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DEVELOPMENT TOWARDS ACHIEVING HEALTH/REPRODUCTIVE HEALTH FOR ALL AND MILLENNIUM DEVELOPMENT GOALS: A CRITICAL APPRAISAL FOR STRENGTHENING ACTION PROGRAMMES (Part-II)

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ABSTRACT

This comprehensive presentation is divided into two parts – Part I and Part II. The Part I was published in Vol.30, No.2, 2007 of this Journal. In Part I, the efforts made for health development and health maintenance in India since Independence to recent years have been systematically reviewed. Achievements made so far as well as shortfalls in achieving Health For All (HFA) and Reproductive Health For All (RHFA) goals through general health care and RCH-I and II, and NRHM programmes are discussed. The gaps and deficiencies, and future challenges are also indicated.

In Part II, the Millennium Development Goals (MDGs) have been described and current situation in India has been reviewed. Various barriers to progress towards achieving HFA, RHFA and MDGs have been identified, and appropriate remedial measures suggested. Steps to be undertaken for strengthening effective implementation of various action programmes have also been described. Overall concluding remarks and relevant references are also added.

Key-words: Reproductive Health, Millennium Development Goals, Health For All, Remedial Measures

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In Part-I of this presentation, achievements made so far, as well as shortfalls in Health For All by 2000 and Reproductive Health for All by 2015 Goals, through general health care and RCH-I & II and NRHM programmes were discussed. The gaps and deficiencies, and future challenges were also indicated.

In this Part-II, the Millennium Development Goals (MDGs) have been described, and current situation in India has been reviewed. Various barriers to progress towards achieving HFA, RHFA and MDGs have been identified, and appropriate remedial measures suggested. Steps to be undertaken for strengthening various action programmes have also been described.

GLOBAL GOALS AND GLOBAL REALITIES

Global Goals

The Millennium Development Goals (MDGs), which grew out of UN Millennium Declaration adopted by 189 Member States in 2000, provide new international framework for measuring progress towards sustaining development and eliminating poverty. Of the eight goals three are directly related to reproductive and sexual health (RSH); these are:

1. to improve maternal health,
2. to reduce child mortality, and
3. to combat HIV/AIDS, malaria and other diseases.

Five others, although not directly related to RSH, have great bearing on them:

1. to eradicate extreme poverty and hunger,
2. to achieve universal primary education,
3. to promote gender equality,
4. to empower women, and
5. to ensure environmental sustainability.

Among the specific targets are:

a. to reduce maternal mortality by 75 per cent (between 1990 to 2015);
b. to reduce under 5 mortality by 66 per cent (between 1990 to 2015).

c. the spread of HIV/AIDS is to be halted and it should begin to reverse by 2015; and
d. the births assisted by skilled attendants should reach 90 per cent globally, and at least 60 per cent in countries with high rates of maternal deaths by 2015 (this is an additional benchmark agreed upon in General Assembly, 1999).

Global Situation

A. Pregnancy, Child birth and Health of New-borns

1. Out of estimated 210 million pregnancies occurring in the world each year, about 80 million suffer life-threatening complications and long-term morbidities and disabilities.

2. In 2000, about 520,000 women died during pregnancy and child birth largely from preventable causes. Maternal mortality ratio worldwide has not decreased substantially over the past decade.

3. There are great inequities regarding risk of maternal deaths; in Sub-Sahara Africa it is 1 in 16 and in South-East Asia 1 in 58, compared to 1 in 4000 in industrialized countries.

4. Most maternal deaths occur due to complications:

   a. During child birth – obstructed labour, especially in early first pregnancy, haemorrhage and hypertensive disorders;
   b. In immediate post-partum period – sepsis and haemorrhage; or
   c. From unsafe abortion.

   Common Associated Factors are:

   a. Lack of skilled personnel for child birth, for emergency care and for complications of unsafe abortion, and
   b. Lack of effective referral system.

   Large proportions of women (>50%) living in world's poorest regions, and more than 80 per cent in some countries, deliver their babies without the help of any skilled birth attendant. While in industrialized countries ante-natal care

is almost universal, it is largely absent in poor countries like Southern Asia (50%), Western Asia (66%)) and only (20%) in East Asia and Latin America.

5. Of the 10.8 million deaths of children under five occurring worldwide, 3 million occur during first seven days. In addition, about 2.7 million infants are still born. Many of these deaths are related to poor health and inadequate care during pregnancy, child birth and the post-partum period. The neo-natal mortality i.e. the death within first 28 days after birth, has remained unchanged at about 30 deaths per 1000 live births since early 1980s.

B. Family Planning

Use of contraceptives has markedly increased in developing countries, and in some it has almost reached the level of developed countries. Yet surveys indicate that more than 120 million couples in the world have unmet need for safe and effective contraception despite their expressed desire to avoid or space pregnancy.

Among the married women about 9 per cent to 39 per cent have unmet need for family planning; unmarried sexually active adolescents and adults also face this unmet need. Every year about 80 million women have unintended or unwanted pregnancies, some of which are due to contraceptive failure as no contraceptive is 100 per cent effective.

C. Unsafe Abortion

"An unsafe abortion is defined as a procedure for terminating an unwanted pregnancy either by persons lacking the necessary skill or in an environment lacking the minimal medical standards, or both" (WHO, 1992). About 19 million induced abortions, out of an estimated yearly total of 45 million cases, are unsafe; 40 per cent of all unsafe abortions are performed in young women aged 15 to 24 years. As a result about 68,000 women die every year, which represents 13 per cent of all pregnancy related deaths. In addition, there are considerable morbidities; about 20 per cent get RTIs, some are serious and lead to infertility.

D. STDs and RTIs

About 340 million new cases of sexually transmitted bacterial infections occur annually. Most of these are treatable, but many remain untreated because of the difficulty in diagnosis and the lack of competent and affordable services. Sexually

transmitted human papilloma virus infection is closely associated with cervical cancer, which is diagnosed in 490,000 women resulting in 24000 deaths annually. About 75 per cent of cervical cancer cases occur in developing countries, where facilities for screening and treatment are seriously deficient or lacking.

More than 100 million mostly curable STIs occur annually in young people aged 15 to 24 years. These infections facilitate acquisition and spread of HIV. About 50 per cent of HIV infections occur in young people; it is twice as many among young women than young men. The incidence of this infection is almost double in Sub-Saharan Africa compared to other developing countries.

In addition, reproductive tract infections (RTIs) such as bacterial vaginosis and candidiasis, which are not sexually transmitted, are also quite widespread; however, their prevalence and consequences are not well documented. STIs are also a leading cause of infertility; about 60 to 80 million couples worldwide suffer from infertility and childlessness, often as a result of tubal blockage caused by untreated or inadequately treated STIs.

Reproductive and sexual ill-health, which includes maternal and perinatal mortality and morbidity, cancers, STIs and HIV/AIDS, accounts for nearly 20 per cent of the global burden of ill-health for women and about 14 per cent for men. In addition, gender-based violence and gynaecological disorders such as severe menstrual disorders, urinary and faecal incontinence due to obstetric fistulae, uterine prolapse, pregnancy loss and sexual dysfunction along with their social, emotional and physical consequences, further intensify the global burden of ill health.

E. Epidemic of HIV/AIDS

I. Global Situation

In 1986, the total number of AIDS cases around the world was about 20,000. Since then, in the last two decades, the epidemic has gradually grown into a great public health problem and has become a threat to human survival and development. In many parts of the world, particularly in Africa, the epidemic has catastrophic impacts on health, economy and development. Many nations are faced with tremendous disease burden and almost entire generation of young adult people is being wiped out leading to great setbacks to economic growth and development programmes. In worst affected countries, the economic and other resources have become very inadequate to provide proper prevention, care and support to people living with HIV/AIDS. In many

countries the governments can no longer support or sustain the development sectors like education, nutrition and health care systems or essential public services. Women and children are worst sufferers. United Nations Declaration on Millennium Development Goal aims at halting and reversing the HIV epidemic by 2015. All member countries including India are committed to attain this goal.

As of December 2006, the estimated number of people in the world living with HIV/AIDS is 39.5 million, of which 17.7 million are women and 2.3 million are children under 15 years. During 2006, 4.3 million people were newly infected and 2.9 million people with AIDS died.

II. The Indian Scene

The first case of AIDS was reported in India in 1986, when total number of AIDS cases around the world was 20,000. Since then the number has gradually increased. But the nature of HIV epidemic in India is variable, showing signs of stabilization in some parts while growing in certain other parts of the country. As of December 2006, the estimated number of people living with HIV/AIDS in India was about 5.7 million, of which 2.19 million (38.4%) are women and 0.5 million are children below 15 years. Evidences indicate that the HIV epidemic in India is still mostly concentrated in high-risk groups like commercial sex workers (CSW) and their clients, injection drug users (IDU) and men having sex with men (MSM), however more recent information indicates that the epidemic is tending to pass on from high-risk group to general population and from urban to rural populations. Over 5 per cent of adult population in India suffer from STDs, and HIV prevalence among STD patients is also high (7.8% to 22.8% in different studies).

Although HIV control programme in India was started in 1990, the first National AIDS Control Programme (NACP-I) was launched in 1992. During NACP-I (1992-1999), emphasis was on capacity building and formation of AIDS Cells in states, expansion of sentinel surveillance system, intensified communication campaigns and collaboration with partner agencies. During NACP-II (1999-2006), more emphasis was given on strengthening of focused interventions, behaviour change strategies, strengthening of surveillance system, and more collaboration with civil societies and NGOs. Still several weaknesses in the programme were witnessed, which would need urgent attention. These are:

a. Low coverage of targeted interventions among high-risk groups particularly, MSM and IDU;

b. Poor availability of anti-retroviral therapy (ART);
c. Inadequate spread of surveillance system, particularly in rural areas ; and
d. Resource constraints.

BARRIERS TO PROGRESS

A. Perception of Gender Role Among Adolescents - (a) Both females and males perceive male dominance in domestic and public life, and (b) Women are conditioned to suffer low self-esteem, inferior status and see the birth of a daughter as a reason for apology and distress.

B. Gender Inequity and Discriminations – (a) In case of females, the families may invest less in nutrition, education, medicare and developmental opportunities such as vocational training, and (b) Selective abortion of female fetus and female foeticide/infanticide – direct or indirect, are prevalent in certain sections of population.

C. Gender Violence – It is observed in the following forms: (a) Rape, sexual assault and female genital mutilation; (b) Trafficking of women and children; and (c) Forced prostitution.

These have extensive consequences on reproductive and sexual health, such as unwanted pregnancy, unsafe abortion, sexually transmitted infections including HIV/AIDS, gynaecological disorders and chronic pain syndrome.

D. Status of Women in India is a Great Paradox – It is evident from the foregoing discussions that females are being subjected to various discriminatory practices. This is a very unfortunate and paradoxical situation. According to the Indian culture, the 'female' had been held in high esteem throughout the ages. One ancient Smriti Shloka states, *Yatra narayastu pujyante, ramante tatra devata*, which means wherever women are worshiped there is the abode of God. Even in the present day, we show reverence to female gender by uttering Durga mata, Kali mata, Laxmi mata, Bharat mata, etc. Obviously, there is an urgent need for stopping such discriminatory practices. Women's health and maternal health cannot be improved, and maternal morbidity and mortality cannot be significantly reduced without empowerment and overall development of women.

E. Adolescents' Exposure to Risk – The period of adolescence is marked by rapid physical, sexual, emotional and psychological changes. The suddenness of these changes coupled with non-availability of authentic sources of acquiring

knowledge for understanding and appreciating these changes, result in anxieties which cause confusion and unrest among adolescents, at times promoting deviant behaviour in them.

The majority of young people desire and seek authentic information and guidance on sex related matters; but they do not know where to get it from. Their present attitude will determine their future growth and their usefulness as members of society.

In most countries, taboos and norms about sexuality, including practices of child marriage and early sexual initiation pose strong barriers to providing the information, reproductive health services and other forms of support that the young people need to be healthy. It needs to be emphasized that reproductive and sexual behaviours during adolescence (age between 10 and 19 years) have immediate and long-term consequences. Sexual activity beginning during adolescence is often risky, whether within or outside marriage. Adolescents rarely have the ability or support to resist pressure to have sexual relations, negotiate safer sex, or protect themselves against unintended pregnancy and sexually transmitted infections including HIV/AIDS. Pregnancy occurring in very young girls carries a high-risk of maternal mortality and morbidity.

Unprotected sexual practice has greatly increased among unmarried (and also married) adolescents and youths in India. They are also the victims of drug abuse. Adolescents constitute one-fifth of global population, that is over one billion people. Nearly ten per cent of global disease burden is borne by people aged 10-19 years. Yet, there is no separate health care programme for adolescents and youths. In addition, many events and behaviour that are established during adolescence can lead to problems in later life.

F. Increasing Incidence of STIs – This has greatly increased and HIV infection has assumed epidemic proportions. HIV has increased mainly through heterosexual contacts. The majority of afflicted persons are young. Mother to child transmission has greatly increased, the mother being innocently infected by the male partner, who had acquired this infections through extra-marital relations.

G. Lack of Education Among Girls – Around the world, girls face multiple social and economic barriers to both enrolling and staying at school. Poverty is an important reason for girls not going to school.

H. Inequities in Access to Health Services Related to Poverty – Poverty is almost universally associated with inequitable access to health services. The burden of reproductive and sexual ill-health is greatest in the poorest countries, where the health services tend to be scattered or physically inaccessible and poorly resourced and equipped, and beyond the reach of many poor people. Therefore, special attention is needed to ensure that disadvantaged groups can have access to preventive, curative and life-saving services such as emergency obstetric care.

REMEDIAL MEASURES

A. Guiding Principles: Human Rights and Law (Reproductive Health - A Matter of Justice)

Following ICPD in Cairo in 1994 and UN Fourth World Conference on Women in Beijing in 1995, advances in recognition, promotion and protection of reproductive health (RH) have been accelerated. Many countries have already reassessed and reformed their policies, laws and practices in the light of the recommendations of these conferences, or are in the process of doing so.

The law must protect the sexual and reproductive lives of both men and women. However, as the women bear the burden of gestation and their lives are more at stake in pregnancy and child birth than those of men, women are more centrally concerned than men in the legal protection and promotion of reproductive health.

Although the modern Human Rights and Law guarantee equities between the sexes, many of the health disadvantages of women can be considered as injustices. Women are given low social status and menial social roles, and are neglected in providing education, adequate nutrition and health information and care, to which they are entitled according to international treaties and conventions. These are clearly denial of Human Rights. Therefore, there is a great need to pay more attention to the task of translating the rights in sexuality and reproduction into policy and laws and developing appropriate programmes for their implementation.

