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INCREASED MALE RESPONSIBILITY AND PARTICIPATION : A KEY TO IMPROVING THE REPRODUCTIVE HEALTH

According to the World Health Organization's definition, good reproductive health implies that people are able to have a satisfying and safe sex life and that they have the capacity to reproduce and the freedom to decide if, when and how often to do so. Implicit in this definition is that (i) men and women will have full participation and partnership in productive and reproductive life involving responsibility for the care and well being of the family; (ii) men will control their fertility or support women's contraceptive use to prevent unwanted pregnancies; (iii) men will assume responsible sexual behaviour to prevent transmission of sexually transmitted diseases (STDs); (iv) men will respect the sexual and reproductive rights of women; (v) the sex will be consensual and not exploited because of economic dependency of women on the partner; (vi) men will not always hold women responsible in case of infertility; (vii) men would perceive their role and interests with the female partners as interdependent and of mutual concern; and (viii) reproductive health of the elderly will also be taken care.

However, despite these assertions good reproductive health eludes many women. There are over 120 million women in the developing countries[1], including 35 million in India[2], who would like to space or limit their family size but have no access to affordable contraception. As a consequence of either not using a contraceptive or due to contraceptive failure, it is estimated that annually 40-60 million women resort to pregnancy termination, of which almost 50% are carried out under unsafe conditions[3]. An estimated 1645 women die every day in the course of pregnancy and childbirth[4], and that too in many instances while they were carrying an unplanned and/or unwanted pregnancy. The incidence of abortion is particularly high among adolescents. According to the World Bank report[5], in developing countries among women aged 15-44 years almost 19% of the healthy life days are lost due to maternal causes and another 15% due to STDs including HIV. In comparison to women, in adult men 12% of healthy life is lost due to reproductive health problems[6].

In addition to carrying the major burden of reproductive ill-health, the women have a much bigger responsibility to use the appropriate method of family planning. About 85% of contraceptive users in India are women. Moreover, among the users of terminal methods in India, 97.2% were women opting for sterilization[7]. Men have three methods *viz* vasectomy, condom and withdrawal, at their disposal of which the use of condom or withdrawal in practice puts women at a much higher risk of pregnancy as compared to the methods which the women can use themselves.

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Many women are denied of their basic human rights. Their weak socio-economic status, and dependency on the male partner for stable union compels her to accept reproductive roles which she otherwise might have objected to. Studies show that not all sex is consensual. Almost 30% of HIV infection occurs in those women who have sexual intercourse with a single male partner[8]. World-wide studies also show that from 20% to over 50% of women have been physically abused by a partner[8]. Data from some countries further show that approximately one in six women will be the victim of a completed rape in her lifetime[9]. These studies thus show that the large percentage of reproductive morbidity and mortality suffered by women is the consequence of men's attitude towards reproductive health, and sexual and health-related behaviour towards their female partner.

Lack of knowledge and access to technologies and services with quality care, inadequate information about sexuality and reproduction and limited contraceptive options offered in the family welfare programme are some of the factors which contribute to the burden of reproductive ill health. In addition, men's egoistic behaviour and their general attitude towards sexuality and reproductive health have strong bearing on the reproductive health of the entire family. His support or objection has strong impact on contraceptive use by his partner, and his sexual behaviour has considerable impact on the incidence of STDs.

Experiences show that attitudes can be changed. In India, despite poverty, patriarchal traditions, and preference for sons, studies show that men will accept vasectomy when the conditions for service and delivery are favourable[10]. The relatively low levels of development and education inadvertently deprive men from sharing responsibility towards reproductive health and well being of the family in general. Men with higher levels of education and higher economic status and those who reside in urban areas tend to know more about reproductive health matters, have higher contraceptive prevalence rate, seek treatment more often, and protect themselves and their female partners better from STDs than do other men[11].

For responsible parenthood, and for the good health of the women it is therefore essential to focus on programmes addressing reproductive health needs and perceptions of men in all reproductive health matters. Men must assume greater responsibility for sharing the burden of practising contraception and to protect the health and well being of their partner. It necessitates expanding research on increasing awareness of and access to technologies and services with appropriate quality of health care. It also calls for expanding contraceptive choices for men by developing a wider array of effective fertility control methods. Increasing involvement of men in all matters related to sexual and reproductive health is the key to improving not only the reproductive health of men themselves but of the entire family.

This article reviews some of the factors which preclude men from their responsibilities in ensuring good reproductive health and identifies some of the interventions to help enhance their participation.

Men's Perceptions about Reproductive Health

A number of surveys and general beliefs have labelled men as being responsible for the large proportion of reproductive ill health suffered by their female partners. These reports tend to generalise that men do not want to regulate their fertility and want more children, are not concerned about their partner contracting STDs, blame their partner in case of infertility, perpetuate violence against women and are not involved or concerned about the well being and raising of the family.

The observation that in Sao Paulo, Brazil 49% of all new cases of AIDS are among married women who have only one sexual partner[12] supports some of the above beliefs. Similarly, usage of contraceptives either by themselves or by the female partner depends on the men's perceptions about the method and willingness to use it. Any attempt by the female partners to influence the decision of men might invite accusation of infidelity, physical abuse or even divorce. Many men perceive that using a condom by them or by the partner reduces sexual pleasure and that the condom is to be used only when visiting the sex workers and not with their wives. While others think that condom is for the professional sex workers and not for their wives[13]. Similarly, some men think that vasectomy reduces sexual potency and has side effects[14]. Violence and sexual abuse by men is another aspect where women and girls are the most frequent victims. Child and adolescent sexual abuse also appears to be widespread, with available data indicating that anything from 6-34% of women having experienced sexual abuse in childhood or adolescence[9]. These observations reflect values, perceptions and beliefs about sexuality and lack of concern for the female partner.

In contrast to the above mentioned reports, there are others which suggest that men generally support the use of contraception and feel concerned about the reproductive health of the partner. The demographic health

survey (DHS) data from 15 countries (11 from sub-Saharan Africa plus Bangladesh, Egypt, Morocco and Pakistan) showed that the differences in reproductive intentions between men and women are small, thereby contradicting the belief that men generally want much larger families than do women[15]. A study on 77 male and 101 female family members from the five generations of a south Indian family showed a gradual decline in fertility levels with practically no female involvement in reproductive decision making[16]. It was primarily the men who decided to limit the family size. Media motivation rather than the choice of methods was the major factor which had influenced men to control their fertility.

