indian public to reduce maternal mortality and sexual transmitted infections.

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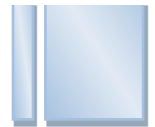
### INTRODUCTION

Contraception is the process of preventing pregnancy which is achieved by intervention the process of ovulation, fertilisation or by preventing implantation in the uterus. There are various kinds of contraceptives available today which can be broadly classified according to their mode of action and use. A common form of classification of contraception methods are: Barrier methods, hormonal methods, emergency contraception, intrauterine methods and sterilisation. The barrier method is the prevention of fertilisation by blocking the male gamete from reaching the ova. Condoms, both male and female versions, diaphragms, cervical caps, contraceptive sponges and spermicides are few examples of barrier method of contraception. The hormonal method modifies the ovulation and womb cycle to prevent pregnancy. It can be achieved by means of pills, injections, hormonal patches, implantable rods or vaginal rings. Other methods that are not hormonal

include intrauterine methods such as copper, IUD that causes minor inflammatory reaction and prevents sperm from fertilising the egg. Intrauterine device that releases a controlled amount of hormone, like progesterone, can also prevent fertilisation as well as prevent implantation at the same time.<sup>1</sup> A permanent approach to contraception is sterilisation in which pregnancy is prevented by preventing release of sperm or woman from the egg fertilization. This can be achieved by surgical means and involves tube tightening that puts a barrier to sperm path. Another method is vasectomy in which the vas deferens is surgically blocked or removed. Blockage of fallopian tube is a means of preventing the female gamete from being fertilised by sperm.

### METHODS

This paper is a review of secondary data accessed through PubMed and Google Scholar. It provides an



overview of contraceptive methods in the world and in India.

#### CONTRACEPTIVES AND ITS IMPACT IN THE WORLD

The use of contraceptives to prevent unwanted pregnancies, as well the use of Barrier methods to prevent sexual transmitted diseases (STDs) has got a significant impact in modern lives. Both in the developing as well as developed countries, contraception has played a big role in women empowerment and a choice to better plan and control their lives, sexuality and their families planning as a whole. It is a widely accepted fact that, women have the right and reasons of their own for the use of preventive measures of pregnancy.<sup>2,3</sup>

Factors such as financial implications, social implications, and sexual empowerment or to keep a job may influence the decision of when to have a baby and hence compel the use of measures to prevent undesired pregnancy. Recognising its impact on the present society, the US Centers for Disease Control and Prevention (CDC) announced it as among the 10 greatest milestones of the twentieth century.<sup>4</sup> With an aim to improve accessibility to quality care and family planning choices as well as to set a medical eligibility criteria, the World Health Organisation (WHO) has issued special instructions that should be followed for the use of contraception. Apart from family planning and social empowerment, some contraception methods help to reduce the transmission of STDs as well the control of irregular menstrual cycles, polycystic ovarian syndrome and the incidence of certain type of female cancers.

The use of contraceptives may be deterred by various factors such as personal belief, cultural or religious aspects. There are conflicts between modern health care strategies and religious beliefs. This is more augmented in cases when personal faith in the religion becomes strong. Therefore enforcers or service providers should have a thorough knowledge of such barriers and provide the right means of contraception that is acceptable to the region. A study of Jewish population stated that, increased religiosity is indirectly proportional to use of contraception. This remains true for most of the religious groups of the world as sex is considered a

power that is blessed to humans as a means to create their progeny.<sup>2</sup>

#### CONTRACEPTIVES AND ITS IMPACT IN INDIA

The use of contraception in India for population control started with the widespread family planning programme that was announced in 1952. Since then the strategy for population stabilisation and control in India relies on the various methods of contraception available. The nation-wide awareness campaign on use of contraception for birth control has taken a different form in the modern day as access to contraceptive means becomes easier and rise in population of the literate and educated. However, use of contraception, in certain religious groups, still remains a taboo.<sup>5</sup>

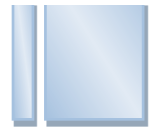
It is seen that in a nation-wide survey about 58% of the currently married and non-pregnant women who were between 15–49 years of age were using some form of contraception although there were variations depending on demographic, social, cultural and economic status of women. The data further points that the use of contraceptive is directly related to the economic status of a family and the standard of living as well as educational level of either their husband or the woman. A comparison of rural and urban population further reveals that the use of birth control methods is higher in urban population as compared to rural areas. This might be linked to educational, social and economic status of the rural population. Among various religious groups Muslim population remains the least to utilise any birth control methods and Hindu women were found to be highest.<sup>6</sup>

#### VARIOUS CONTRACEPTIVE DEVICES USED IN INDIA

With development of various contraceptives around the world like India has followed suit in adopting the options available for contraception. The available contraception methods can be classified into barrier methods, hormonal methods, intrauterine methods and sterilisation.