For addressing the health disadvantages of women, actions are needed in many areas and they must be empowered, as noted below:

- women must have greater freedom to determine their own health and life choices within families and communities;

- they must have opportunities to learn about their rights and health, including access to information and high quality women-centered care;
- they must have greater access to education and economic opportunities;
- adolescent girls must have greater opportunities to develop their life skill for protecting their health;
- men must be made aware of their roles and responsibilities in ensuring responsible sexual and family life;
- women must be supported by policies and laws that promote and ensure reproductive health and gender equality;
- training of health care providers must lay emphasis on the importance of preserving women's rights.

Redefining women's reproductive ill-health as a 'social injustice' rather than 'health disadvantage' provides the legal and political basis for governments to ensure reproductive health care for women.

B. W.H.O's First Global Strategy for RH (2004) for Accelerating Progress

Being concerned about the slow progress made in improving reproductive and sexual health over the past decade, the WHO has developed a strategy for accelerating progress towards targets. This strategy is intended for the audience of policy-makers within governments, international agencies, professional associations, NGOs and other institutions. In this strategy the following five priority areas are targeted:

- Improving ante-natal, delivery, post-partum and newborn care;
- Providing high quality services for family planning and infertility services;
- Eliminating unsafe abortion;
- Combating sexually transmitted infections (STIs), HIV, reproductive tract infections (RTIs), cervical cancer and other gynaecological morbidities; and
- Promoting sexual health.

C. AIDS Control Programme in India

Based on the experiences of NACP-I & II, and in tune with UN- Millennium Development Goals, India has developed NACP-III (2007-2012). The primary goal is to halt and reverse the HIV epidemic by 2012. The strategies would be :

a. Prevention of new infections by saturating high-risk groups with targeted interventions;
b. Providing free ART to larger number of people living with HIV/AIDS;
c. Strengthening infrastructure and logistic support at all levels; and
d. Strengthening of strategic information management system.

The specific targets would be:

a. To reduce new infections by 60 per cent in high-prevalence States and by 40 per cent in vulnerable States in the first year;
b. To increase coverage of high-risk groups from current 50 per cent to 80 per cent by 2011;
c. To increase ART coverage from present less than 10 per cent to 80 per cent by 2011.

It has been estimated that if such coverage is achieved, reversal of HIV epidemic will be possible. There is an urgent need for collaboration and co-operation between all countries, governments, UN agencies, public health specialists and all other stake holders to mobilize adequate technical, logistics and funding support to address the problem.

D. Counter the Barriers Identified

1. Alter Gender Perceptions – Gender perceptions are built during childhood and adolescence, depending mainly on prevailing socio-cultural practices, which leads to lower self-esteem among girls and they become used to the neglect and tolerate discrimination and injustice. This type of customs and discriminatory social practices need to be changed urgently with active cooperation of all concerned stake holders – the family, the community, social activists and others. This will help to build self-confidence and courage to resist pressure, discrimination and abuse.

2. Adolescents Education and Counseling and Health Care – Integrated care and development of adolescents and youths are important components of RH care. There should be systematic efforts to build rational and healthy sexual attitude and behaviour among boys and girls. They should be taught gender equality and mutual respect.

There is general reluctance to address these issues openly, and notions of adolescent sexuality and their need for sex education still generate intense debate.

However, there is considerable evidence that when sexuality is openly discussed and when young people learn about their bodies and emotions, they are better able to cope with sexual maturation.

Many countries have now started to provide sexual and reproductive information to young people, being concerned about HIV/AIDS. To make such information effective, it has to be tailored to specific needs, understanding and motivation. It should also be placed in the context of adolescents' broader needs for education, employment, emotional support and safety. Thus, the programme might focus not only on counseling services, contraception and nutrition, but also on life skills, protection from abuse and vocational guidance. Thus, the adolescents can be helped to achieve their potential to become knowledgeable, confident and caring adults.

There should be comprehensive health care programmes for adolescents and youths. This should cover general health care including prevention and control of anaemia, and management of psycho-social, sexual and reproductive disorders.

3. Ending Discrimination and Injustice –In addition to the neglect, women in India are subjected to actual violence and harassment in the home, on the street and in workplace. UNICEF reports that every 28 minutes a woman is molested; a rape occurs every 34 minutes. Violence is very widespread, and is widely tolerated. "What is happening in India in the name of `Eve-teasing', is in fact dehumanizing. Although in India the women have constitutional rights to protection, they have no such protection. It is time that good and responsible men at different levels to stand-up against dehumanization of almost half of the population. If this evil is neglected, eventually it would dehumanize all of us." (Sadik, 1999).

4. Educating Girls Leads to Empowerment and Development – Around the world, a quality education is the key to a brighter future. Education helps individuals to achieve greater self-fulfillment. In most societies, formal schooling improves employment prospects and earning. Education has special benefits for young girls as well as adult women, it influences their patterns of child bearing. In most countries, educated girls, particularly those who go to secondary schools are more likely to delay marriage and child bearing; the girls with less education are more likely to become mothers as adolescents. Early child bearing often limits educational and employment opportunities for women; young mothers and their children are more likely to live in poverty.

Educating girls promotes sustainable development. Expanding schooling for girls, increases labour force participation, productivity and economic growth. More educated women want small families and are more likely to use contraception. This also slows the momentum of population growth. In societies where the status of women is low, girls need at least six to seven years schooling to reap the full benefits of education in all spheres of life.

5. Barriers to Girls' Education – Around the world, girls face multiple social and economic barriers to both enrolling and staying at school. It seems that the girls face greater-problems in getting enrolled than continuing in school once entered.

Girls traditionally marry early and leave their families; boys are more likely to provide financial and other support to the parents, particularly in their old age. Further, the girls attending school are less available to help household chores and child care of younger siblings. Poverty is an important reason for girls not going to school. When school places or family resources are limited, parents often give higher priority to sons' education. Decisions about schooling for girls are often influenced by social norms relating to marriage and sexuality. In traditional societies where chastity is highly valued and early marriage is customary, parents may be reluctant to allow girls to travel long distances, be taught by male teachers and have close contact with boys.

A more progressive political leadership and strong political will only can help in addressing social and cultural barriers to educating girls.

6. Women's Empowerment and Development: Further Measures

There is an urgent need for increasing the awareness, knowledge and perception of the people, and the women in particular, about the important role the women can play in family life, performing domestic responsibilities, making economic contributions and as effective change agents for various social developments. For progress, women's development is of utmost importance and for all-round development, women's participation is vital. Women should be motivated and helped to organize themselves as demand groups. There is an urgent need for arousing societal concern and for total social mobilization and action.

In the light of the above, it would be important to ensure the following:

- To promote appropriate education, health, nutrition, economic and social development programmes and practices that would improve the quality of women's life.
- To increase women's knowledge about the opportunities available to them through various programmes and to make these accessible to them.
- To make the women aware about their potentialities, to empower them and give them opportunities and some degree of independence for self-improvement, and thus helping them to become self-confident and self-reliant.
- To make them aware about their legal and constitutional rights.
- To increase the role of women in decision-making processes in family life, domestic matters and in community activities.
- To change the attitudes of the society, particularly of men, towards women in regard to discriminatory socio-cultural practices, and to accord the women their rightful status and dignity.

E. Promote Men's Participation in Reproductive Health Care

Men, as well as women, play key roles in reproductive health (RH), including family planning; but increasing men's participation has been difficult. However, adopting new perspective can help. Today's new perspectives recognize that:

1. Men play important, often dominant roles in making decisions that are crucial to women's RH.
2. Contrary to common assumptions, men are often found to be interested in family planning; but appropriate communication and services need to be especially directed to them.
3. Understanding and influencing balance of power between men and women can improve reproductive health behaviour.
4. The couples who talk to each other about family planning and reproductive health can reach better and healthier decisions.

Emerging Issues

1. For addressing some of the world's most pressing RH problems, men's participation would be vital:
    a. HIV infection is spreading faster among women than men.
    b. AIDS epidemic has focused attention on health consequences of men's sexual behaviour.

2. Millions of unintended pregnancies are occurring and many thousands of women are dying thereof.
3. Studies carried out most in Africa show that men are increasingly making reproductive decisions with their wives.
4. If men are ready, why some of the programmes to involve them have not succeeded? May be some of the efforts made were too weak or too brief or were based on incomplete understanding of men's motivation and couples' interactions.
5. Gender role is a powerful force. This refers to the different roles that men and women play in the society and the rights and responsibilities that are associated with these roles. Because of these it becomes difficult for men and women to discuss family planning and related issues. Men often dominate decision-making and that can seriously harm or may help women's reproductive health.
6. Appropriate communication plays a key role in new approaches for involving men. It can help in promoting equity between partners, encourage couples to discuss use of contraceptives and other RH matters leading to proper decisions and healthier practices. This also helps the service delivery system to recognize the distinct RH needs of men.

Programme Lessons

The following nine lessons learnt from research and programme experience will be useful for increasing men's participation.

A. Reach male audiences with appropriate messages:
   a. Build on men's approval of family planning.
   b. Use mass media to communicate with men.
   c. Reach out to young and unmarried men.

B. Use communication to promote change in behaviour:
   a. Understand the influence of gender role.
   b. Encourage couple communication.
   c. Bring information to where men gather.

C. Offer information and services that men want:
   a. Inform men about condom and vasectomy.
   b. Counsel men with respect and sensitivity.
   c. Offer men a range of health services.

Men's active participation would be of immense value in the following areas:

1. Men's own reproductive health issues:
   a. They should address to unmet needs in RH care;
   b. Keep themselves free from STDs and HIV infection; and
   c. Participation in family planning using condoms or accepting vasectomy.
2. Share responsibilities for RH care needs of the partner:
   a. Avoid unintended pregnancies;
   b. Discuss and jointly decide the contraceptive choice and practice; when a decision is jointly taken, the acceptance and continuation rates are better. In one study in Iran, the responsibility of wives' oral contraceptive use was given to their husbands; the compliance rate was very much improved.
   c. The importance of timely use of emergency contraceptive (EC) in case of unprotected sex can be explained to male partners; this will promote acceptance and practice not only of EC but also of regular contraceptives.
   d. In case of pregnancy, male partner's involvement during antenatal and natal care and in obstetric emergency can promote safe motherhood.
3. Provide increasing opportunities to women in decision-making, and ending violence against women.
4. Reproductive health care of children:
   Reproductive health of children can be promoted through proper education and counseling of adolescents and youths for developing:
   a. Rational sex behaviour and responsible parenthood,
   b. Proper attitude for gender equality and mutual respect, and
   c. Avoiding drug and substance abuse.

With new perspectives and new information, the policy makers and service providers increasingly realize/recognize that reaching men is a good and potential strategy, offering benefits for reproductive health of both men and women**.**

For adopting and strengthening such approach would need the help and active cooperation of all concerned stake-holders, namely, the family and the community, programme administrators and policy makers and the governmental and non-governmental organizations, with multi-disciplinary inputs. Extensive Action Research Programme would be needed.

F. Strengthening Effective Implementation of all Action Programmes

1. **Various Health Care Programmes**- HFA, RHFA, RCH-II and NRHM are to be implemented through primary health care approach. But there is a lack in conceptual clarity about PH care among the administrators, programme officers and service providers. There is an urgent need for reorientation of all such persons on the basic principles, essential elements and supportive activities needed for successful application of PH care approach.

2. **Contraceptive Programme**-As mentioned earlier, there is an urgent need for strengthening overall contraceptive programme including emergency contraception. The goal of NRHM also includes 'population stabilization' through effective contraception. However, the contraceptive progranmme in the country have severe lacunae which need urgent corrective measures as stated below:

It has been felt by the WHO (1991) that the prevailing approach to contraceptive introduction had been technology-driven. It had been assumed that addition of technology *ipso facto*, would increase contraceptive acceptance, and the relationships between technology and choice had been considered largely in a social and institutional vacuum. The social factors and the capability of service delivery system to provide quality care had not been given due consideration.

The new 'Strategic approach to contraceptive introduction', advocated by the WHO, suggests that new technologies must be introduced within quality-of-care and reproductive health framework, and must incorporate the perspectives of a broad range of stake-holders including those of users, providers, managers, policy makers and women's health advocates.

The above concepts may be put in practice through Action Research approach for strengthening the overall contraceptive programme including the use of 'emergency contraception'. For these, need- based training and improved service- delivery would be important.

3. Infertility Management- This is an important component of reproductive health care. This has also been emphasized in HFA, RHFA, RCH-I & II, and WHO's Global Strategy. In recent years, lots of scientific advances have been made in the investigation and management of infertile couples. But these are accessible only in big cities, and none in rural areas. The advent and use of ART (Assisted

Reproductive Technology), particularly the IVF- ET and ICSI-ET, have revolutionized the whole world. But these are very costly and large amounts of imported hormones and other agents are used; these can be afforded only by urban elites. All these facilities are available in private sector; and none in government institutions, although efforts were made several years ago to establish such facilities in five government institutions in different parts of the country.

Suggested actions:

a. Development of guidelines for providing graded services for investigations and management of infertile couples in rural areas through health services infrastructure. These may be operationalized through Action Research approach.
b. Establishment of ART Centres in government institutions where services may be available to common people at subsidized rates. Furthermore, there is a need for developing alternative simpler and cheaper versions of technology; appropriate research can be undertaken only in government institutions.

Strengthening of Health System as per NRHM and RCH-II Plans

For effective implementation of various types of action programmes, different types of research activities would be needed, namely:

a. Epidemiological studies,
b. Applied field studies,
c. Evaluation studies,
d. Bio-social studies, and
e. Action research, which will play a predominant role.

Action Research and Its Scope- Action research or operation research is a special type of research which is carried out by undertaking pilot projects in the field for finding out implementable or workable solutions for the existing problems. The solutions are analyzed in the context of given situation with a view to determine their replicability in larger areas. Collection of detailed information about the projected/identified problems is a prerequisite before starting an action research. If some possible solutions have been indicated from other research studies, these are utilized for actual field trials and procedures are worked out to make their application effective. In some cases, some hypotheses, assumptions and even some good ideas of the researchers are tested for their applicability. The main object of action research

is to find out the adaptability and workability of solutions under varying conditions. Human factors are also taken into consideration while finding out practical solution. If as a result of some preliminary trials, some alterations in the approach are felt necessary to make the method practical and workable, suitable modifications are made accordingly.