A study conducted in Maharashtra indicated that though most men (57.3%) had a positive attitude towards their role in family planning, they had not taken the initiative in accepting contraceptive methods for themselves, in particular vasectomy. Another 13.9% of men had definitely negative attitude towards their role in family planning and had felt that it was entirely the woman's responsibility. The remaining 28.8% did not offer any opinion to this question either because they had not thought about it or were noncommittal about their views[17].

In India the proportion of voluntary sterilization for men dropped from 70% in 1970 to 15% in 1985[18]. This sharp decrease may not be a reflection of the withdrawal of men from their responsibility of pregnancy protection. The availability of safe, effective and reversible contraceptives for women probably motivated them to take charge of their own fertility rather than asking their male partners to resort to terminal methods.

These reports therefore suggest that the male attitude towards family planning is much more favourable than originally believed. The variation in the attitude and behaviour among men about reproductive decisions and child care could be influenced by education, awareness and the socio-economic status. Studies show that better educated men and those with higher socio-economic status express greater approval of family planning than do men with less education and low economic status[11]. Increased awareness and access to products and services determine the extent of their use.

These observations thus suggest that it is not that the men do not want to use family planning methods or not want to protect themselves or the partner from STDs but it is their ignorance, and inaccessibility to contraceptives and services which inadvertently deprive them from getting involved. One should study the state-of-mind of millions of families which have no means for living, are deprived of basic amenities in life and are completely ignorant of the possibilities which can help them have a better quality of life including reproductive health. High infant or maternal mortality rates in such families might not be a reflection of the lack of interest or care on the part of the male partner, but he is probably helpless. Helplessness could be due to lack of finances, education or awareness. In south-east Asia 43% of eligible couples cannot afford to spend even 1% of their monthly income on family planning, as compared to 10% couples in east Asia[19]. This is where the health care providers have a greater role. This necessitates focusing service programmes to address the needs and perceptions of men.

Reasons for Less Involvement of Men

The reasons for low male involvement in reproductive health are multifaceted. India is a male dominated society, where women suffer from low esteem and view themselves as being not important. Years of conditioning makes them believe that their primary role is to ensure procreation and to keep the male partner happy. Secondly, the economic dependence of the female on the male makes them more vulnerable to male pressure. Consequently, females often cannot act effectively to realize their reproductive intentions in the face of real or perceived objections from their husbands or others. Most of the Indian men consider family planning a women's responsibility. Some of the men who oppose family planning are also concerned about the mode of action of the contraceptives, safety of the methods, the fear that the use of contraceptive may encourage extramarital affairs, and also religious or cultural beliefs that the children are gift of God. The communication between the couples is also poor which further perpetuates ill-conceived notions.

Poor participation of men has been compounded by misinformation regarding male sexuality and limited availability of scientific data. Male involvement is not seen as a felt need of the community and the current programmes have not been able to mobilize community support. These reasons emphasize the need to develop programmes to target men explicitly. Increased involvement of men in reproductive health of the family is likely to be appreciated by their partners as many studies show that a large number of women are motivated to control fertility[20,21].

Strategies for Improving Involvement of Men

Men, "the forgotten 50% of family planning are ready to take part if only asked. If people really make

vasectomy or the condom available to men, then the men will come along and use them. The key bottleneck is on the side of the providers – not the men" says Malcolm Potts[22]. This calls for increasing the awareness of men about useful information and accessibility of products and services. This includes increasing contraceptive options for men, supporting women's contraceptive use, improving sexual behaviour and safe sex practices, and narrowing the gender gap to empower women to have better control on their fertility.

Increasing Contraceptive Choices for Men

Increasing contraceptive choices for men will encourage them to share the responsibility in fertility regulation with their partners. In a survey conducted by the Marie Stopes International in 1997, out of 500 vasectomized men 27% said they chose vasectomy to relieve their partner from using contraception[23]. Similarly, in another study involving 218 couples from six countries (Bangladesh, Kenya, Mexico, Rwanda, Sri Lanka and the United States) almost all couples cited concern for women's health as a motivating factor for not wanting more children[24]. However, there are also apprehensions that many women particularly the adolescents would prefer to protect themselves by using a contraceptive rather than believing their partner. A study among US university students found that more men than women lie about their sexual lives, mostly in order to convince a partner they love them or that they are safe, in order to have sex with them[25]. Since it is the women who has to bear the consequences of unprotected sexual intercourse, it is not clear as to what extent they could trust their male partners to use a non-barrier contraceptive consistently and effectively. In a stable monogamous union with considerable trust between the sexes it is likely that the availability of contraceptives which men can use will help them share greater responsibility with their partner.

Studies have shown that the unmet need for contraception is related to the number of contraceptive methods and services accessible to the potential user. The greatest unmet need is among those who have the least access to family planning programmes[1]. An analysis of the DHS data from 44 countries showed that for each additional method of family planning which is made widely available in the country, the contraceptive prevalence rate increases by 3.3% and the unmet need is met by 1.7%[26]. These figures clearly speak for expanding contraceptive choices if the couples are to be empowered to control their fertility. Increasing contraceptive options for men necessitates increased use of the available contraceptive methods and development of newer technologies.

Accessibility and use of available methods

Condom, vasectomy and withdrawal are the three options at the disposal of men to avert unwanted pregnancy. All the three approaches are safe, easy to use and effective if used correctly and consistently. However, in spite of this, these methods are used by less than 10% of the contraceptive users. Increased use of these methods necessitates greater awareness, need to dispel myths and misconceptions, sustained motivation and access to contraceptives and services.

Condom use is not a preferred method among couples with a stable relationship. It is labelled as a method which interferes with sexual pleasure[13]. Moreover, contraceptive efficacy of condom use in real practice is less than that of most methods which are at the disposal of women. Nevertheless, condom use is the only effective solution to prevent both unwanted pregnancy and STDs including HIV/AIDS. To enhance the acceptability of condoms, a variety of flavoured, coloured, scented and ribbed condoms are being developed. In addition, the design of the condoms is being changed from "tight fit" to "bagginess" for better sensation and friction at the right places. The use of one such condom "inSpiral" was found to enhance sexual pleasure. When compared with seven other varieties of condoms marketed in USA, the inSpiral was found most acceptable[27].