##### Barrier method

The barrier method of contraception refers to non-hormonal approach in which the natural path of the sperm is blocked and prevents it from fertilising the



egg. There are various forms of barrier methods available for both male and female contraception. This method includes use of condoms both in male and female variants, spermicidal creams and foams, cervical caps and shields. Barrier method is the most convenient means of preventing unwanted pregnancy and should be used only during or after an act of sexual intercourse. Condom is the most widely used barrier method in India as a means of contraception.<sup>7</sup>

India is the first country to start a social awareness and marketing campaign of condoms after the launch of a brand called *Nirodh*. Since then various organisations which are governmental, non-governmental or private have actively participated in distribution of free and commercial condoms throughout the country. This is not only to control birth but has helped in prevention of sexually transmitted diseases. Due to its widespread awareness, condom is widely used as an effective contraceptive method.

Unlike the male condom, the female condom also known as Femidom, which is worn by female during sexual intercourse has limited acceptability in the Indian context.

### Hormonal Methods

The hormonal method of birth control refers to the use of hormones that modulates the natural phenomenon of ovulation and implantation to prevent pregnancy. There are different types of hormonal methods available and types of hormones used. Pills are based on hormones like oestrogen and progesterone which is taken independently or in combination. A combined pill contains both hormones in the form of estradiol and levonogestrel, desogestrel etc. These types of pills are available in 21 day or 28 day packs. Mala D, Ovral, Novelon and Femilon are few examples of combined pills available in the Indian market.<sup>8</sup>

Phased pills are also combination of oestrogen and progesterone in which the oestrogen dose is kept almost at a constant rate and progesterone is increased gradually in a phased manner. Triquilar and 3-Phase are trade name of phased pills available in

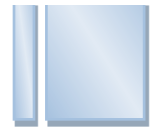
India. Apart from phased pills which are taken in doses for a definite time during the menstrual cycle there are pills that are called emergency pills or morning after pills. These types of pills are taken after sexual intercourse to prevent unwanted pregnancy. Progesterone is the hormone that is used in this type of pills. Examples are I-pill, Oops and pill 72 or unwanted 72. A non-hormonal pill called Centchroman is a birth control pill developed and available in India. As it is a non-hormonal pill there is no side-effect which are associated with hormone pills.<sup>8</sup>

Apart from pills there are birth control rings available for women. The ring contains hormones, which when inserted into the vagina releases controlled amount of progesterone or oestrogen. It does not need a medical professional for implantation of the device, rather it can be inserted by oneself.<sup>7</sup> Other hormonal means include; contraceptive injection which is administered intramuscularly and lasts for more than five months. Women receiving such injections will not have menstrual bleeding for the said period and hence there will be no ovulation during the effective period. Although Hormonal patches and Implants are other options available in developed countries, it is still not introduced in India.<sup>7</sup>

### Intrauterine methods

Intrauterine devices (IUDs) are one of the most effective types of long-acting reversible birth control methods. IUDs are non-hormonal means of contraception which is placed inside the womb and prevents fertilisation of the egg by disrupting the sperm mobility and damaging sperm so is prevented from joining with an egg. Copper T380A is the most cost-efficient means available to postpartum women. The device can be safely implanted into the womb and can be used without concerning the breastfeeding status of a woman.<sup>9</sup> The intrauterine postpartum device can be implanted 48 hours after child birth or after 4 weeks after birth.

Although IUDs are most cost efficient and effective type of contraception only less than 2% of women using contraceptives depends on it. Understanding the potential of IUDs and with increased number of institutional births, the Government of India has



decided to strengthen the awareness and use of IUDs. Establishment of national training centers in different regions of the country has further helped in the scaling up of use and awareness of the device in India.<sup>9</sup>

New generation IUDs contains hormones which are slowly released into the womb. One example of such a device is with the trade name Mirena which contains levonorgestrel, a progesterone analogue. The IUD does not disturb the regular period rather helps and reduces heavy bleeding during menstruation. It is also used as treatment of dysfunctional uterine bleeding.<sup>7</sup>

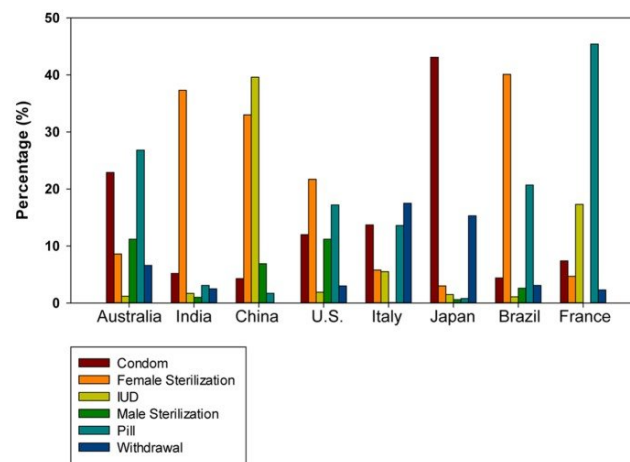
### Emergency IUDs (E-IUDs)