Action research does not compete with fundamental or applied research, but is complementary to these types of research. It is a dynamic process which is essential for successful implementation of given solutions. If certain changes in the situations and techniques are considered necessary, these are done to find out the correct processes for the acceptability and the success of the programme.

Processes of Action Research- There may be four different stages: 1. Base line survey; 2. Appriasal of current status; 3. Introduction of improvements and modifications and 4. Evaluation and framing recommendations. Based on these, a guideline is prepared which helps in the implementation of the programme in an incremental fashion.

Broad Areas of Development

A. Manpower Development

1. To organize need-based training programmes for different categories of health personnel, with the object of updating and maintaining their knowledge and skill.
2. To develop a system of continuing education programme for all categories. For peripheral workers regular supportive supervision is an important approach.
3. ***Education and Training of ASHA, and their Programme Introduction and Adaptation would be a challenging task.***

ASHA has been taken as a representative of entire village, which in fact is comprised of heterogenous sections of the society. This raises the question of very acceptance of ASHA by all community members as an agent of health behaviour changes. The concept of 'cast community clusters' in a rural setting is a well known phenomenon; in each village there may be 3-5 community cluster groups. The intra-cluster communication is better than the inter-cluster communication. Therefore, the issue is how to make ASHA a better communicator, facilitator and service provider across different cluster community groups of the village. The social dynamics and

social complexities are going to be great constraints. The VHG scheme, where these constraints were overlooked, did not succeed.

In the UNICEF supported community–based Maternal Child Health and Nutrition (MCHN) project at Agra, one of the major innovations was 'Cluster Community Approach'. It was a great success in terms of changes in behaviour and practices, with substantial reduction in under five mortality. The clusters were identified by social mapping of the village. One 'community mobilizer' was identified in each cluster, and they were given proper training. This cluster community approach can be well utilized in the capacity building programme of ASHA under NRHM. All these local resources can be utilized as members of ASHA team as community mobilizer, effective communicator and counsellor (Nandan 2004; 2005).

Since this is a new innovation, this can be adapted in the national programme in an incremental fashion through Action Research Approach.

4. Increasing Access to Reproductive Health Services through Pharmacists

Lack of public resources and limited access to services contribute to an increasing threat to reproductive health (RH) of women and men. Pharmacist can help meet the need for better access to RH care, and they are accessible to the populations which RH programmes are trying to reach. Moreover, pharmacists and their staff are already providing counseling, information and services related to primary and reproductive health care needs. A dedicated effort to strengthen the pharmaceutical sector and enable the pharmacist to play a larger role in reproductive health can expand access to essential health care.

B. Development and Maintenance of Effective Health Care

1. Development and maintenance of Referral Support System
2. Development and application of managerial skills. This will involve situation analysis, planning, implementation, monitoring, evaluation and corrective actions.
3. Resource management.
4. **To improve quality of care-** The quality of care (QOC) is wide-based, multi-faceted, and multi-factorial phenomenon. Therefore, for development of quality health services, various relevant factors and issues have to be taken into consideration. The WHO has developed a framework which envisages that

QOC would arise from an interface between users, service providers and technology attributes. The clients' rights are to seek opinion, information, accessibility, affordability, freedom of choice, safety, privacy, confidentiality, dignity, comfort and continuity. The providers' needs include training, continuing education and guidance, information, supplies, back-up support, respect, encouragement, feedback, self- expression and infrastructure. The perspectives of programme managers/ administrators and policy makers also should be taken into consideration.

C. Strengthening and Operationalization of PHCs to Provide 24 hrs. Delivery Services and Newborn Care

This is aimed to reduce maternal mortality, and neo-natal and peri-natal infant mortality. This would need elaborate Action Research as discussed earlier.

D. Active Involvement of Panchayats and Village Health Committees in the Delivery of Rural Health Care

This would need extensive Action Research.

E. Development of Public- Private Partnership

It is envisaged that where adequate number of government employed health personnel and/or proper infrastructural facilities are not available, proper programmes can be organized and implemented by adopting this approach. Since there has been not much previous experience, this needs to be developed through Action Research approach.

F. Achieving Universal Primary Education

This is an important part of Millennium Development (MD) Goal. Education leads to empowerment. The target is to ensure that by 2015, children everywhere, boys and girls alike, will be able to complete a full course (Grade 1- 5) of primary schooling. Inter-sectoral linkages and coordination is an important supportive activity for success of primary education programme.

G. To Eradicate Extreme Poverty and Hunger

This is another important Millennium Development Goal. Adverse consequences of poverty on health and development have been discussed earlier.

1. The proposed new initiative of the government of India for rural job scheme is an important development.
2. Bangladesh's experience with Gramin Bank for economic development and empowerment of rural community is very commendable. Some of the NGOs in India could be encouraged to initiate such ventures.

CONCLUSION

In this presentation, health development process, health care delivery system in the country and improvement in health status of the people since independence in 1947 have been systematically reviewed. After independence, health and family planning programmes were initiated with primary health care approach. The 5-year Plans which were initiated in 1951 for all-round balanced developments, provided policy framework and funding for developing nationwide health care infrastructure and manpower, and supply of consumables for delivery of services. Progressive changes have been introduced into the programme over the past 9/10 Plan periods.

Following Alma Ata declaration (1978) of Health For All (HFA) by 2000 A.D. through PH Care by WHO, lots of development have occurred in the country. The value of the principles of HFA and PH Care has been revalidated at the International Conference at Riga (1988). Subsequently, it had been realized that reproductive health (RH) is a crucial component of general health, and is a key to brighter future. In 1994 in ICPD (Cairo) the goal for RHFA by 2015 was set. This is also to be attained through PH Care approach. India is a signatory to all these declarations. To achieve RH goals, India organized RCH-I Programme (1997-2005).

As a result of various programmes undertaken by government of India over the years, marked improvement has occurred in different health parameters, although these are not upto the desired/targeted levels. There are also variations and differences among different States and socio-economic groups. Furthermore some of the existing serious health problems would need urgent attention.

India's population has crossed 1 billion mark; about 72 per cent of them live in 6,00,000 villages. Rural areas have been largely neglected. To rectify the

deficiencies, two very ambitious programmes have been launched, namely RCH-II & NRHM (National Rural Health Mission).

In this critical appraisal, some existing serious health problems, various lacunae, constraints and barriers to progress have been identified, and corrective measures suggested. In the pursuit of these goals, various challenges would be encountered.

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AWARENESS OF HEALTH INSURANCE IN A SOUTH INDIAN POPULATION – A COMMUNITY-BASED STUDY

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ABSTRACT

To find out the awareness of health insurance in an urban population in south India, a community-based cross-sectional study was carried out. A total number of 242 respondents from 242 households (male 38.4%; female 61.6%) were interviewed by using a pretested proforma after obtaining informed consent from the participants. The awareness of health insurance was found to be 64.0 per cent. Around 45.0 per cent of the respondents came to know about health insurance from the media which played an important role in the dissemination of information. The mean premium amount agreeable to be paid by the respondents for health insurance was found to be Rs 1804.00, even the low socio-economic group of people were also willing to part with a reasonable amount of Rs. 697.00 annually for health insurance. The middle and low socio-economic groups favoured government health insurance compared to private health insurance. The findings indicate that government should come out with a policy, where the public can be made to contribute to a health insurance scheme to ensure unnecessary out-of-pocket expenditures and also better utilization of health care facilities.

Key words: Health insurance, Awareness, Determinants, Mediclaim Policy.

Health insurance is fast emerging as an important mechanism to finance health care needs of the people. The need for an insurance system that works on the basic principle of pooling of risks of unexpected costs of persons falling ill and needing hospitalization by charging premium from a wider population base of the same community.

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In the present scenario the annual expenditure on health in India amounts to about $7.00 in rural areas and $10.00 in urban areas per person. The majority of care being provided by the private sector[2]. With improved literacy, modest rise in incomes, and rapid spread of print and electronic media, there is greater awareness and increasing demand for better health services. There is growing evidence that the level of health care spending in India – currently at over 6 per cent of its total GDP – is considerably higher than that in many other developing countries. This evidence also suggests that more than three-quarters of this spending includes private out-of-pocket expenses[3].

The opening up of the health insurance to the private sector by the Insurance Regulatory Development Authority (IRDA) Act 2000 has provided immense opportunities for both the public and the industry for better utilization of health care facilities. With this kind of situation prevailing, there has not been much progress in the coverage of our population within the health insurance system; only a meagre three per cent coverage has been reported[5]. Whether this is due to lack of awareness on part of the public is to be determined.

MATERIALS AND METHOD

A community-based cross-sectional study was carried out in the Municipal Corporation limits of Mangalore City. The striking feature of the study area is socio-economic development as reflected by high literacy rate i.e. 91.14 per cent (Male 94.80% and female 87.46%) according to 2001 census [4], in terms of gender related health index Dakshina Kannada district of which Mangalore is a taluk which takes the lead in the Karnataka State in terms of gender equality in health with a score of 0.807 (GHI includes life expectancy at birth, infant mortality rate, educational attainment)[5] and a favourable sex ratio of 1001.

The study area has an excellent health care infrastructure. Health care services are being provided by five medical colleges and well-equipped ISO certified government hospitals. In addition to it, the study area also has numerous private hospitals and nursing homes.

Sampling

The Mangalore Municipal Corporation consists of 60 wards with a total population of 3.98 lakh. People in the age group of more than or equal to 25 years comprise 1.79 lakh. 10 wards were selected out of 60 wards by a simple random

sampling method by means of lottery method. Eligible population of selected wards were listed and population proportionate to the sample size was calculated from each of the 10 selected wards (the wards with a higher population will have a higher sample representation in the sample size) probability proportional to size sampling method.

Sample size

Minimum sample size: $n = \frac{Z^2P(1-p)}{d^2}$

p= anticipated population proportion (15%), d = Absolute precision, Confidence interval =95 per cent
Total Sample size =196, Non-response error = 15%
Final Sample size =242.

Inclusion Criteria

- Persons above or equal to 25 years of age.
- One person from one house.

Collection of Data

During home visit, the purpose of the study was explained to the people and informed consent was taken from them. Before the house-to-house visit, a visit was made to the wards and with the help of a local volunteer, the entire ward was inspected and attempt was made to represent the entire ward. From each selected house the required information was collected by the investigator herself from the head of the family or any other responsible member of the house. If the head of the family or responsible member of the selected house was absent or house was locked, adjacent household was selected. From each house only one member was interviewed. The socio-economic status of the family was assessed using Modified Uday Pareekh classification[6].

Statistical Analysis

Data were entered into the computer database and statistical package of social sciences (spss/ps)[7] version 11 was used for analyzing data. Data were analyzed to find out the association between awareness of health insurance and independent variables like, socio-economic status and religion. Data were further analyzed to find out the association between awareness and other variables. Chi-square test for

association and linear trend were used and p value less than 0.05 was considered as significant.

FINDINGS AND DISCUSSION

A total of 242 respondents were interviewed, one from each household, in this study, which was carried for a period of four months.

TABLE 1
SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Characteristics of the Respondent	Number	Percentage
Age (years)		
25 – 34	66	27.3
35 – 44	82	33.9
45 – 54	36	14.9
55 – 64	36	14.9
>= 65	22	9.1
Sex		
Male	93	38.4
Female	149	61.6
Religion		
Hindu	201	83.1
Muslim	21	8.7
Christian	19	7.9
Jain	1	0.4
Type of family		
Nuclear	150	62.0
Joint	52	21.5
Extended	40	16.5
Socio-economic status		
High	22	9.1
Middle	131	54.1
Low	89	36.8

Characteristics of the Respondent	Number	Percentage
Family income (Rs.) monthly		
1000 – 5000	93	42.1
5001 – 10000	65	29.4
10001 – 15000	32	14.5
15001 – 20000	16	7.2
20001 – 25000	7	3.2
> = 250001	8	3.6

Majority of the respondents were in the age group of 35–44 years of age (33.9%) followed by 25–34 years of age (27.3%). Only 9.1 per cent of respondents were in the age group of >=65 years of age. Males constituted 38.4 per cent and females 61.6 per cent of the respondents. 83.1 per cent of respondents were Hindus while Muslims and Christians were 8.7 per cent and 7.9 per cent respectively. 62 per cent of the respondents stayed in nuclear family and 21.5 per cent in the joint family, 54.1 per cent of the respondents belonged to middle socio-economic status. 36.8 per cent and 9.1 per cent of the respondents belonged to low and high and low socio-economic status respectively. 42.1 per cent of the respondents had monthly family income between Rs. 1000 and 5000 and 3.6 per cent respondents had an income of >= Rs. 25001.

TABLE 2
AWARENESS AND SOURCE OF INFORMATION ABOUT HEALTH INSURANCE AMONG THE RESPONDENTS

Awareness	Number	Percentage
Yes	155	64.0
No	87	36.0
Total	242	100
Source of Information		
Television	16	10.3
Radio	3	1.9
Newspaper	50	32.35
Doctor	14	9.0
Family/Friends	54	34.8
Internet	4	2.6
Insurance agents	14	9.0
Total	155	100

The whole study was based on the awareness of the respondents. 64 per cent of the respondents were aware of health insurance. Of the total 242 respondents, 64 per cent of the respondents were aware of health insurance whereas 36 per cent of them had no idea about it (Table 2). In a similar study done by Patro[8] *et al* only 22.7 per cent of the study population was aware of health insurance. The high awareness in the present study may be attributed to the high literacy percentage among the respondents.

Table 2 depicts the source of information and awareness of health insurance. 34.8 per cent of the respondents said that family/friends was the source of information followed by from newspaper (32.35%), television (10.3%) and radio (1.9%). A good number of respondents also got to know about it from insurance agents (9%), doctors (9%) and from the internet (2.6%).

Gumber and Kulkarni[9] in their study found out that the need for education for rural and urban population was alike on the concept of health information which is a crucial aspect on extending awareness about health insurance on a large-scale. This calls for an effective information, education and communication activities which will improve the understanding of the people about insurance.