Recent surveys also indicate that condoms are used most often outside marriage where there is a risk of STDs[28]. This calls for interventions for behavioural change to motivate men to use condoms to protect their families from disease. This also calls for empowerment of women to propose to their male partners, in case of perceived risk, to use condom without fear of their reaction.

In addition to promoting the use of condom, there is a need to assess the effectiveness of vaginal microbicides to prevent pregnancy as well as transmission of STDs. Recent studies in Zimbabwe show that several men might prefer microbicides, if shown to be safe and effective, over condoms as the later interferes with the act and reduces pleasure[29].

Vasectomy though safe, effective and easy to perform is still an under used method of family planning. In comparison to 150 million women who undergo tubal ligation only 45 million men world-wide rely on vasectomy as a method of contraception. In India over 90%

men claim to have heard of vasectomy but only 2.8% couples use this method[7]. Vasectomy does not affect masculinity, male hormones which help to produce germ cells or the sperm production. However, the possible association of vasectomy with increased risk for prostate cancer is still being debated. Results of a study of more than 1000 men in Mumbai suggested an association between vasectomy and prostate cancer, particularly among men who underwent vasectomy at least 20 years prior to the diagnosis of cancer or who were at least 40 years old when they had vasectomy[30]. On the other hand, studies carried out under the aegis of the ICMR have dispelled the misbelief that vasectomy has adverse side effects on the cardiovascular system[31] or increased the risk of prostate cancer[32].

Regarding the association between vasectomy and testicular cancer, follow up in a study in Denmark in which 73,917 vasectomized men were identified from hospitals and pathology registers between 1977 and 1989 demonstrated no increased risk of testicular cancer in the group[33]. A large proportion of men still believe that the procedure impairs sexual performance and strength and is not safe. The providers have obviously not been able to reach the potential users and have not helped to dispel these misbeliefs. Correct information is essential for any promotional effort. Men need to be informed, through media as well as interpersonal communication, of the advantages of vasectomy over other methods. In addition, the programmes should address the perceptions of men about the method. Moreover, the vasectomy should be made reversible, and the no-scalpel approach needs to be promoted further as it is simpler to perform and has a lower rate of postoperative complications.

The withdrawal method of family planning, also referred to as coitus interruptus, does not provide high contraceptive efficacy. It is reported to have a failure rate of 4%, however, in real practice the failure rate is as high as 19%[34]. Couples who lack knowledge or access to modern methods of contraception rely on the withdrawal method. However, they have to be highly committed and knowledgeable about the physiology of the menstrual cycle. Although a substantial number of couples from many countries, particularly Turkey, Rumania and the Czech Republic, report relying on the withdrawal method[35], the precise number of users and the contraceptive efficacy of the method still needs to be studied.

Development of newer methods for men

Long-acting reversible methods of male contraception are yet not available. Even the most promising approaches being developed are at least a decade away from general use.

Hormonal methods

The weekly intramuscular injection of testosterone enanthate (200 mg/dose) over six months has been shown to induce azoospermia on an average in 63% of adult men and render such men infertile[36,37]. Sperm production or fertility was restored within seven months after the treatment was stopped. A high level of acceptability was found in both the recipients and their partners in spite of the need for weekly injections. However, induction of azoospermia in almost 100% population has not yet been demonstrated. Moreover, there is a need for longer acting androgens to obviate the need for weekly injection of androgens.

The use of a combination of androgen and progestin is another viable hormonal method of male contraception. Oligospermia and azoospermia are achieved much faster and in a larger number of subjects using a combination regimen as compared to androgens alone[38]. Additional advantage of the combination regimen is that it may reduce the risk for lipid, behavioural and prostate changes that could arise from the continued exposure to androgen alone.

Vas occlusion

Interruption of sperm transport through the epididymis is another promising method of male contraception. Guha and associates[39] have shown that injection of styrene maleic anhydride (SMA, 60 mg) in a solvent system of dimethylsulphoxide into the vas deference induces complete azoospermia. Twelve adult healthy men who were administered the drug were rendered infertile over the one year study period and the procedure did not lead to any clinical complications in the urogenital system and other parts of the body.

More recently, liquid silicone is also being tried to form cured-in-place plugs following injection in the vas[40]. However, the results of the initial studies carried out in Indonesia and China have shown a high frequency of vas rupture following percutaneous intravasal injection of silicone and the studies carried out in The Netherlands have shown a poor occlusion rate as evidenced by a relatively high number of sperms in the ejaculate compared to subjects with vasectomy. These studies need to be extended to determine the optimum volume and pressure characteristics needed to achieve complete vas occlusion without causing any damage to the vas.

Immunocontraceptive methods

The possible target antigens suitable for immunocontraception in the male are gonadotrophin releasing hormone (GnRH), follicle stimulating hormone (FSH), luteinizing hormone (LH), androgens and sperm-specific antigens involved in the maturation of spermatozoa in the epididymis or in sperm-egg interactions.

Immunization against GnRH has been shown to prevent gonadotrophin release resulting in the regression of Leydig cells and suppression of testosterone production and spermatogenesis in rodents and non-human primates[41,42]. Immunization of men, with prostate cancer or benign prostatic hypertrophy, against GnRH-tetanus toxoid conjugate or GnRH-D-Lys^6-diphtheria toxoid conjugate had antifertility effects in addition to decreasing the levels of prostate specific antigen and causing shrinkage of the prostate mass[43]. The major limitation of a GnRH-based vaccine would be the requirement of androgen supplementation to maintain normal sexual behaviour.

Immunization against FSH has also been shown to have antifertility effects. Active immunization of five men with oFSH produced antibodies capable of binding and neutralizing the bioactivity of hFSH[44]. The sperm counts were reduced by about 33% in four and 64% in the fifth man. These encouraging results suggest further extension of the clinical study with FSH derived vaccine.