Copper-T can also be used as an emergency contraceptive if implanted within 5 days of sexual intercourse. Copper-T (Copper T380A) is a much more efficient emergency birth control mechanism when compared to morning pills as it has a chance of more than 99% prevention rate.<sup>10</sup> A study of use of copper T as an emergency contraceptive in China proved that the method is highly efficient and can be used anytime during a menstrual cycle.<sup>11</sup>

### Sterilisation

Sterilisation is a surgical method of contraception in which the movement of the egg or sperm is controlled by invasive means. In case of females it is achieved by cutting, sealing or blocking the fallopian tube. In case of male sterilisation is achieved by cutting and tying the vas deferens which carries sperm from the testes to the penis. The procedure is called vasectomy. Sterilisation is different from other method of contraception as it refers to a permanent arrangement and should be used only when people are certain of not having any children in future.<sup>12</sup> In India, female sterilisation is the most widely practised procedure as a means of contraception.<sup>13</sup>

A comparison of various means of contraceptive use in few developing and developed countries of the world revealed that in India female contraception is the most widely used followed with a wide difference in numbers by use of condom followed by pills. IUDs and self-restrain follows the least used means. Figure 1 shows the comparison of different contraception methods used in developing and developed countries.<sup>13</sup>

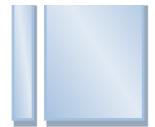


**Figure 1 Comparison of different contraception methods used in developing and developed world**

### SOCIAL AND ECONOMIC BARRIERS

The use of contraceptive devices depends a lot on socio-economic and religious background of an individual. This has been observed in different parts of the world in various studies and applies in the Indian contexts too. It has been observed in earlier

studies that religious and cultural factors have great role in determining the acceptance or rejection of use of contraception by couples belonging to different religious groups of the society.<sup>2</sup> Apart from religious beliefs, access to readily available contraceptive



methods is comparatively less in developing countries which is another barrier in the use of contraceptive. The unavailability is further augmented by the laws and policies that prevents unmarried individuals or setting a lower age limit for such facilities.<sup>14</sup> Even after the contraceptive means are received social barriers do not allow the use. In most developing countries young married women are compelled to bear a child within their first year of marriage and the use of contraceptive is not applicable in such situations.

Awareness is a factor that takes a major role in the use of contraception. In a survey conducted in central India regarding awareness of contraceptive methods among women who underwent abortion it was seen that almost 85% of the subject under study did not use any contraceptive. Awareness of emergency pills were among only 1.5% of the study group. The pregnancy that resulted were due to contraceptive failure or due to neglect of contraceptive use.<sup>15</sup> Since the study was conducted in a small sample size in a part of India it is not representative of the whole nation but portrays a significant picture of contraceptive use in rural India. Another nation-wide study revealed that 12% of rural population and 5% of urban Indian women are still unaware of any type of contraceptives available as a means of birth control.<sup>16</sup>

Awareness to various contraceptive methods available and use of it can be imparted to young adults through imparting sex education. Since young adults are the most prone age-group that follows sexual behaviour that results in unwanted pregnancies, maternal fatality and abortions. However, as the Union Health Minister of India puts it, although not officially approved by the Parliament

or the Supreme Court, all sex education in schools should be banned and education should follow in the Indian context. He believes fidelity is more important than using condoms.<sup>17</sup>

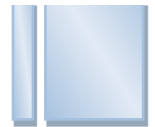
#### FUTURE IMPLICATIONS

The use of contraceptive is an effective means to prevent unwanted pregnancy and maternal mortality. If used properly, it can avoid more than 90% of abortion related and 20% of obstetric related death in the world.<sup>18</sup> India accounts for more than 20% of maternal death in the world and the figure is not the real figure as there are numerous illegal abortions that takes place in private clinics. The sheer number of abortions and maternal mortality is due to the fact that very less people are aware of contraception and absence of a family planning strategy. Even though contraceptives methods are known, various other socio-economic barriers prevent its efficient utilisation to prevent unwanted outcomes.<sup>19</sup>

With development and improvement in economic status and growth of awareness among the younger and older generations, it is expected that the number of contraceptive use would prevail in the near future.<sup>20</sup> It has been observed that the younger generations of medical practitioners are very much willing to impart sexual and reproductive education and services to the general public. However, lack of awareness and abusive use of contraceptives can be prevented by imparting the right education. Therefore training in contraceptive counselling should be incorporated during training of health care professionals<sup>19</sup> and general public awareness should be imparted primarily.

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