TABLE 3
DETERMINANTS OF AWARENESS OF HEALTH INSURANCE

Determinants	Aware		Total		X^2 /fisher test	P Value
	No	%	No	%		
Religion					8.65	P= 0.034
Hindu	131	67.16	201	83.06		
Christian	15	78.95	19	7.85		
Muslim	8	42.11	21	8.68		
Jain	1	100.00	1	0.41		
Type of family					0.68	P= 0.71
Nuclear	97	64.67	150	61.98		
Joint	31	59.62	52	21.49		
Extended	27	67.50	40	16.53		
Occupation					43.78	P<0.001
Professional	3	100	3	1.24		
Govt. Servant	30	93.75	32	13.22		
Business	51	71.83	71	29.34		

Determinants	Aware		Total		X^2 /fisher test	P Value
	No	%	No	%		
Abroad	5	83.33	6	2.48		
Skilled worker	28	50.00	56	23.14		
Unskilled worker	9	26.47	34	14.05		
Retired	25	73.53	34	14.05		
None	4	66.67	6	2.48		
Family income					40.72	P<0.001
1000–5000	38	40.86	93	42.08		
5001–10000	46	70.77	65	29.41		
10001–15000	28	87.50	32	14.48		
15001–20000	15	93.75	16	7.24		
20001–25000	7	100	7	3.17		
25001 & Above	6	75.00	8	3.62		
Literacy status					83.07	P<0.001
Illiterate	2	25.00	8	3.31		
Primary	6	14.28	42	17.36		
Secondary	42	59.15	71	29.34		
PUC	26	72.22	36	14.88		
Graduate	66	92.96	71	29.34		
Post-graduate	13	92.86	14	5.79		
Socio-economic status					76.94	P<0.001
High	22	100	22	9.09		
Middle	107	81.68	131	54.13		
Low	26	29.21	89	36.78		

The determinants of awareness were religion, type of family, occupation, family income per month, educational status and socio-economic status, when considered except family type, the other determinants had a statistically significant association. A large number of professionals were aware of health insurance (93.75%). While taking the educational background into consideration, 93 per cent of graduates and above were aware of health insurance. Socio-economic status had better awareness of health insurance. Results of studies carried out elsewhere were also in agreement with the findings of the present study. Mathiyazhagan[10] and Patro[8] *et al* concluded in their respective studies that their study population had reasonable knowledge about health insurance (Table 3).

TABLE 4
PERCEIVED PURPOSE AND BENEFITS OF TAKING HEALTH INSURANCE V/S SOCIO-ECONOMIC STATUS OF THE RESPONDENTS

Purpose	Socio-economic Status			
	High	**Middle**	**Low**	**Total**
Tax gains	2 (10%)	9 (7.6%)	-	11 (4.9%)
Covering medical expenses	14 (70%)	83 (69.7%)	26 (31%)	123 (55.2%)
Compulsion from employers	-	2 (1.7%)	-	2 (0.9%)
Others	1 (5%)	4 (3.4%)	2 (2.4%)	7 (3.1%)
No Idea	3 (15%)	21 (17.6%)	56 (66.7%)	80 (35.9%)
Chi Square/Fischer = 58.9 P = 0.001				
Benefits				
Reduce out of pocket expenditure	10 (52.6%)	43 (44.3%)	11 (28.2%)	64 (41.3%)
Emergency health care	6 (31.6%)	43 (44.3%)	23 (59%)	72 (46.5%)
Better utilization of health care facility	2 (10.5%)	6 (6.2%)	3 (7.7%)	11 (7.1%)
others	1 (5.3%)	2 (2.1%)	-	3 (1.9%)
No idea	-	3 (3.1%)	2 (5.1%)	5 (3.2%)
Chi Square / Fischer = 8.09 P = 0.424				

Table 4 depicts the purpose and benefits of health insurance as perceived by the respondents when they were queried on their awareness and knowledge of health insurance. A good majority of the respondents (69.7%) belonged to the middle socio-economic group was of the opinion that the health insurance would cover their medical expenses. When asked about the benefits of health insurance, an equal 44.3 per cent each of the middle socio-economic group respondents stated that it would reduce the out-of-pocket expenditure and the other group opined that it would help in case of emergency medical situations. About 31 per cent of the low socio-economic group also felt that the benefit of health insurance would help in case of emergency medical situations. This kind of perceptions among the respondents may be due to the high out-of–pocket expenditure in India in case of health care expenses [3, 4].

TABLE 5
SOCIO-ECONOMIC STATUS OF THE RESPONDENTS AND MEAN PREMIUM AGREED TO PAY

Socio-economic Status	N	Mean Premium in Rs. Agreed to Pay/Year	F value	P value
Low	58	697	9.75	0.0001
Middle	177	1271		
High	13	3444		
Total	188	1804		

Table 5 shows the mean premium amount agreed to be paid by the different socio-economic groups. The result was found to be statistically significant. It is important to note that the low socio-economic group of people were also willing to part with a reasonable amount of Rs. 697.00 annually for a family of 4-5 members to cover their expenses in case of any hospitalisation. Patro et al [8] has reported similar findings from their study involving different socio-economic strata of the study population and found that most of them agreed to pay a premium between Rs.600.00 and1000.00 for a family of five per annum.

TABLE 6
SOCIO-DEMOGRAPHIC PROFILE OF RESPONDENTS WITH EXISTING HEALTH INSURANCE COVERAGE

Profile	Existing Health Insurance Coverage (n= 95)				
	Mediclaim	Medical Reimbursements	Manipal Arogya Card	Others	Total
Age (Yrs.)					
25 - 34	8 (44.4%)	5 (27.8%)	2 (11.1%)	3(16.7%)	18 (100%)
35 - 44	12 (37.5%)	11 (34.4%)	8 (25.0%)	1(3.1%)	32 (100%)
45 - 54	8 (42.1%)	9 (47.4%)	2 (10.5%)	--	19 (100%)
55 - 64	7 (50.6%)	3 (21.4%)	3 (21.4%)	1 (2.1%)	14 (100%)
> = 65	51 (41.7%)	1 (8.3%)	3 (25.0%)	3 (25.0%)	12 (100%)
Chi Square/Fischer = 14.927 P = 0.245					
Sex					
Male	13 (31.0%)	15 (35.7%)	10 (23.8%)	4 (9.5%)	42 (100%)
Female	27 (50.9%)	14 (26.4%)	18 (18.9%)	8 (8.4%)	95 (100%)
Chi Square/Fischer = 3.936 P = 0.268					
Type of Family					
Nuclear	26 (43.3%)	16 (26.7%)	15 (25.0%)	3 (5.0%)	60 (100%)

Profile	Existing Health Insurance Coverage (n= 95)				
	Mediclaim	**Medical Reimbursements**	**Manipal Arogya Card**	**Others**	**Total**
Joint	6 (33.3%)	7 (38.9%)	2 (11.1%)	3 (16.7%)	18 (100%)
Extended	8 (47.1%)	6 (35.3%)	2 (12.5%)	2 (11.8%)	17 (100%)
Chi Square/Fischer = 7.069 P = 0.315					
Socio-economic Status					
High	7 (41.2%)	6 (35.3%)	3(17.6%)	1 (5.9%)	17 (100%)
Middle	31 (50.8%)	16 (26.2%)	9 (14.8%)	5 (8.2%)	61 (100%)
Low	2 (11.8%)	7(41.2%)	6(35.3%)	2(11.8%)	17 (100%)
Chi Square/Fischer = 9.286 P = 0.158					

Table 6 reveals the status of the respondents who were covered under various health insurance plans like, mediclaim and medicare, ESIS and CGHS, hospital-based health care plans and medical reimbursements from their respective employers, according to the type of family, age, sex, and socio-economic status. Of the total respondents, with the kind of health care coverage mentioned above, 50.8 per cent of the middle socio-economic group were covered by the standard mediclaim policy of the GIC, 18.2 per cent of them under a hospital-based health care plan of the Manipal Group of Hospitals which is one of the oldest medical college hospitals of the region. Mediclaim policy was the preferred one among various types of health insurance policies available in the market. Mediclaim had 50 per cent share among the total insured households. Nagendranath and Chari[11] reported that mediclaim policy of the General Insurance Corporation was the only policy of note in the country for a long time followed by Jeevan Asha of the Life Insurance Corporation.

TABLE 7
TYPE OF HEALTH INSURANCE PREFERRED AND SOCIO-ECONOMIC STATUS

Socio-economic Status	Preference of Health Insurance											
	Govt.		Private		NGO		Cheaper		Others		Total	
	No	%	No	%	No	%	No	%	No	%	No	%
High	6	35.29	8	47.05	0	0	1	5.88	2	11.76	17	9.04
Middle	70	61.40	35	30.70	3	2.63	5	4.39	1	0.88	114	60.64
Low	49	85.96	4	7.01	2	1.75	1	1.75	1	1.75	57	30.32
Total	125	66.49	47	25.0	5	2.66	7	3.72	4	2.13	188	100

Chi-square = 28.19 ($p<0.0001$)

The high socio-economic group of the population preferred private health insurance schemes (47.05%) over government schemes (35.29%). Among the middle group, they preferred government schemes (61.4%) rather than private (30.7%). Even

the low group preference was similar to that of middle income group i.e. government (85.96%) and private (7.01%), this trend was statistically significant (Table 7).

CONCLUSION

The health insurance companies should come out with clear cut policy details, as many of the respondents had vague ideas about the various benefits and risks involved in a policy. The middle and low socio-economic groups are a potential market to be tapped as they are ready to spend a reasonable amount as premium payable per annum rather than huge medical expenses in case of any adversities. If the private insurance players want to venture in the market, they should try to imbibe trust in the people as most of the respondents preferred government health insurance schemes, the reason being guarantee for their capital. To develop a viable health insurance scheme, it is important to understand people's perceptions and develop a package that is accessible, available, affordable and acceptable to all sections of the society.

RECOMMENDATIONS

1. Most of the respondents were of the opinion that government should come out with a clear cut policy, where the public can be made to contribute compulsorily to a health insurance scheme to ensure unnecessary out-of-pocket expenditures and also better utilization of their health care facilities.
2. The Manipal University as a part of their social initiative had come out with a 'Manipal Arogya Surakhsha Scheme' which has subsidized health care facilities for those covered under the scheme. This scheme under which the family has to pay an annual premium of Rs. 250.00 and they can avail of health care facilities at a discounted rate from any of the group hospitals.

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USERS' OPINION ON USE AND WASTAGE OF CONDOM IN INDIA

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ABSTRACT

A country-wide survey was carried out on a sample of 7500 nirodh (condom) users in 25 States of India, to ascertain the use and wastages of condom. Data were collected using a structured interview schedule, consisting of major variables like, socio-demographic profile, family background, preference for sons and daughters, frequency of sexual intercourse with or without condoms, its quality, users perception about the wastage, collecting packets from PHC and sub-centre, sharing with others, demand and supply, etc.

Damage of condom during use has emerged as relatively more prominent sources of wastage. The findings also reveal that a considerable percentage of unmarried persons collect the condoms from PHC and sub-centre, which at present does not figure in the existing system of recording. Enrolled condom users also collect pieces for their friends and neighbours too. Its utilization seems to be closely linked with the desire for a number of children, non-availability of other suitable methods and concern for the health of the women. It appears that men having sincere concern about the health of their wives and finding non-suitability of any other contraceptive to their women opt for using the condom. The consent among spouse for using the condoms was found to be more than 60 per cent. The study also reveals no gender discrimination in case of one child option. In case of two sons and two daughters, gender discrimination becomes prominent. This finding indicates towards perceived economic burden associated with more than one daughter. This issue requires further research.

Key-words: Wastage, Condom, Users Perception, Frequency

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In India free supply of condom (nirodh) to promote spacing in birth control and to encourage men's involvement in family planning was introduced from the day it was launched in 1951. The birth control moved very slowly in comparison to death control. The stagnation however, remained constant for a very long time. This is attributed to a number of factors including male's indifference towards contraception. Continuous increase of supply of the condoms over the decades and simultaneously a dead slow progress on the birth control and its stagnation for a very long time has given impression of its wastage.

The host of information is on the line of conventional belief that male is indifferent towards family planning. There exists a lot of confusion about the use of condom. A general impression is that condom is a condemned (wasted) scheme and its use is minimal. National Family Health Survey (NFHS, 1998) reports just 3.1 per cent use of condom. The research issue was how to empirically substantiate the general impression about the wastages of condoms at different levels?

The impression about wastages of condom varies from State to State in India. Therefore, use of condom needs to be promoted. But the use of condom in the recent years has gone beyond conventional boundary due to National AIDS Control Programme. The concept of condom is extended to 'safe sex concept'; and throughout the country, a massive campaign to manage HIV/AIDS is going on. This possibly might have multiplied the demand for nirodh to which we are not fully aware. The study by Joshi, Khan and others in 2001 found the demand for condom increased by five times. It is also possible that men beyond the marital knots may be involved in pre-marital relations or extra-marital relations; and they may be collecting condom from the PHC and sub-centre for which recording system does not exist at present. Therefore, conservative opinion about the use and wastages of condom does not hold sound base in the absence of empirical data; and existing apprehensions/notions about the wastages of condom, therefore, it requires scientific investigation. The available literature, however, no way specifies the criteria for estimating the wastages.

Few efforts have been made to estimate the wastage of nirodh. For example, Goyal, et.al. (2001) has estimated wastage on the basis of supply and rate of pregnancy. The finding, however, did not get full support in another study by Joshi and Khan, et.al. (2002) which revealed a number of findings. Some are: (i) users collect nirodh for themselves and for other friends and relatives, (ii) both men and women pick up nirodh from PHCs and sub-centres, (iii) users are not hesitant in demanding the

condom, (iv) the supply is not regular, (v) the demand for condom is more than the requirement. These findings, however, did not substantiate the general impression about the wastage of condoms. Department of Family Welfare, Government of India, sponsored a country-wide survey to find out the status of wastage and its nature in order to evolve managerial and administrative mechanism to promote the use of condom.

There are a number of apprehensions regarding the use and wastage of condom: (i) Wastages may occur if there is less demand from the users and supply is more, (ii) users may not opt for free supply of condom under their own misperception, (iii) users collect the condoms and don't use all the pieces and keep at places where children have access, (iv) sometimes the supply get diluted and reaches somewhere in the market where wrapper are changed and pieces are packed into attractive wrappers and sold in the market, (v) sometimes the supply with expiry date is transported and it is stopped somewhere and does not reach the users, (vi) supply is not timely, and it does not reach the users and wrong entry is made in the register, (vii) sometimes the supply is kept at most insecured places in the absence of proper storages leading to hazardous exposure, theft, fire, damping etc. Hence the surplus supplies become source of wastages. It is quite possible that supply at PHC and sub-centre is not confined to eligible persons. It may be going to other than beneficiaries unrecorded in the register. The apprehensions basically term a concept of wastages, which may or may not be empirically valid.

GENERAL OBJECTIVE

The study aims to explore the nature and quantum of wastage of condom with purpose to evolve some administrative and managerial mechanism to prevent/minimize the occurrence of its wastages at different levels of supply and promote the condom use.