A number of protein antigens have been identified on the sperm surface which are not present on various somatic cell plasma membranes. Studies carried out in rodents have shown that immunization against some of these antigens impairs fertility. The antigens with potential application in immunocontraception are LDH-C_4, PH-20, SP-10, HSA-63, FA-1, FA-2, CS-1, hSPI, 26kDa and 80kDa proteins. These antigens are at various stages of evaluation in laboratory animals but have not yet entered the phase of clinical evaluation.

Role of Women in Men Taking to Contraception

The men are not highly inclined to use the available contraceptives methods *viz* vasectomy, condom and the withdrawal method. However, studies show that their female partner can motivate them to use a contraceptive. A qualitative study from six countries (Bangladesh, Kenya, Mexico, Rwanda, Sri Lanka and USA) involving women and their partners who had decided to have vasectomy showed that in such cases the women had discussed the procedure with their partners and had satisfied them about the advantages of vasectomy as compared to the female-dependent methods[24]. The women had also satisfied themselves about the safety of the procedure from people who had had a sterilization before asking their partner to undergo vasectomy. Vasectomy was often chosen because it was perceived as easier to perform, less expensive or because a physician had advised the female partner against tubal sterilization.

The use of condom also requires more joint effort and interaction between the couple during sexual activity. Its effectiveness probably improves with greater interspousal communication. Studies show that some women prefer gently encouraging a man to wear a condom, whereas others think they should convince a man rationally and appeal to his sense of duty to protect the family against STDs including HIV/AIDS[45]. Similarly, the high motivation of men in a study evaluating the contraceptive efficacy of weekly injections of testosterone enanthate came from their spouse's urging the men to find an alternative method and from the men's desire to take responsibility for their own fertility[46].

These studies show that contraceptive use by men increases when couples have better communication. Women who are empowered through education, economic security and mobility are more likely to discuss with their partners options for contraceptive use. When the wife perceives communication with her husband to be effective, she is better able to express her point of view and more likely to assert her own interests. Under these circumstances the choice is more likely to be vasectomy or another male method[47]. On the other hand, when the wife is unable to communicate with her husband about contraception, she is more likely to take the traditional role of assuming the contraceptive burden herself.

Supporting Women's Contraceptive Use

As mentioned above, men have very limited contraceptive choices at their disposal. Condom use is perceived to reduce sexual pleasure and is not preferred unless it is for prevention of pregnancy as well as STD, vasectomy is not reversible in all instances, and the withdrawal method has a high failure rate and requires high commitment to interrupt sexual activity at a time when it is nearing its peak. On the other hand, a number of contraceptive choices are available for women to control fertility. The methods are safe and effective. It is therefore essential that men who cannot use one of the available male methods of contraception support their partners to use an appropriate method.

Men and even their parents have considerable influence on the women using contraceptives. Of course it requires communication between the couple and decision needs to be taken jointly as to when and how often to have children. However, one of the frequent reasons given by women for not beginning or continuing to use contraception is their partner's objection[48]. In the families where women use contraception, men have a greater role in influencing their partner in choosing the right contraceptive, and to ensure its correct and consistent use. Male participation is also essential if a barrier method is to be used.

Studies have shown that men who are educated about reproductive health issues are more likely to support their partner's decision and to encourage public policies that result in women receiving the reproductive health care they need[11]. Similarly, the reproductive health programmes are more effective in women when men are involved in some way[49]. Better communication between the husband and the wife on their reproductive health goals and acceptance of contraceptive methods had a positive impact on the compliance[50]. Women generally make a greater number of visits to the antenatal maternal health clinics when their husbands had attended an informational session at the clinic, compared with those whose husbands did not attend[51]. A project in rural Mali addressed this goal by using men to promote family planning in local communities[52]. Many women reported that male community workers had changed their husbands' attitudes towards family planning and had generated more open communication between spouses about family planning.

These studies suggest that men's support to their partner to use contraceptive and reproductive health services helps to improve the reproductive health of the entire family. This necessitates that the men are aware of the fertility regulating technologies, reproductive health services and have effective interspousal communication. When men are actively involved and informed, contraceptive acceptance increases and fertility tends to drop.

Improving Sexual Behaviour and Safe Sex

Human sexuality and gender relations are closely interrelated and together affect the ability of men and women to achieve and maintain sexual health and manage their reproductive needs[53]. It is therefore essential that sex is consensual, safe and it should not result in unwanted pregnancy. This can be achieved by proper communication between the partners, use of appropriate barrier method in case of perceived risk of infection and by using an appropriate contraceptive.

In most societies, particularly among the developing communities, men often take the initiative for sexual activity. Women normally perceive their role as a submissive partner and to please their husbands. Even in the case of perceived risk for STDs, it is the men who decide whether to use a barrier method or not. Men therefore have an enormous responsibility to ensure that sex is safe and enjoyable for both the partners. It necessitates dissociation of sexual risk-taking behaviour from masculine pride.

In India almost 11 million pregnancies are terminated annually of which most are due to the non use of any contraceptive by the couple. Similarly, reports show that as many as 5-7% of the sexually active adults suffer from STDs[54]. Prevention of unwanted pregnancy and STDs lies in fundamental change in sexual behaviour. Non use of contraceptives, resistance to condom use in case of risk of STD, or multiple sex partners intensify the risk for unwanted pregnancy and STDs.

Studies have shown that the adolescents, in particular, face an excessive risk of unintended pregnancy and STDs because of their sexual behaviour and lack of information or little-or-no access to sexual and reproductive health services. A recent study of 1311 students from Chandigarh found that 15% were sexually active, with 30% of these having more than one partner. Condom use was reported by 24% of the heterosexual, 11% of the bisexuals and 7% of the homosexuals[55]. In a survey in Maharashtra, sexual behaviour of 460 married and 589 unmarried men was studied using questionnaire and focus group discussions[56]. Premarital sexual practices were found more among the higher occupational and educational groups and those who were of comparatively higher age at marriage. White collar workers had the highest proportion frequenting commercial sex workers. Approximately 10% married men had extramarital affairs and 5% engaged in commercial sex. Among men who had heard of AIDS, they essentially knew only the name of the syndrome for which they expressed some media-induced fear.