SPECIFIC OBJECTIVES

(i) To study the use and wastages of condom as reported by the users of condom;
(ii) To find out the extent of wastages of condoms caused by different sources;
(iii) To investigate supply and distribution system of condom presently in practice across different regions of the country; and
(iv) To investigate how the scheme of condom is implemented at sub-centre level.

SAMPLING DESIGN AND STUDY POPULATION

Area of Study

The study was conducted in 25 States. All the 25 States were grouped into three clusters depending upon their geographical locations namely; (i) Northern Region consisting of Uttar Pradesh, Madhya Pradesh, Punjab, Gujarat, Rajasthan, Haryana, Himachal Pradesh, Uttaranchal, Jammu and Kashmir and Delhi; (ii) Eastern Region consisting of West Bengal, Bihar, Orissa, Jharkhand, Sikkim, Assam, Manipur and Meghalaya, and (iii) Southern Region consisting of Karnataka,Kerala, Tamil Nadu, Andhra Pradesh, Maharashtra and Goa.

Study Design

Keeping in view the all India character of the study, a multi-stage sampling technique was adopted. All the 25 States constitute the sampling frame. At first stage, from each State 1-4 districts depending upon the size and population of the States were selected using simple random technique. Thus, 40 districts were selected in the first stage. Next to this, from each selected district, 4 PHCs were selected using simple random technique. Thus, a total of 160 PHCs have been covered. In the similar fashion, from each PHCs, 5 sub-centers were selected and thus, a total of 800 sub-centres were included in the study. From each sample sub-centre, 10 condom users were finally selected using a simple random technique. Thus, the total sample respondents of the study were eight thousand condom users.

Data Collection and Scrutiny of Data

Data were collected using a structured interview schedule in which information from nirodh users was sought about different dimensions such as, population, demographic profile, condom estimation supply and distribution system, motivators, storage, recording system, safety, burst, wastages, etc. Locally trained investigators collected the data. During the scrutiny of data, it was found that in the State of Meghalaya, local investigator could collect data from only thirty users of condom in five selected sub-centres. The data from Dindigul district could not be collected because of administrative reasons. From Raipur district, the local investigator could collect data from 124 nirodh users. Finally, the data collection was completed from 7554 users. However, 54 schedules were rejected after the scrutiny and the analysis was ultimately carried out on 7500 subjects.

DATA ANALYSIS AND DISCUSSION

Socio-economic and Demographic Profile of Condom Users

Age Distribution

The average age of husbands and their wives worked out to be 31.9 years and 27.4 years respectively. Most of the users of condom (61.4%) were in the age group of 25-34 years followed by 35-39 years (19.2%). The percentage of users decreased along with increase in the age (Table1). About five year's of age difference between husband and wife is true reflection of marriage system in India. Where the age of men preferably should be more, (two to five years) and vice-versa is condonable culturally.

TABLE 1
AGE INTERVAL OF CONDOM USERS AND THEIR WIVES

Age Interval	Husband		Wife	
	Frequency	Percentage	Frequency	Percentage
<19 years	2	0.0	202	2.7
20-24 years	597	8.0	2324	31.0
25-29 years	2366	31.5	2756	36.7
30-34 years	2243	29.9	1405	18.7
35-39 years	1441	19.2	628	8.4
40-44 years	605	8.1	154	2.1
45-49 years	189	2.5	14	0.2
50 & Above	57	0.8	17	0.2
Total	7500	100.0	7500	100.0

Educational Status

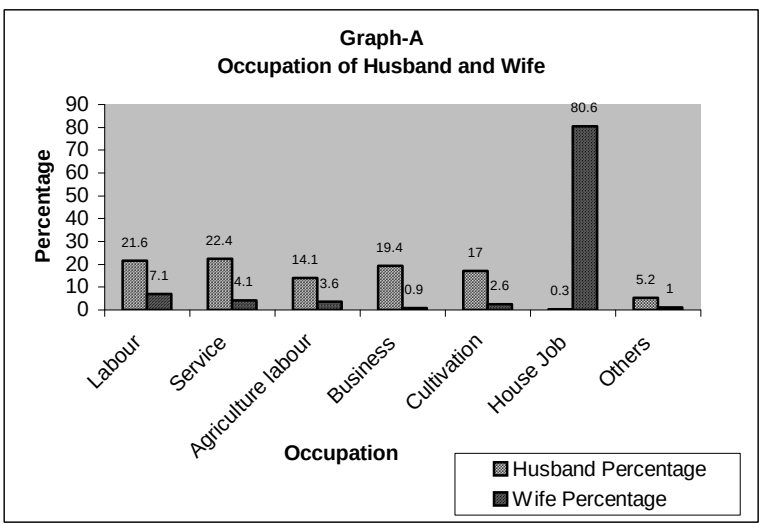
Husbands were relatively more educated than their counterparts. More than half (52.8%) of husbands had education up to high school/higher secondary and above. (Table 2). This finding supports the gap generally found in the level of education of men and women.

TABLE 2
EDUCATIONAL STATUS OF CONDOM USERS AND THEIR WIVES

Educational Status	Husband		Wife	
	Frequency	Percentage	Frequency	Percentage
Illiterate	550	7.3	1707	22.8
Literate	544	7.3	822	11.0
Primary	857	11.4	1211	16.1
Middle	1555	20.7	1564	20.9
High School/Higher Secondary	2955	39.4	1818	24.2
Graduate & Above	1005	13.4	348	4.6
Others	34	0.5	30	0.4
Total	7500	100.0	7500	100.0

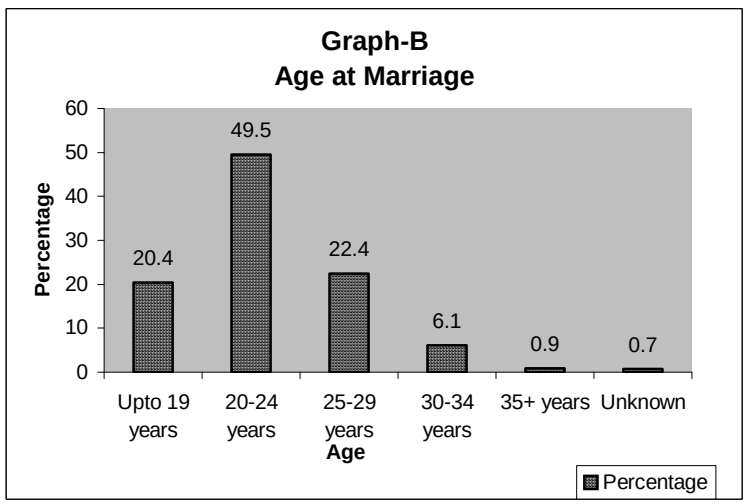
Occupation

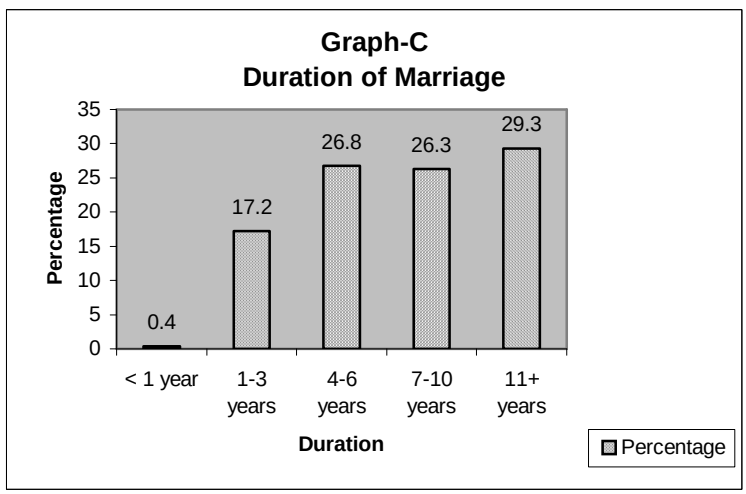
More than four-fifth of wives (80.6%) were engaged in household work. A little more than one-fifth of husbands were engaged in service (22.4%) followed by labour (21.6%) and business (19.4%) (Graph-A).



Age at Marriage and Duration of Marriage

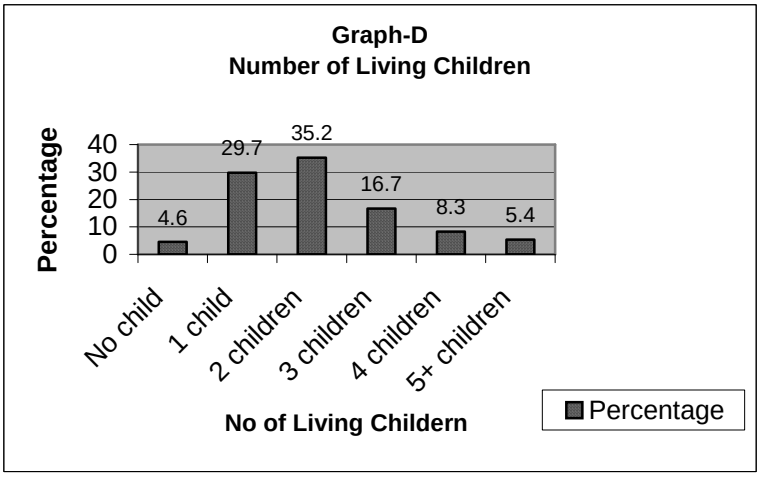
About half of users (49.5%) were in the marriage age group of 20-24 years. The average age at marriage of users worked out to be 22.4 years. The average years of completion of married life was found to be 7.6 years. More than one and a half of users (55.6%) had more than 6 years of duration of marriage and the rest (44.4%) had less than 6 years (Graph B & C).





Number of Living Children

About two-third of users (64.9%) had 1-2 children and only 4.6 per cent had no living child. It seems that most of the users were using condoms for spacing child birth (Graph-D).



Age of the Youngest Living Child

More than one-third of users (34.2%) had the youngest child of less than one year old followed by 24.6 per cent of users having the youngest child of less than two years old and only 4.6 per cent of users had no living child. Table 3 further reveals that as the age of the youngest child increases, the percentage of users decreases. The findings revealed that the users do not want frequent pregnancy and want to have spacing. About 49 per cent of users had son as the youngest living child and 42.7 per cent had daughter and used condom for spacing purposes.

TABLE 3
AGE OF THE YOUNGEST LIVING CHILD

Age of the Youngest living child	Frequency	Percentage
No child	345	4.6
< 1 year	2562	34.2
< 2 years	1845	24.6
< 3 years	981	13.1

Age of the Youngest living child	Frequency	Percentage
< 4 years	473	6.3
< 5 years	394	5.3
6+ years	900	12.0
Total	7500	100.0

Family Size

More than half of (51.1%) users showed their preference for two children and a little more than one-fifth (21.5%) for 3 children, followed by 13.3 per cent for four and more than four children (4.8%). A majority of these users were asked about the number of sons and daughters they would like to have (Graph E). The responses emerged are shown in Table 4.

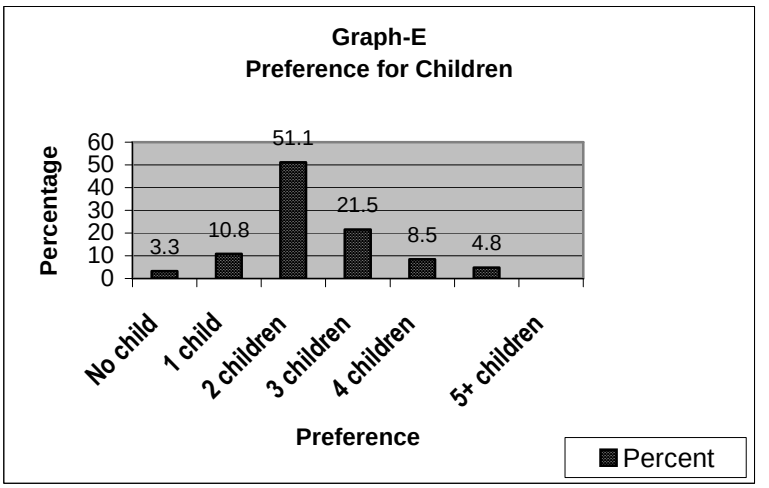


TABLE 4
PREFERENCE FOR SON AND DAUGHTER

Preference for Son & Daughter	Son		Daughter		Difference
No son/no daughter	752	10.0	1270	16.9	6.9
One son/one daughter	4186	55.8	4918	65.6	9.8
Two sons/two daughters	2103	28.0	960	12.8	15.2
Three sons/three daughters	323	4.3	258	3.4	0.9
Four sons/four daughters & more	136	1.9	94	1.3	0.6

Preference for Son & Daughter	Son		Daughter		Difference
Total	7500	100.0	7500	100.0	

The findings revealed that most of the users wanted to have one son and one daughter. However, the gender discrimination perpetuates only when there are case for two daughters. This perhaps is closely linked with the perceived economic burden of the family. In case of daughter, the cultural values associated with girl child as Lakhsmi (Goddess of wealth) perhaps hold some true validity. However, such speculations need more research. In terms of difference in score, the relative preference for two sons in comparison to two daughters was found in 15.2 per cent of respondents. It shows that around 65.6 per cent of people after having one daughter, may have obsession for son and go for unfair and illegitimate means in case (a) they have one son, (b) no son and (c) desire for more than one son (Table 4).

Family Planning Practices

It was observed that 53.2 per cent of users started using condom after the first child followed by having two children (22.0%). A small proportion of population (2.7%) reported using condom before the first child (Table 5 a). When asked about the purpose of using condom, more than two-third of users (69.0%) reported to space the birth. About 27.9 per cent of respondents were found using condom to prevent pregnancy permanently (Table 5 a and 5 b). These users were further asked to state the special reasons for using condom. About 35.7 per cent of users stated difficulty in using other methods. 30.6 per cent of users stated that the other methods were not suitable. However, 12.3 per cent of users stated non-availability of other methods and lack of knowledge (10.7%) as reasons for using condom (Table 5 b).