The sexual behaviour of migrant workers is also of great concern. Awareness of STDs, AIDS and condoms is especially low among such people. In a survey, 100 truck drivers, from 5 states who passed through a check-post in Calcutta, were interviewed regarding their socio-economic characteristics, life-style, knowledge and attitude related to STDs and AIDS and visit to female sex workers[57]. Of these, 97% reported visits to female sex workers. Lack of self control, being away from the family, easy availability of female sex workers, and consumption of

drugs/food which arouses libido were cited as the compelling factors for resorting to paid sex. Use of condoms by the truck drivers was not consistent, and their knowledge about its availability and proper use was also poor; 63 truckers reported to have never used it, but those who used it did so only occasionally. The majority of truckers in India have sexual relations with 50 to 100 different female sex workers in a year, thereby making themselves one of the most vulnerable high-risk groups for receiving and transmitting STDs and HIV infections.

The truck drivers also influence their helpers who are generally adolescents. In a survey involving 210 such helpers, in the age group of 15 to 19 years, who accompany the truck drivers, 80% were illiterate, 88.1% were away from home for 24-28 days a month, 25.2% had a history of sexual activity, commonly with prostitutes[58]. Almost 94% of these adolescents had engaged in unprotected sexual intercourse, 98.5% of them had not heard of HIV and AIDS, 4.3% had a history of STD and had been treated by general practitioners.

Special programmes are required to educate our people about the risks of unprotected sex and of using drugs so as to help them prevent contracting HIV/AIDS. The main objective of the educational programmes should be to generate awareness, and to improve the knowledge, perception and attitudes of different groups of people about the nature and severity of the problem, the modes of transmission of infection, the ways and means of prevention and control, about the prevailing myths and misconceptions, and the need for sympathetic treatment of infected persons in the family and society[59]. Adolescents are most vulnerable. It is essential to start sex education among the high school students who are at risk and are in a position to benefit from the education. For those who are not privileged to go for education, communication through media and personal contact is most essential. Both men and women must adopt the responsible sexual behaviour of avoiding multiple sex partners or else always using condoms.

Narrowing the Gender Gap

Gender role refers to the different roles and behaviour expected from men and women in a particular culture or society. In a family or a society men and women are expected to be equal in status, with full control of their own lives and with equal opportunities. The Constitution of India also assures equality of status and of opportunity for all citizens. It specifically prohibits discrimination against women.

However, in real life inequalities between men and women do exist at all stages of life. At birth a male child is preferred over a female, a male child gets more love, affection and care including nutrition than a female child, illiteracy is much higher among females than males, and women receive less wages than men. A recent report estimates that in India 17% of female mortality is due to gender discrimination and gross neglect[60]. Almost 30% of HIV infection occurs in those women who have sexual intercourse with a single male partner[8]. World-wide studies also show that from 20% to over 50% of women have been beaten by a male partner. On the other hand, the burden of contraceptive usage, consequences of unintended pregnancies and induced abortions, responsibilities of child bearing and rearing, and STDs are borne more by women.

In many societies, the gender gap is primarily due to the culture in which a female child is brought up[61]. Girls from childhood are inculcated with the view that their primary role is to ensure procreation and to keep the male partner happy. Secondly, the economic dependence of the female on the male make them more vulnerable to male pressure. Consequently, females often cannot act effectively to realize their reproductive intentions in the face of real or perceived objections from their husbands or others.

If the reproductive health and the quality of life in general of the family are to be improved the gender gap needs to be narrowed down. In fact women's reproductive health and rights are central to human development and for sustainable human development it is essential that the gender gap is narrowed. This calls for respect for human rights of all people, equitably sharing the resources, and taking responsibility for our actions towards each other.

Men must not perceive that the empowered women is a threat to them in any manner. On the contrary, empowered women are essential for the betterment of the present and future generations. An enabling environment is a prerequisite to women's empowerment.

Studies have shown that woman's status, education and economic independence are positively linked not only to her reproductive health but also to better health of the entire family. Woman's control over fertility empowers her to complete her education, seek job opportunities and plan the family size. The preventable mortality and morbidity of the infants and mothers are less in families with more educational and financial resources. In Kerala,

23% of women work at places other than their own farms as compared to 5-7% in states like Uttar Pradesh and Rajasthan which have high fertility and infant mortality rates[62].

Narrowing the gender gap would eventually help in (i) sharing contraceptive responsibilities; (ii) men not always holding their wives responsible for infertility; (iii) men's support for women's control of their own fertility and reproductive rights, including the right not to bear unwanted children; (iv) men participating only in consensual sexual relations; (v) reducing gender based violence; and (vi) men seeking to understand masculinity and their own behaviour towards women and other men from a gender perspective. It is therefore essential that the reproductive health research planners adopt a gender-sensitive research agenda that addresses the roles of both men and women.

Initiatives in India to Increase Male Involvement

The International Conference on Population and Development (ICPD) held in Cairo during September 1994 marked a major shift in the thinking on issues of population and development[53]. Almost 180 governments including that of India agreed to shift from the demographic emphasis in family planning to meeting the reproductive health needs of individuals, both in terms of care and information. For India this has also meant moving away from target-driven family planning services to providing a broader range of health care to enable individuals to achieve sound reproductive health across the life span. In relation to the greater involvement of men, ICPD emphasized that human sexuality and gender relations are closely interrelated and together affect the ability of men and women to achieve and maintain sexual health and manage their reproductive lives. Equal relationship between men and women in matters of sexual relations and reproduction, including full respect for the physical integrity of the human body, requires mutual respect and willingness to accept responsibility for the consequences of sexual behaviour.

The intention of the Government of India (GOI) to implement the Plan of Action adopted at the ICPD was reflected when the policies based on demographic objectives inforce since 1962 were abolished soon after the ICPD[63]. The contraceptive method-specific targets to monitor family planning performance, which were treated as central to programme success, were abolished, at least in some states to start with, in April 1996. In addition, the GOI introduced reforms in family welfare programmes by deciding to do away with reproductive health programmes which were reflection of male domination, and were being implemented through incentives or coercion. Instead, the GOI has introduced programmes which are gender sensitive, decided after assessing the perceptions and needs of people, and promoted by way of creating awareness and by establishing services with quality of care.

The Ninth Five-Year Plan document of the GOI, for the period 1997-2002, has also emphasized on the greater need to promote male participation in the planned parenthood movement with increased emphasis on using male contraceptive methods. The Sub-Committee on the National Committee on Reproductive Health Research Needs Assessment also recommended to the GOI in 1997 to encourage research to understand the knowledge, perceptions, attitude and practices of the male in regard to contraception and other reproductive health responsibilities with an endeavour to increase their participation[64]. The Sub-Committee also recommended that high priority be given to develop new male contraceptives.

Another initiative by the GOI to improve reproductive health of people is reflected in the Reproductive and Child Health (RCH) Programme launched in October 1997. The RCH programme is based on the conviction that the parents will keep the family size small if they are assured of good health and longevity of their children. This also implies that the mothers will go through pregnancy and childbirth safely. The RCH programme thus integrates all interventions of fertility regulation, maternal and child health with reproductive health of both men and women. Implementation of the objectives of the RCH programme is expected to contribute to, in addition to others, reducing the unmet need for family planning particularly for spacing methods and by increasing contraceptive use by men.

The Indian Council of Medical Research (ICMR) has also started supporting research programmes addressed to male involvement in reproductive health and has constituted a Task Force on Male Reproductive Health. The Task Force has a wide perspective, covering various biomedical and operational aspects addressing to fertility regulation, STDs and reproductive cancers.

The Institute for Research in Reproduction (IRR), Mumbai, has initiated a number of studies to evaluate the family size preferences, gender bias, choice of

contraceptive method, awareness, attitudes and practices of family planning, inter-spouse communication and their involvement in general reproductive well being of their wives in urban as well as rural areas. The studies suggest that it is partly the lack of awareness, knowledge, initiatives to know about the methods and access to accurate information about methods which deter men from accepting greater responsibility in contraceptive use[64]. In addition, the IRR has initiated strategies for intervention at both community and clinic levels.

Since Cairo conference, the GOI has also supported a number of workshops to assess the perceptions and needs of men. The emphasis has been to identify and prioritize the key problems which are holding men from sharing the responsibility in matters related to sexual and reproductive life. In addition, workshops have been conducted to assess the utilization of available contraceptives for men and to encourage them to share responsibility with their female partner by using one of the male methods.

A number of non-governmental organization (NGOs), in particular the Family Planning Association of India, the Population Council, *Parivar Seva Sanstha* and Rural Women's Social Education Centre (RUWSEC) have also initiated a number of programmes to increase male involvement in reproductive health[65]. The initiatives to include men were motivated by a concern about women's reproductive health which showed little improvement without men's support and active involvement.

Efforts to enhance men's participation in reproductive health are still limited. The programmes initiated by the GOI, research institutions and NGOs will have positive impact on improving the involvement of men which in turn will help improve the health of their partners and their own. If men are brought into a wider range of reproductive health services in such a way that the men are supported as equal partners and responsible parents, as well as clients in their own right, better outcome will be observed among women and men and will be reflected in reproductive health indicators such as (i) contraceptive acceptance and continuation; (ii) safer sexual practices; (iii) use of reproductive health services; and (iv) reduction in reproductive morbidity and mortality[66]. Efforts in this direction need greater commitment.

Summary

There is a general belief that fertility regulation is the woman's responsibility and men have no role to play. Even the family welfare programmes of India have during the last 50 years focused on meeting the contraceptive needs of women. However, in most families, men are the dominant decision makers and women's reproductive preferences and behaviour are governed by them. The family size and the spacing between the children are generally decided by men. Men also influence the women about deciding upon the type of contraceptive they should use. Men are also greatly responsible for the large proportion of sexually transmitted diseases acquired by their partners. Understanding of responsibility and greater involvement of men in all matters related to reproductive health of the family is therefore critically important.

Lack of knowledge, non-availability of acceptable contraceptives and lack of services with quality of care deter men from sharing the responsibility in reproductive health matters. In addition, it is their risk taking sexual behaviour which adds on to the burden of reproductive ill health suffered by the men themselves and by their family. Efforts need to be made to inculcate the feeling of responsibility and of a participatory approach in reproductive health. Experiences show that men can be motivated to change their attitudes towards reproductive health and sexuality. The reproductive health programmes should (i) encourage men to have better communication with their partner so as to decide mutually the reproductive health issues; (ii) educate men to dissociate sexual risk-taking behaviour from masculine pride and ensure that sex is safe and enjoyable for both the partners; (iii) help narrow the gender gap; (iv) dispel the misbelief that the empowered women is a threat to them in any manner. On the contrary, they should appreciate that empowerment of women is essential for the betterment of the family and even for the future generations; and (v) provide sexual and reproductive health information and services to men to prevent unintended pregnancies and STDs. To formulate these programmes extensive research is required to understand the perceptions and needs of men about fertility regulation and sexual behaviour, and development of appropriate services with quality of care. It is essential that the programmes start addressing the needs of men early in their teens. Focusing programmes on increasing male involvement does not imply that the family welfare programmes should now completely shift their focus on men. Simultaneous efforts to further improve the services and quality of care for women must go on.

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ICMR NEWS

The following meetings of various technical groups/ committees of the Council were held :

Meetings of the Task Forces (TFs)/Expert Groups (EGs)/Project Review Committees (PRCs) and other meetings held at New Delhi :

Meeting of the Toxicology Review Panel of the Council	May 5 and 18, 1999
TF on establishing laboratory based surveillance network to monitor antimicrobial resistance	May 19, 1999
PRC on Tuberculosis and Leprosy	May 27, 1999
TF on Disability Prevention	June 7-8, 1999
EG on study of vaccine wastage during routine immunization in the Universal Immunization Programme	June 9, 1999
EG on Double Fortified Salt	June 14, 1999
PRC on Oncology and Pathology	June 14, 1999

Participation of ICMR Scientists in Scientific Events :

Dr. V. Ramesh Bhat, Dy. Director (Sr.Grade), National Institute of Nutrition, Hyderabad, participated in the Task Force group meeting of the WHO on Fumonisin B1 at Geneva (May 10-14, 1999).

Dr. Srikanth Tripathy, Assistant Director, National AIDS Research Institute, Pune, participated in the International Symposium on HIV, Leukaemia and Opportunistic Cancers at Marrakech, Morocco (May 23-28, 1999).