TABLE 5 (a)
TIME OF STARTING THE USE OF NIRODH

Time of Starting the Use of Condom	Frequency	Percentage
Before 1 child	206	2.7
After 1 child	3987	53.2
After 2 children	1649	22.0
After 3 children	565	7.5
After 4 children	246	3.3
After 5+ children	181	2.4

Time of Starting the Use of Condom	Frequency	Percentage
Unknown	666	8.9
Total	7500	100.0

TABLE 5 (b)
PURPOSE AND COMPULSION FOR USING NIRODH

Purpose	Frequency	Percentage
To maintain gap	5178	69.0
To prevent pregnancy permanently	2096	27.9
Unknown	226	3.0
Total	7500	100.0
Compulsions		
Other methods of family planning are not suitable to me	2295	30.6
Other methods are not easily available	921	12.3
I don't have knowledge about other methods	806	10.7
There is difficulty in using other methods	2681	35.7
Unknown	797	10.7
Total	7500	100.0

Opinion About Consent of Method

More than two-third of users (68.6%) were found using condom with the complete consent of their spouse. However, 24.4 per cent used on their own; only 4.2 per cent reported use of condom under pressure of their partners. Thus, there exists a high degree of spousal communication for using condom (Table 5 c).

TABLE 5 (c)
USERS OPINION ABOUT CONSENT FOR USING CONDOM

Consent	Frequency	Percentage
Own consent	1832	24.4
Pressure of partner	317	4.2
Complete agreement of both	5142	68.6
Unknown	209	2.8
Total	7500	100.0

Procurement of Condom

More than three-fourth of users (79.3%) collected condom from sub-centres, followed by PHC (10.5%) and about 5.6 per cent from small shops. More than four-fifth of users (80.2%) did not face any problem in getting the required number of pieces about 41.3 per cent stated to have more than the requirement (Table 6).

TABLE 6
PLACE OF PROCUREMENT OF NIRODH

Place of Procurement	Frequency	Percentage
CHC	202	2.7
PHC	785	10.5
Sub-Centre	5949	79.3
Small shops by payment	418	5.6
Small shops free of cost	51	0.7
Sometimes from market according to the need	34	0.5
Unknown	61	0.8
Total	**7500**	**100.0**

Requirement and Use of Condom

More than 80 per cent of nirodh users were getting required number of condom and it was found that 41.3 per of cent nirodh users were getting more than the required quantity. 40.9 per cent used the left over condom from the previous month and 40.2 per cent bought it from the market since they were not getting enough quantity.

Problems Regarding Availability of Condom

46.0 per cent of users did not find any problem in getting required packets of condom; remaining 54.0 per cent stated different problems related to the functioning of sub-centres, as given in Table 7.

TABLE 7
PROBLEMS IN AVAILABILITY OF CONDOM

Problems in Availability	Frequency	Percentage
Non-availability at the time of visiting sub-centre	1375	18.3
Inconvenience in going to the sub-centre	1249	16.7
Nobody delivers at home	982	13.1
No problem	3450	46.0
Not clear in response	444	5.9
Total	7500	100.0

Number of Packets Collected by the Users

About 50.8 per cent of users reported to have received one or less than one packet of condom while 29.6 per cent reported getting 2 packets followed by 3 packets (6.0%) every month. Remaining 10.6 per cent of users did not specify the quantity of condom collected from different sources. One packet of condom contains 10 pieces and those collecting two or more than two packets were likely to waste. This perception has been disapproved because majority of the users keep it for future use.

Utilization of Condom

More than three-fifth of users (78.8%) reported to have used all the pieces of condom before taking a new packet. Regarding the number of pieces used in the last month, 91.2 per cent reported to have used 5-20 pieces and the remaining more than 20 pieces. On an average, 9 pieces of condoms were used during the last one month. Regarding the frequency of use of condom, 90.8 per cent of users reported 5-20 times, whereas, the average frequency worked out to be 9 times in a month. When asked about whether they use condom every time, more than two-third of users (71.4%) reported to have used condom every time. When asked about the condom damage, 19.6 per cent of users reported it positively. About the quality of condom, reported very

good by 10.9 per cent, good by 41.4 percent, OK by 30.4 per cent and 'not so good' by 12.0 per cent of users. A small proportion of users (1.6%) viewed it as bad quality (Table 8).

TABLE 8
UTILIZATION OF CONDOM AND PERCEPTION ABOUT QUALITY

Utilization	**Frequency**	**Percentage**
Use condom every time	5358	71.4
Utilized all the pieces before taking new packet	5911	78.8
Collected even if some pieces are there	1338	17.8
Quality		
Perceived condom as very good	821	10.9
Perceived condom as good	3103	41.4
Perceived condom as O.K.	2279	30.4
Perceived condom as not so good	900	12.0
Perceived condom as bad	119	1.6
Condom damage reported	1470	19.6
Utilization During Last Month		
Condom used in the last month (Range 5-20 pieces, average comes 9 pieces)	6840	91.2
Frequency of sex and use of condom in the last month (Range 5-20 times, average comes 8.9 times)	6808	90.8

Left-over Pieces of Condom

All the users during the survey were asked about the utility of left-over pieces of condom. The findings revealed that most of the users (68.7%) keep the packets for future use. However, 9.8 per cent reported to have informed the health workers and 8.3 per cent stated to have thrown out the left-over pieces of condom. This is a real wastage.

User's Experience about Wastage

85.1 per cent of users stated that condom can't be used for some other work; hence to use and throw away some pieces. Only 8.9 per cent of users had agreed with opinion of thrown away and 47.9 per cent users totally disagreed. The remaining 43.3

per cent did not respond. These users were asked whether they knew somebody who partly throws the condom, more than four-fifth of users (91.1%) reported negatively and 95.9 per cent of users stressed that they had never done such things. Only 11.5 per cent of user's reported that they had heard about blowing condom by children like balloon and 9.7 per cent had seen such things. Only 2 per cent stated that they had heard that weavers use condom for making thread and only 1.6 per cent had seen weavers using condom for such purposes (Table 9).

TABLE 9
USER'S OPINION ABOUT WASTAGES

Type of Wastages	Frequency	Percentage
Some people's opinion is that users throw away condom after taking from centre		
Agree somewhat	666	8.9
Disagree	3589	47.9
Don't know	3245	43.3
Do you know personally somebody throwing (sharing)		
Yes	384	5.1
No	6829	91.1
Can't say	287	3.8
Have You Ever Done Same Thing		
Yes	234	3.1
No	7190	95.9
Can't say	76	1.0
Have heard that children blow condom like balloon	864	11.5
Have seen children blowing nirodh like balloon	729	9.7
Have heard about weavers using it for weaving	150	2.0
Have seen weavers using in weaving	120	1.6

Wastages of Condom

Wastage was calculated on four major variables. These were condoms bursting, ballooning, throwing away, and weaving. The main factor responsible for wastage was found to be poor quality of condom (19.6%) (Table10).

TABLE 10
WASTAGE AT USERS LEVEL

Sl. No	Indicators of Wastages	Frequency	Percentage
1.	Condom burst reported	1470*	19.6
2.	Children ballooning	729*	9.7
3.	Throw away	626*	8.3
4.	Weavers using in weaving	120*	1.6

SUMMARY

- Majority (52.8%) of users had passed higher secondary and above. As usual, the level of husband's education was higher than that of wives. The average age at marriage of users was 22.4 years and the average years of marriage was 7.6 years. In the rural area, during the study period, generally the average number of children exceeds more than three if people do not adopt any family planning practices. The study reveals that 29.7 per cent of users had one child and 35.2 per cent had two children. In all, 64.9 per cent of respondents had less than two living children. 30.4 per cent of respondents had reported three or more children. But just 13.7 per cent of the families had three or more children. These tend to suggest the use of nirodh for spacing the births.

- It is often believed that in the society, preference for son is predominant and probably those with daughter do not opt for contraception. This notion however, does not hold true because amongst the users, 42.7 per cent had daughter as the youngest child in comparison to 49.0 per cent who had son as the youngest child. Further study is required to find out the per cent of people predominantly governed by son syndrome across different social and cultural groups. As many as 55.8 per cent of population expressed desire for one of son; and relatively higher population (65.6%) opted for one daughter. This speaks about some relative differences in the preference for sons and

daughters. Only 16.9 per cent of users were perhaps averse to daughter and 9.8 per cent to son. Though the difference was just 6.9 per cent, it was perhaps this difference, which caused the imbalance in sex ratio.

- Only one-fifth of the sample preferred three children and only 13.3 per cent desired to have more than three children. More than 50 per cent of respondents had already motivated for small family, they only require regular availability of condoms.

- The preference for two and more than two sons was found in 34.2 per cent sample (i.e. a little more than one-third of the sample). The desire for two and more than two daughters was found in 17.5 per cent (less than one-fifth of the sample).

- Study revealed the desire for two and more than two daughters only in 17.5 per cent of sample. This result tends to suggest that there are 82.5 per cent of users who do not tend to have more than one daughter. This may be a vital reason for female foeticide in the society.

- Majority of population (53.2%) reported to have started using condom after one child. 69.0 per cent reported the use of condom for the purpose of spacing. In majority of the cases mutual agreement (68.6%) between husband and wife for using nirodh was found.

- 79.3 per cent of users collected nirodh from the sub-centre, 10.5 per cent from PHC, and 2.7 per cent from CHC, and 80.2 per cent of users reported to have received required number of pieces. 46.0 per cent did not find any problem in getting required number of condoms. 48.1 per cent of users mentioned problems related to non-functioning of sub-centres such as non-availability of health workers, difficult accessibility etc. These findings suggest that problems at about 50 per cent of sub-centres are related to logistics and human resources.

- At 3.4 per cent sub-centres, packet of nirodh is damaged; as per guideline, six pieces were distributed per month to the users. However, at 47.3 per cent places, generally one packet was issued. At 29.6 per cent places, two packets were distributed and only at 6.0 per cent sub-centres, three packets of

condom pieces were distributed.78.8 per cent of users reported to have used all the pieces before they take new ones.

- On an average, 91.2 per cent of respondents used nine pieces of condoms in the last month. As many as 90.8 per cent of users reported frequency of using condom in the range of 5-20 pieces per month. It comes to be around nine times. More than two-third of users (71.4%) use condom every time they go for sex. 19.6 per cent of users reported condom damage during the time of use. 8.3 per cent users reported to have thrown away the left-over piece of condom and 5.9 per cent gave condom to friends and relatives.

- Only 5.1 per cent of users had personally seen somebody throwing condom.11.5 per cent of condom users have heard that children blow it like balloon and 9.7 per cent of condom users have seen children using it like balloon. Two per cent of condom users have heard that weavers use in weaving and 1.6 per cent of condom users have seen weavers using it.

- Users who reported condom damage suggested alteration in manufacturing practices for good quality of condom while other wastages are negligible.

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DETERMINANTS OF CONTRACEPTIVE USE IN ORISSA: AN ANALYSIS FROM NATIONAL FAMILY HEALTH SURVEY III

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ABSTRACT

This paper attempts to study the differentials of contraceptive use by women's background characteristics and determinants by using data from National Family Health Survey III, conducted during 2005-06 for Orissa. Also, data have been drawn from Family Welfare Year Book 2001. Both bi-variate and multivariate analysis have been used in the present study. The various predictor variables used in the analysis were caste, religion, women's educational level, place of residence, wealth index of the household, work status of women, number of living sons, age at marriage, marital duration, whether experienced infant death and exposure to mass media.

The findings revealed that, only one-third of the women with one child use contraception in Orissa. Such proportion goes to 60 per cent, 73 per cent and 60 per cent for women with two, three and more than three living children respectively. The analysis indicate that spacing is not very common but most of the contraceptive's use are for limiting family size. Educational levels of women, sex preference, marital duration, infant death and exposure to mass media have a significant effect on the use of contraception. Therefore, these aspects may be given due attention while framing family planning programme and efforts should be made to make people aware of the benefit of small family norm.

Key words: Contraceptive, Predictors, Orissa, Wealth Index, Determinants

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India has officially accepted a nation-wide family planning programme since 1952. But after five decades of government initiated family welfare programmes, the increase in prevalence of contraceptive methods in India has been slow. Family planning is being recognized as one of the most important issues not only as in population number problems but as an issue which affects the health and lives of women and children. Having fewer children and spacing them apart also gives the woman a chance to improve her own quality of life. Therefore, the increased use of contraception is indisputably the main proximate determinant of the fertility decline and a factor that improves quality of life of a woman and her baby.

Increasing contraceptive prevalence rate is one of the steps needed to reduce fertility in India. Learning, motivation and intention formation in a socio-cultural context contributes to the adaptation of contraceptive behaviour. It is generally expected in terms of socio-economic and demographic characteristics at the individual as well as at the social level. Various studies have shown that number and sex of living children have considerable influence on acceptance of family planning method. Sex preference is a major determinant of contraceptive use[1]. Son preference is much higher in the demographically backward state of Uttar Pradesh than in the advanced state of Kerala[2]. The couples experienced the loss of a child is less likely to want to cease having children than couples who have experienced no loss[3]. Couples who had lost a child tended to move to higher orders for child replacement purposes, than couples who had not lost a child. The loss of a child generally had a negative impact on the use of family planning methods irrespective of the socio-economic background and the age of the mother. Female education has positive relation with intention to use contraception, which is in fact, a strong predictor of subsequent use[4, 5]. Religion is one of the determinants of choice and acceptance of contraceptive method. Many studies have documented the higher adoption rate of contraception among Hindus than Muslims[1, 6]. Working women have higher opportunities to interact with the outside world, which exposes them to new ideas, which could bring a change in her attitudes towards family size and the use of contraception[7]. Therefore, the acceptance of contraceptive method is higher among working women than non-working women. Standard of living has a positive relationship with the use of contraception[5, 6, 8]. Exposure to mass media has a large positive effect on contraceptive use[9, 10, 11, 12].

Among these socio-economic and demographic characteristics, the number of living children the women have is more likely to affect the use of contraception. The desire for additional children decreases with the increasing number of living children. In other words, desiring no more children tends to increase with an increase in number of living children in most societies and with an increase in the number of living sons

shows a stronger tendency to desire to have no more children. Contraception is used for spacing as well as for limiting child bearing. There is a direct association between the number of living children and the current use of contraception and the contraceptive use increase with an increase in the number of living children. Therefore, we can say that the use of contraception depends on the number of living children. The pattern of use of contraception at lower parities means that family planning has a larger demographic impact than it would if contraceptive use in higher parities. Therefore, it is pertinent to study the determinants of contraceptive use for women with a given number of living children. The latest National Family Health Survey (NFHS) III provides individual data files which help us to find out the important determinants of contraceptive use. Besides, trends in contraceptive prevalence rate have been studied by using data from Family Welfare Year Book 2001. As Orissa shows a diversified demographic picture with significantly high level of infant mortality and low level of fertility, the study of contraceptive use among women holds significant. However, the specific objectives of the present analysis are:

(i) To study the differentials of contraceptive use by background characteristics in Orissa, and
(ii) To examine the determinants of contraceptive use for couples in Orissa.