Dr. M.D. Gupte, Director, Institute for Research in Medical Statistics, Chennai, participated in the workshop on Leprosy Prophylaxis at Pohnpei, Micronesia (May 25-27, 1999). Dr. Gupte also participated in the workshop on Future of Leprosy Research in the Post-genome Era at Bethesda (May 30 - June 3, 1999).

Dr.Dipika Mohanty, Director, Institute of Immunohaematology, Mumbai, participated in the seventh International Conference on Thalassaemia at Bangkok (May 31 - June 4, 1999).

Dr. N.K. Ganguly, Director-General, ICMR, participated in the meeting of the Vaccine Advisory Committee of the Joint United Nations Programme on HIV/AIDS (UNAIDS) and WHO at Geneva (June 14-16, 1999).

ICMR AIDED SYMPOSIA/SEMINARS/WORKSHOPS/COURSES/CONFERENCES

Symposium/Seminar/Workshop/ Course/Conference	Date & Place	Contact Address
Symposium on Bone Health	June 7, 1999; (at Hyderabad)	Dr. K. Krishnaswamy, Director, National Institute of Nutrition, Hyderabad-500007.
Internationl Symposium on Transcription Assembly and Nucleic Acid-Protein Interaction	June 7-8, 1999; (at Bangalore)	Prof. V. Nagaraja, Convenor of the Symposium, Department of Microbiology and Cell Biology, Indian Institute of Science, Bangalore-560012.
Workshop on Research Methodology and Writing a Scientific Paper for Publication	June 18, 1999; (at Perundurai)	Dr. J. Mohansundaram, Professor, Department of Pharmacology, Perundurai Medical College, Perundurai-638053.
Workshop on Planning Action Oriented Research for Primary Health Care	June 19-28, 1999; (at Dehradun)	Dr. D. Anand, President, SAKSHI, D-332, IInd floor, Defence Colony, New Delhi-110024.

COUNCIL'S TRAINING PROGRAMMES FOR 1999-2000

Leprosy

At the Central JALMA Institute for Leprosy, Agra:

- Training Course for Medical Officers Working under the National Leprosy Eradication Programme (September, 1999).

Reproductive Biology

At the Institute for Research in Reproduction, Mumbai:

- Training Course in Molecular Techniques in Ovarian Function (September 27-October 2, 1999).

- Training Course on Cytological Detection of Reproductive Tract Infections (December 13-17, 1999).

Endocrinology

At the National Institute of Nutrition,, Hyderabad:

- Annual Certificate Course on Endocrinological Techniques and their Application (August 1 - September 15, 1999).

Nutrition

At the National Institute of Nutrition, Hyderabad:

- M.Sc. in Applied Nutrition (June 1, 1999-February 28, 2000).
- Postgraduate Certificate Course in Nutrition (December 1, 1999-February 28, 2000).

Laboratory Animal Technology

At the National Centre for Laboratory Animal Science, National Institute of Nutrition, Hyderabad:

- Training Course for Laboratory Animal Technicians (June 14-July 30, 1999).
- Training Course for Laboratory Animal Supervisors (September 1-November 30, 1999).

Medical Entomology:

At the Vector Control Research Centre, Pondicherry:

- Postgraduate Diploma Course in Medical Entomology (from July 1999).

Biomedical Statistics

At the Institute for Research in Medical Statistics, Chennai:

- Basic Course in Statistics for Medical Officers (July 1999).
- Training Course in Field Epidemiology (November, 1999).

Haematology

At the Institute of Immunohaematology, Mumbai:

- Training Course in Transfusion Medicine for Blood Bank Medical Officers (August 31-October 29, 1999).
- Training Course in Blood Group Serology and Blood Bank Methodology for Blood Bank Technicians (August 31-September 30, 1999).
- Training Course in Advanced Haematology and Immunohaematology (October 11-29, 1999).

INDIAN COUNCIL OF MEDICAL RESEARCH

The ICMR Task Force on Male Reproductive Health (MRH) which met on December 1-2, 1998 at ICMR Headquarters, New Delhi has identified the following priority areas for research. Interested scientists may submit proposal in the following areas for possible financial support by the Council.

1. Male fertility regulation:
   (i) Preclinical and clinical evaluation of potential male contraceptives.
   (ii) New techniques for interruption of sperm function and transport within the epididymis and vas deferens.
   (iii) Understanding the molecular, cellular and biochemical aspects of (a) spermatogenesis, (b) sperm maturation, function, and transport, and (c) sperm-egg interaction.
2. Increased involvement of men in maintaining reproductive health of self and the family.
3. Prevention and control of reproductive tract infections (RTIs), sexually transmitted diseases (STDs) including HIV/AIDS.
4. Adolescent reproductive health including development of responsible sexual behaviour and healthy life-style.
5. Prevention and/or management of male reproductive disorders including male infertility.
6. Reproductive health of elderly males.

GUIDANCE FOR INTERNATIONAL COLLABORATION FOR RESEARCH IN BIOMEDICAL SCIENCES

An Indo-Foreign Cell (IFC) was set up in the ICMR, in the early 1980s to coordinate collaboration in biomedical research between India and other countries/ international agencies. By and large, biomedical research/health sciences have figured in practically every bilateral agreement in the field of Science and Technology. In addition, there have been a few specific agreements signed by the Ministry of Health and Family Welfare with other countries as well as those signed directly by the ICMR. The purposes of these agreements have been for : (i) exchange of scientific information; (ii) exchange of scientists/technicians and joint execution of scientific projects, including support in the procurement of scientific equipments; and (iii) organisation of joint scientific meetings, seminars, workshops, symposia on identified subjects of cooperation.

Applications for research projects involving foreign assistance/collaboration in biomedical/health research are to be routed through ICMR for placing before the Health Ministry's Screening Committee (HMSC).

The procedures/instructions as well as application format vary from country to country and from agency to agency. The information provided in this write-up is based on the experiences of investigators to assist them in developing Indo-Foreign collaborative proposals for research in biomedical sciences.