MATERIALS AND METHOD

Data for the study have been drawn from Family Welfare Year Book 2001 and the National Family Health Survey (NFHS) II and III. There have been three rounds of NFHS conducted during 1992-93, 1998-99 and 2005-06. All of these surveys give enormous amount of information on the demographic, health and social indicators. NFHS III is the latest of these, becomes the major source of data for most of the analysis of this paper.

Both bi-variate and multivariate techniques have been used in the analysis. The bi-variate analysis has been used to see the gross effect of background variables on response variable. For the multivariate analysis, the statistical technique used in this study is logistic regression. Since contraceptive use is a dichotomous variable, logistic regression technique is employed to explore the net influences of various variables on contraceptive practice after controlling other relevant predictor variables. The different predictor variables used in the analysis are caste (SC, ST, OBC, others), religion (Hindu, non-Hindu), women's educational level (illiterate, primary, secondary, higher), place of residence (urban, rural), wealth index of the household (poorest, poorer, middle, richer, richest), work status of women (not working, agriculture and

non-agriculture), number of living son (0, 1, 2, 3+), age at marriage (<=14, 15-19, 20+), marital duration (0-4, 5-9, 10-14, 15+), whether experienced any infant death (no, yes), exposure to mass media (not exposed, moderately exposed, highly exposed). There is hardly any contraceptive use among women with no living children, therefore, the analysis has been restricted only to women with one, two, three and more than three living children. Here the study restricts the analysis to only currently married women as their marital status effectively controls for variation in birth histories and in the use of contraception which will be of interest to policy makers.

FINDINGS AND DISCUSSION

Contraceptive Use

Table 1 shows the contraceptive prevalence rate in Orissa as well as in India since the 80s. During the 80s about one-third of the couple, 29.9 per cent, was using contraception in Orissa which was slightly higher than that of the national average, 22.3 per cent. But due to the slow pace in the increase in the contraceptive prevalence rate in Orissa, India crossed Orissa during 90s. After mid 90s there is a fall in the contraceptive prevalence rate in Orissa. During 2000, a large gap (8 percentage points) between Orissa and India is visible due to the lower contraceptive acceptance rate in Orissa[13].

TABLE 1
CONTRACEPTIVE PREVALENCE RATE (PER CENT OF COUPLES OF REPRODUCTIVE AGE EFFECTIVELY USING A MODERN CONTRACEPTION) ORISSA AND INDIA SINCE 1980

Years	Orissa	India
1980	29.9	22.3
1985	32.8	32.1
1990	40.7	43.3
1995	40.6	45.8
2000	37.6	46.2

Source: *Ministry of Health and Family Welfare (2003).*

Information on method specific contraceptive users for currently married women in Orissa by place of residence in both NFHS II and III is presented in Table 2. It is seen that there is an improvement of 4 percentage points in the use of contraception in Orissa over the period of NFHS II and III. Remarkable improvement is found in case of urban Orissa (5.4 percentage points) as compared to rural Orissa (3

percentage points). A vast majority, 88 per cent, of the current users is using a modern method in NFHS III. In the current contraceptive prevalence rate, female sterilization accounts for 72 and 65 per cent in NFHS II and III respectively. 4.7 and 10.5 per cent of currently married women are currently using any of the officially sponsored spacing methods (IUDs, Pills and Condoms) in NFHS II and III respectively. Nearly 15 per cent of currently married women in Orissa have an unmet need for family planning in NFHS III. The unmet need for limiting the family size was little higher than the unmet need for spacing. Not any substantial difference was found in unmet need in Orissa with respect to place of residence[14, 15].

TABLE 2
PERCENTAGE OF CURRENTLY MARRIED WOMEN CURRENTLY USING DIFFERENT METHODS OF CONTRACEPTION AND HAVING UNMET NEED IN ORISSA BY PLACE OF RESIDENCE IN NFHS I AND II

Methods	NFHS II			NFHS III		
	Rural	Urban	Total	Rural	Urban	Total
Any Method	**45.9**	**54.0**	**46.8**	**49.0**	**59.4**	**50.7**
Any modern method	39.7	45.2	40.3	43.6	50.1	44.7
Pills	2.6	6.4	3.0	6.3	10.2	7.0
IUD	0.5	3.0	0.8	0.3	1.5	0.5
Condom	0.7	3.0	0.9	2.2	6.7	3.0
Female sterilization	34.2	30.9	33.9	33.7	30.3	33.1
Male Sterilization	1.7	1.8	1.7	1.0	1.1	1.0
Any Trad. Method	5.4	7.6	5.6	5.4	9.4	6.1
Rhythm	3.7	5.0	3.8	1.4	3.2	1.7
Withdrawal	1.7	2.6	1.8	2.7	6.0	3.3
Other method	0.8	1.2	0.9	1.3	0.5	1.2
Unmet Need	**15.5**	**15.4**	**15.5**	**15.4**	**12.5**	**14.9**
For spacing	8.9	6.5	8.7	7.0	5.6	6.8
For limiting	6.6	8.8	6.8	8.4	6.9	8.1
Total demand	**61.5**	**69.4**	**62.3**	**64.4**	**71.9**	**65.6**

Source: *IIPS and ORC Macro (2000); IIPS and Macro International (2007).*

Differentials in Contraceptive Use

To study the gross effect of background characteristics on contraceptive use, percentage of currently married women using contraceptive has been presented separately for one, two, three and four or more living children by various relevant socio-economic and demographic factors (Table 3). It is evident that the use of

contraception increases with an increase in the number of living children. Among women with one living child, contraceptive prevalence is the highest among women of other castes (43.3 per cent) followed by women belonging to OBC, SC and ST. For women with two living children, other castes show higher use of contraception followed by OBC, SC and ST. By religion, contraceptive prevalence among Hindu is higher than non-Hindu women with three or more than three living children. Contraceptive use among currently married women with two, three and more than three living children generally increases with education. There is, however, little difference in contraceptive use between literate women with primary level and illiterate women with one living child. The gap in the use of contraceptive use by the educational level of women substantially decreases with increase in number of living children. A similar pattern is observed among women in urban and rural areas but urban women are more likely than rural women in the use of contraception in all the cases of number of living children. Urban women with one living child show 18 percentage points higher use of contraception than their rural counterparts while this is only two percentage points in case of women with 3 living children. This reflects that urban women start using contraception at low parities than rural women.

TABLE 3
PERCENTAGE OF CURRENTLY MARRIED WOMEN WITH A GIVEN NUMBER OF LIVING CHILDREN USING CONTRACEPTION BY BACKGROUND CHARACTERISTICS

Background Characteristics	1 living child	2 living children	3 living children	Four or more living children
Caste				
SC	27.3	51.0	75.5	68.0
ST	20.7	43.4	56.5	43.8
OBC	27.8	59.2	73.2	64.8
Others	43.3	72.3	78.6	68.3
Religion				
Hindu	31.5	59.6	73.0	61.0
Non-Hindu	23.1	63.6	58.8	46.2
Educational Level				
No education	21.0	50.6	67.6	53.8
Primary	28.9	64.2	78.1	73.6
Secondary	36.7	65.3	77.5#	69.3#
Higher	57.7	77.1	-	-

Background Characteristics	1 living child	2 living children	3 living children	Four or more living children
Place of Residence				
Urban	45.4	71.7	74.5	65.5
Rural	27.8	56.8	72.4	59.6
Wealth Index				
Poorest	19.0	52.1	62.2	52.9
Poorer	22.9	56.6	74.5	59.0
Middle	30.2	54.3	80.9	73.7
Richer	43.5	65.3	81.3$	75.0$
Richest	57.7	80.9	-	-
Work Status of Women				
Not Working	33.6	60.5	74.9	60.5
Agri and hh activities	22.8	55.5	68.0	61.7
Non-Agri. activities	29.6	63.1	71.4	56.8
No. of Living Son				
0	22.8	34.7	42.9	41.9
1	38.8	61.2	67.6	65.2
2	-	69.9	80.6	62.6
3+	-	-	76.0	57.3
Age Group of Women				
15-29	25.8	46.5	57.1	50.6
30-39	44.7	73.3	78.6	59.5
40-49	46.3	65.6	77.3	64.3
Age at First Marriage				
<=14	17.1	54.7	77.0	64.6
15-19	27.1	57.5	71.8	60.0
20+	42.5	67.7	71.9	54.0
Marital Duration				
0-4	27.0	29.2	-	-
5-9	33.5	48.3	50.0@	40.9@
10-14	32.4	67.7	67.8	46.4
15+	38.5	70.7	79.7	64.3
Infant Death				
No	31.6	60.9	72.5	63.1

Background Characteristics	1 living child	2 living children	3 living children	Four or more living children
Yes	29.5	53.7	73.7	54.5
Exposure to Mass Media				
Not Exposed	19.4	48.0	60.1	49.8
Moderately Exposed (once a week)	27.9	53.8	72.5	62.1
Highly Exposed	38.1	67.6	80.6	70.1
Total	31.3	59.7	72.7	60.3
Number of Women	652	904	725	621

#Secondary and higher educational level are clubbed together due to very small number of frequency.

$ Richer and richest have been clubbed together due to small number of cases.

@The category of marital duration of 0-4 and 5-9 years are also clubbed together due to small frequency.

Source: *Computed from NFHS III individual data file.*

By the wealth index (WI), the use of contraception ranges from 19 per cent among women with the poorest to 58 per cent among the richest with one living child. This reflects that higher use of contraception among women living in households with high economic group even at the lower parities. As the number of living children increases, contraceptive prevalence also increases among different economic groups. The gap of the prevalence of contraceptive use among poorest, poorer, middle, richer and richest group narrows with the increasing number of living children. Work status of women does not make any significant effect on the use of contraception. Number of living sons makes a significant difference in the use of contraception. Women with one son show a little higher proportion in the use of contraception (38.8) than those having one daughter (22.8). A substantial difference by sex composition is found among women with two children, i.e., women having one son and one daughter shows a higher proportion (61 per cent) in the use of contraception. Again such percentage increases to 69.9 for women having two sons. This pattern is also seen in case of women with 3 and more than 3 living children. Thus, it is evident that the women having more number of sons, a greater proportion of them adopt family planning method. This suggests the existence of strong preference for sons over daughters in Orissa.

Age of the women is an important demographic variable that influences women's contraceptive behaviour. As the age of the women increases with the increasing number of living children, the use of contraception also increases as they are more close to complete their desired family size. With respect to age at marriage, women who got married between below 14 years and having two living children, a very low proportion is using contraception than those married in age group of 15-19 years and 20 years and above. This may be due to the fact that those women who marry at an early age are mostly illiterate, belong to low level of economic condition and want to have more than two living children.

For women with one living child the marital duration does not make a difference in the use of contraception mainly because of the anticipation of more children. By infant death, it is evident that, for a woman with one living child, infant death does not show much influence on contraceptive use. Such gap in the use of contraception is higher among women with two living children. Those women who do not experience any infant death tend to use contraception more than those who have experienced infant death. This is so in case of women with two, three and more than three living children. A significant effect of the exposure to mass media on the contraceptive use among women with more number of living children has also been observed. Women with two living children and who highly exposed to any mass media, the use of contraception is 67.6 per cent which is 20 percentage points higher than those who are not exposed to any mass media. Similar trend continues in case of women with three and more than three children. Therefore, exposure to mass media and especially exposure to the family planning messages in mass media is an important factor.

Determinants of Contraceptive Use

To study the net effect of different background variables in the contraceptive practice by the number of living children after controlling the relevant socio-economic and demographic variables, logistic regression analysis has been carried out. As the dependant variable (contraceptive use) is dichotomous, logistic regression is adopted to understand the effects of background variables on contraceptive use. The predicted probabilities of the occurrence of the event (contraceptive use) are obtained for each category of the explanatory variable. These predicted probabilities are computed from the logistic regression coefficients by setting them at the mean value of the group. The predicted percentages of the probabilities of contraceptive use for women with one, two, three and more than three living children are presented in Table 4.

TABLE 4
DETERMINANTS OF CONTRACEPTIVE USE FOR WOMEN WITH 1, 2, 3 AND 3+ LIVING CHILDREN BY BACKGROUND CHARACTERISTICS: PER CENT PREDICTOR FROM LOGISTIC REGRESSION

Background Characteristics	1 living child	2 living children	3 living children	Four or more living children
Caste				
SC®	34.4	52.9	77.3	66.2
ST	32.1	42.2	63.7**	46.5***
OBC	27.9	59.7	70.8	62.7
Others	31.9	69.2***	75.0	66.3
Religion				
Hindu®	31.6	59.2	72.9	60.9
Non-Hindu	20.0	73.2	64.4	49.3
Educational Level				
No education®	27.3	53.0	69.7	55.6
Primary	31.3	66.2**	74.6	70.2**
Secondary	33.0	62.0	75.9#	62.5#
Higher	38.0	63.2	-	-
Place of Residence				
Urban®	30.3	59.6	67.1	57.0
Rural	31.8	59.8	74.5	61.4
Wealth Index				
Poorest®	19.6	63.3	65.5	56.4
Poorer	23.6	56.3	74.0	55.6
Middle	29.5*	49.3**	77.4**	68.6*
Richer	42.3***	57.8	76.4*$	67.6$
Richest	52.8***	67.6	-	-
Work Status of Women				
Not Working®	31.5	56.6	71.3	54.2
Agri. and HH Activities	34.0	66.7*	75.2	68.4***
Non-Agri. Activities	27.1	66.9*	75.0	66.0*
No. of Living Sons				
0®	24.2	36.3	40.7	46.6
1	38.0***	59.9***	66.3***	64.6*
2	-	70.0***	80.0***	62.1

Background Characteristics	1 living child	2 living children	3 living children	Four or more living children
3+	-	-	76.5***	56.7
Age at First Marriage				
<=14®	21.0	55.6	76.2	65.2
15-19	29.3	59.0	71.7	59.9
20+	37.6**	62.9	73.3	50.0*
Marital Duration				
0-4®	25.5	29.7	-	-
5-9	31.7	46.0**	54.0@	44.5@
10-14	35.4	65.5***	69.3**	46.9
15+	45.2***	71.5***	77.3***	63.8
Infant Death				
No®	30.9	60.9	73.1	64.2
Yes	34.1	52.5*	71.4	51.1***
Exposure to Mass Media				
Not Exposed®	30.1	50.2	63.4	55.1
Moderately Exposed (once a week)	34.4	55.6	72.2*	62.1
Highly Exposed	30.4	64.4***	77.1**	63.2
Total	31.3***	59.7***	72.7***	60.3

Note: *This analysis has been carried out only for currently married women. *, **, *** Shows 10%, 5% and 1% level of significant respectively. 1= currently using, 0= Not using. #Secondary and higher educational level are clubbed together due to very small number of frequency. $ Richer and richest have been clubbed together due to small number of cases. @The category of marital duration of 0-4 and 5-9 years are also clubbed together due to small frequency and taken as reference category. ®: Reference Category.*

Source: *Computed from NFHS III individual data file.*

Educational level of women makes a significant difference in the use of contraception in all the categories of living children. As the educational level increases, she becomes more likely to plan her family size through deliberate use of birth control methods. She is more informed of contraceptive methods and is able to participate in the decision-making process of her life and her family[16]. Place of residence does not make a significant difference in the use of contraception after holding other predictor variables constant. The predicted percentages of contraceptive use for the wealth quintiles show that women with one and two living children probability of using contraception varies from 19.6 to 52.8 per cent and from 63.3 to 67.6 per cent

respectively. Higher use of contraception is found among women with higher economic status.

Women with two living children and those engaged in non-agricultural activities, the probability of using contraception is 67 per cent which states that two-third of women from non-agricultural activities use contraception either for limiting or spacing. The effect of number of living sons in the use of contraception shows a highly significant result after controlling the other predictors. The probability of using contraception among women with two living children and those having two sons is substantially higher (70 per cent) than who do not have any son (36 per cent). Higher number of sons leads to higher probability of using contraception. It has also been observed in earlier studies that couples with fewer sons are more likely to continue to have children and less likely to use contraception[17]. Therefore, the sex composition of the children in the family affects subsequent fertility behaviour to a great extent[18]. As the marital duration increases, the probability of using contraception also increases in all the cases of women with 1, 2, 3, and more than three living children. So marital duration has a very good bearing on the use of contraception. A substantial effect has also been found among women who had experienced infant death. A wider gap of 13 per cent in the probability of using contraception has been found between women with more than three living children, experienced infant death and those who did not. This shows that the infant death significantly increases the tendency of progressing to the next birth to replace to the old one. The probability of using contraception among women who have been exposed to any mass media is significantly higher among women with two, three and more than three living children. So the exposure to mass media has a definite bearing in taking decision on family limitation. In overall, it is seen that in Orissa about three-fifth and three-fourth of women with two and three living children use contraception respectively.

CONCLUSION

Though the fertility level has declined in Orissa due to the effect of contraceptive use, still there is scope of further improvement in the acceptance of family planning methods by the couples. The findings revealed that, only one-third of the women with one child use contraception in Orissa. Such proportion goes to 60 per cent, 73 per cent and 60 per cent for women with two, three and more than three living children respectively. Clearly spacing is not very common but most of the contraceptive use is for limiting the family size. Educational levels of women, sex preference, marital duration, infant death and exposure to mass media have a significant effect on the use of contraception. Therefore, these aspects may be given

due attention while framing family planning programme and efforts should be made to make people aware of the benefit of small family norm.

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OCULAR MORBIDITY AMONGST PRIMARY SCHOOL CHILDREN IN DELHI

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ABSTRACT

Many ocular morbidities have their origin in childhood and if go unnoticed, these may cause severe ocular disabilities, apart from affecting children's performance in the school. The study estimated the prevalence of ocular morbidity amongst primary school children in four schools of Delhi, two from urban slum and two from a village. All the children studying in these schools were interviewed and clinically examined. Socio-demographic information was collected from their parents. Of the 775 subjects, 22.7 per cent had ocular morbidity. The ocular morbidities observed were refractive errors (5.4%), conjunctivitis (4.6%), trachoma (4.3%), xerophthalmia (4.1%), stye (1.3%) and others. Ocular morbidity was found to be significantly associated with age, religion and birth order of the subjects. Majority of these morbidities were preventable and deserve early attention.

Key words: Ocular morbidity, School Children, Eyes, Trachoma

Eyes are the most treasured organs of living beings. Once vision is lost, it is lost forever and may not be restored completely. Considering the fact that 30 per cent of India's blind lose their sight before the age of 20 years, and 80 per cent of the blindness is avoidable, the importance of early detection and treatment of ocular morbidity and visual impairment in young children is obvious.[1]

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Many ocular diseases have their origin in childhood and the morbidity may go unnoticed and adversely affect the child's performance in school and may also cause severe ocular disability in the later part of life. With this background, it was envisaged (i) to estimate the prevalence of ocular morbidity amongst primary school children in Delhi and (ii) to study the socio-demographic factors responsible for the causes of ocular morbidity in the school children.

MATERIALS AND METHOD

The present cross-sectional study was conducted amongst primary school children residing in an urban slum and a rural area of Delhi, during July 2003-February, 2004. The Department of Community Medicine, Maulana Azad Medical College, New Delhi, has a field practice centre located at Rouse Avenue, in an urban slum. There are two primary schools in this area, one is for girls, and the other is for boys. The department also has a rural field practice area in village Barwala. There are two primary schools in this village also; one is exclusively for boys and the other is for girls. All these four schools were included in the study.

All the children studying in the above mentioned schools and residing in the respective areas were included. Children studying in these schools but residing elsewhere were excluded from the study.

Referring to an earlier study, the prevalence of ocular morbidity was found to be 40.65 per cent in primary school children of rural Delhi.[2] Based on this, the required sample size, as calculated by the formula: $4PQ/L^2$ works out to be 150. Where P = 40 per cent (prevalence), Q = (100-P) =60 per cent, L= 20 per cent of P (Allowable error).

In the present study the sample size was 775 based on the above inclusion/exclusion criteria, which is much higher than the required sample size.

All the study subjects were interviewed, clinically examined with torch-light by a doctor and given a pre-tested and structured proforma to be filled in by their parents at home, with a view to collect information on socio-demographic profile. A home visit was also made to complete the information whenever required. Standard procedures and case definitions were used to diagnose various eye diseases.[3,4,5] Vision was tested using Snellen's Chart. In cases of poor visual acuity (<6/9), a pinhole vision was taken to differentiate refractive errors from posterior chamber pathology (The visual acuity improves with pinhole if there is refractive error but it remains the same in posterior chamber pathology). This was done because ophthalmoscopic examination

could not be done in the school setting, as it required student's pupil dilatation and the permission for the same was not granted keeping in view the safety of the students. Latent squint was diagnosed by cover-uncover test. Whenever in doubt, the ophthalmologist confirmed the provisional diagnosis. ICD-10 codes have been used in the classification of diseases.

All the cases were given appropriate treatment and referred to the affiliated tertiary care hospital for further management. Data were analysed using a computer and presented in proportions and wherever applicable X^2 test was applied using Epi Info 6 and Epi-Stat.

FINDINGS

The study population comprised 775 primary school children. There were 188 boys and 203 girls in urban area and 196 boys and 188 girls in rural area. The age ranged from five to fourteen, majority being ten years or less.

The prevalence of ocular morbidity in the study was found to be 24.6 per cent. Commonest cause of ocular morbidity was refractive errors with a prevalence of 5.4 per cent followed by conjunctivitis, trachoma and other diseases. The distribution of morbidities was almost similar in rural and urban areas, Table 1.

TABLE 1
DISTRIBUTION OF OCULAR MORBIDITY (BY TYPE) AMONGST STUDY SUBJECTS

Disease*	ICD Code	Urban N=391	Rural N=384	Total N=775
		No (%)	No (%)	No (%)
Refractive errors	H 52.7	13 (3.3)	29 (7.6)	42 (5.4)
Conjunctivitis	H 10.9	17 (4.3)	19 (4.9)	36 (4.6)
Trachoma	A 71.9	19 (4.9)	14 (3.6)	33 (4.3)
Xerophthalmia	H 19.8	14 (3.6)	18 (4.7)	32 (4.1)
Stye	H 00.0	4 (1.0)	4 (1.0)	10 (1.3)
Blepharitis	H 01.0	5 (1.3)	3 (0.8)	8 (1.0)
Colour blindness	H 53.5	4 (1.0)	4 (1.0)	8 (1.0)
Chalazion	H 00.1	3 (0.8)	1 (0.3)	4 (0.5)
Squint	H 50.9	0.00	4 (1.0)	4 (0.5)

Disease*	ICD Code	Urban N=391	Rural N=384	Total N=775
		No (%)	No (%)	No (%)
Corneal opacity	H 17.9	2 (0.5)	1 (0.3)	3 (0.4)
Exophthalmos	H 06.2	0.00	1 (0.3)	1 (0.1)
Coloboma	Q 13.0	0.00	1 (0.3)	1 (0.1)
Pinguicula	H 11.1	1 (0.3)	0.00	1 (0.1)
Subconjunctival haemorrhage	H 11.3	1 (0.3)	0.00	1 (0.1)
Posterior chamber pathology†		5 (1.3)	2 (0.5)	7 (0.9)
Total		88 (22.5)	103(26.8)	191(24.6)

*Diseases are not mutually exclusive.

†As the exact diagnosis of posterior chamber pathology cannot be made on torch-light examination, no ICD code was given to this category.

The prevalence of ocular morbidity increased with age, being minimum (17.5%) in 5-6 years age group and maximum (37.5%) in 13-14 years age group. The association was found to be statistically significant, Table 2. When specific ocular morbidities were analysed with respect to age, it was found that the prevalence of conjunctivitis, trachoma and refractive errors increased with age. Xerophthalmia was the only disease in which a decreasing prevalence was observed with an increase in age ($p<0.05$). The other morbidities could not be analysed separately because of small number of cases.

TABLE 2
AGE-WISE DISTRIBUTION OF OCULAR MORBIDITY AMONGST STUDY SUBJECTS

Age in Years	Ocular Morbidity Present			Total
	Nil	One Disease	≥Two Diseases	
	No (%)	No (%)	No (%)	No (%)
5-6	113 (82.5)	24 (17.5)	0	137 (17.7)
7-8	183 (73.2)	56 (22.4)	11 (4.4)	250 (32.3)
9-10	219 (21.4)	49 (18.2)	1 (0.4)	269 (34.7)
11-12	74 (71.8)	27 (26.3)	2 (1.9)	103 (13.3)
13-14	10 (62.5)	5 (31.2)	1 (6.3)	16 (2.0)
Total	599(77.3)	161(20.8)	15 (1.9)	775

$X^2 = 10.82$, df =4, $p<0.02$

The prevalence of ocular morbidity was 22.1 per cent in Hindu subjects as compared to 41.66 per cent in subjects of other religion; the difference was statistically significant, Table 3.

TABLE 3
RELIGION-WISE DISTRIBUTION OF OCULAR MORBIDITY AMONG STUDY SUBJECTS

Religion	Ocular Morbidity		Total
	Present	Absent	
	No (%)	No (%)	No (%)
Hindu	166 (22.1)	585 (77.9)	751 (96.9)
Others*	10 (41.66)	14 (58.34)	24 (3.1)
Total	176 (22.7)	599 (77.3)	775

*Others include 23 Muslims and one Christian.
$X^2=5.07, df=1, p<0.05$

DISCUSSION

Of the total of 775 study subjects, 176 (22.7%) had ocular morbidity. The average ocular morbidity per affected child was 1.1, as 15 subjects (among the affected 176) had, more than one ocular morbidity. Another study reported a similar prevalence of 26.5 per cent among school children in New Delhi.[6] However, a school based study in rural Delhi with the similar age structure reported that more than 40 per cent of the children had one or more eye diseases.[2] Survey of Blindness India estimated a prevalence of ocular morbidity 27.99 per cent for all India.[7] This shows that in spite of the economical development and technical advancement in health, the prevalence of ocular morbidity had remained more or less the same.[2,6]

Majority of the ocular diseases observed in the subjects were either preventable or treatable. The commonest cause of ocular morbidity in the present study was refractive errors with a prevalence of 5.4 per cent which is similar to an earlier study, 7.4 per cent in rural Delhi.[2] If we could detect refractive errors early in life, not only will we be reducing the disability but also reducing the chances of developing amblyopia.

The current study revealed that trachoma was present in 4.3 per cent of subjects. An earlier study revealed that prevalence of trachoma was 5.87 per cent in South Delhi and 32.9 per cent in East Delhi. The nationwide survey revealed that the

prevalence of trachoma was 4.02 per cent.[7] Although trachoma ceases to be an important cause for blindness in the country, it still continues to be one of the leading causes of ocular morbidity.

Conjunctivitis was observed in 4.6 per cent of subjects in this study. A similar prevalence, 3.27 per cent was reported from Patiala city.[8] The difference in prevalence in these studies may be due to seasonal variation of conjunctivitis, variation may also occur because of short duration of the illness.

More than 4 per cent of subjects were found to have Xerophthalmia. Another study reported a prevalence of 10.6 per cent with South Delhi showing a prevalence of 2.3 per cent and East Delhi 20.7 per cent. In the total pool of blindness in India, contribution of Vitamin A deficiency is marginal, but it assumes importance as soon as we consider childhood blindness on its own.[9] A study of blind school children in 9 states revealed that 18.6 per cent of the blindness was due to Vitamin A deficiency and another 3.2 per cent was due to measles that precipitates its deficiency.[10] A prevalence of 6.01 per cent for 0-6years of age has been estimated for India.[7] But there are hardly any large-scale surveys in the age group of 5-14 years. The prevalence of stye was 1.3 per cent and other ocular morbidities had a prevalence of less than or equal to 1.0 per cent.

Interestingly prevalence of ocular morbidity increased with increase in age, which could be attributed to cumulative effect of diseases such as refractive errors and trachoma and possibly greater exposure in older children leading to higher incidence of conjunctivitis.

Compared to Hindu subjects, prevalence of ocular morbidity was almost two times higher in subjects of other religions. But this difference might be due to very small number of subjects from other religions. An earlier study also reported higher prevalence among Muslims.[11]

The prevalence of ocular morbidity showed significant association with increase in birth order while no significant association was found between ocular morbidity and sex of the subjects, per capita income, family size and literacy status of the subjects' parents. The prevalence of ocular morbidity was almost similar in both rural and urban areas.

CONCLUSION

Majority of the ocular diseases observed were either preventable or treatable. If these morbidities are not attended at the right time they may progress to severe disabilities or blindness and may also affect the child's performance in the school. As the burden of blindness is already high in our country we have to have a blindness-prevention approach, beginning right from the childhood and school eye-screening programme should be an integral part of it.

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