Whom to Contact for Information on Available Opportunities, Forms and Other Details :

1. **Dr. G. Nath,** Scientist G /Adviser, (for West Europe, Germany, France, *etc.*); **Mrs.Sadhana Relia,** Scientist F (for Italy, European Commission, UNESCO); **Dr. Sulbha Gupta,** Scientist F (for US); **Mr. M. Bandyopadhyay,** Scientist F (for Vietnam); **Dr. Rajiv Sharma,** Scientist F, (for Japan, Hungary).

International Division, Ministry of Science & Technology, Department of Science and Technology, Technology Bhavan, New Mehrauli Road, New Delhi-110016 (Tel. 696757, 6962819, Fax 6862418, 6864570, 6863847).

2. For assistance from France under IFCPAR mechanism : **Dr.P.G.S. Mony,** Director, Indo-French Centre for the Promotion of Advanced Research (IFCPAR), Zone V, Core A, Ground Floor, India Habitat Centre, Lodhi Road, New Delhi-110003.(Tel. 4648365, 4648366 , Fax 4648632)

3. For Indo-German and Indo-UK collaboration : No specific format is prescribed. Proposals are to be prepared using section B of ICMR Ad-hoc research project application form.

4. For Indo-US collaboration : The Science Office, US Embassy in India, Shantipath, Chankayapuri, New Delhi - 110 021. (Tel. 4190011, 6113033, 6889033, Fax 4190018)

NOTE : Proposals for the US-India Rupee Fund are no longer being accepted. NIH Post doctoral Fellowships operated through the ICMR have also been terminated by the US authorities.

However, investigators may consider submitting the proposals for alternative Indo-US Programmes like NIH Funding in Dollars, for which the following procedures are to be adopted :

(i) Ascertain from US Collaborator whether he/she would be willing to submit the proposal for NIH Grants (R01 projects).

(ii) If the US Collaborator agrees to do so, they may obtain form no.PHS 398 (latest version) from the US Embassy (Science Office), New Delhi and prepare the proposal in that format.

(iii) They may also fill in the ICMR summary sheet for foreign projects upto item no. 42.

(iv) The US collaborator could submit the proposal to the NIH, USA for processing on their side.

5. For assistance from foreign Foundations : The prescribed format of the concerned Foundation is to be used. If there is no prescribed format, proposals are to be prepared using Section B of the ICMR Ad-hoc esearch project application form.

6. For assistance from WHO : The prescribed form from SEARO, WHO, New Delhi. is to be used.

The following general information is to be given while submitting proposals for foreign collaboration/assistance :

(i) Role/Status/Expertise of the Indian Principal Investigator.

(ii) Justification for foreign collaboration/funding.

(ii) Relevance to India's national health priorities.

(iv) Consent and biodata of foreign collaborator.

(v) Availability of infrastructure and manpower in the institution.

(vi) Budget formulation including training as well as foreign exchange component.

Apart from the technical details such as rationale for the studies, objectives, review of literature, material and methods, techniques to be used, *etc.* the following additional information is required for any Indo-Foreign collaborative project:

(i) Nature of work to be done in Indian laboratory/institution and foreign collaborator's laboratory/institution.

(ii) Whether there would be transfer of technology as an outcome of the project.

(iii) Whether there would be transfer of human biological material from India to the foreign laboratory, or vice-versa

and if so the requisite details for the same, such as nature and quantity of material to be sent abroad; purpose/need of transfer; nature of investigation to be done utilising the material; institution(s)/scientist(s) to whom material to be sent alongwith their addresses; copy of Material Transfer Agreement; and approval by Institutional Review and Ethical Committees are to be provided.

With the progress in the cell and molecular biology the following points become very important :

(a) Safety during transfer – risk of transportation;

(b) National security – the research should not lead to development of biological weapons;

(c) Risk (relative) from the defence and internal security point of view of the country;

(d) Intellectual Property Rights;

(e) Potential for commercial exploitation, such as by development of vaccines, diagnostics, therapeutics, drugs, *etc.*

NOTE : Guidelines issued by the Ministry of Health and Family Welfare, Govt. of India, New Delhi, vide O.M. No.L.19015/53/97-IH(Pt.) dated 19th Nov. 1997 are to be followed for proposals involving transfer of human biological material for biomedical research purposes. These guidelines have been reproduced in full in the ICMR Bulletin (Vol. 28 January, 1998). Indian J Prev. Soc. Med. (Vol. 29 No. 1 & 2, 1998), Current Science (Vol.74 No. 2, pp 179-180, 1998), and AIDS Research & Review (Vol 1., pp 34-37, 1998).

(iv) Information pertaining to likely visits by Indian and foreign scientist(s) including duration and purpose of each visit.

(v) Institutional ethical clearances.

(vi) Appropriate clearances for research involving human subjects, radio-tagged material (for clinical and/or experimental purposes), recombinant DNA/genetic engineering work.

(vii) Mutual agreement on IPR claims.

25 copies of each proposal along with three copies of the ICMR summary sheet should be sent to the Indo-Foreign Cell (IFC) of ICMR Hqrs. The proposals can be submitted throughout the year or six months in advance of the deadline that may be prescribed by the concerned funding agency, as the case may be. All items except item nos. 43 to 46 of ICMR summary sheet should be filled up by the Indian Investigator/ Institutions. The proposals involving ICMR institutes / centres should be submitted with the recommendations of the Scientific Advisory Committee of the concerned institute/centre.

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This write-up provides general guidelines and should not be considered a call for application for any specific programme.

Nuclear Magnetic Resonance Facilities

The All India Institute of Medical Sciences, New Delhi, established a department of Nuclear Magnetic Resonance (NMR) in 1992. Over the years the Department has created facilities which include (i) a 1.5 Tesla clinical MRI/MRS scanner, (ii) a 4.7 Tesla Animal MRI/ MRS scanner, and (iii) a vertical bore 9.4 Tesla NMR spectrometer, for carrying out advanced research in different areas of biomedical NMR in human and animal systems. The Department's Animal MRI scanner has been identified as a **"National Facility"**, by the Ministry of Science and Technology.

Scientists and researchers who are interested in carrying out research using the animal MRI system may contact :

Prof. N.R. Jagannathan
Head, Department of NMR
All India Institute of Medical Sciences
New Delhi-110029

Tel : 011-6593253 / 6850533
Fax : 011-6862663 / 6521041

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