

Intellectual Property Rights and Public Health

Pardeep Kumar* and Deoki Nandan**

The advent of globalization and digital technologies has changed the engine of economic development from manual and mechanical force to intellectual prowess. The character of the world trade has undergone significant change in last decade because of liberalization, privatisation and globalisation (LPG). Many issues have come to the fore to influence the trade patterns. The traditional concept of the factors of the production in economics is changing in the present era of liberalized economy, particularly with coming into force of World Trade Organization in 1995. Traditionally there were four factors of the production namely Land, Labour, Capital and Enterprise but now knowledge/intellectual (in form of services) has become an important factor of production. The role of knowledge as potential contributor to production is increasingly being recognized, thus assuming the status of a factor of production. As such it ultimately contributes to generation of income and profit. Not only generation of information and technology, but it's effective protection is also important in new order of international relations and multilateral trade. This has significantly increased the importance of Intellectual Property Rights (IPRs) in the developmental process in the modern world. However, the general perception is that IPRs play a significant role only in the case of globalize industrial economy and has not worthwhile place in the area of social development.

Intellectual property is intangible unlike movable property such as a car and immovable property such as a house. It is the creation of human intellect. An example is music. The distinct feature of Intellectual property is that it "relates to information which can be incorporated in tangible objects and reproduced in different locations and can be used by several persons at the same time, unlike immovable or movable tangible property". There are variations as to the set of rights forming the basket of Intellectual Property Rights. The Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPs) includes Copyright and Related Rights, Trademarks, Geographical Indications, Industrial Designs, Patents, Layout-Designs (Topographies) of Integrated Circuits, Protection of Undisclosed Information, Control of Anti-Competitive Practices in Contractual Licenses etc. within the scope of IPRs.

Public Health

Pharmaceutical industry occupies an important place in Indian economy as a major emerging research-oriented and research-based industry. Trade Related Aspects of Intellectual Property Rights (TRIPs) has brought new challenges and opportunities for this sector and proper analysis of all the factors responsible for successful gains from the market is essential for the researchers. The Indian pharma industry's success and survival will depend on how strategically and effectively it faces the upcoming challenges and opportunities in this sector.

* Assistant Research Officer, National Institute of Health and Family Welfare, New Delhi; and

** Director, National Institute of Health and Family Welfare, New Delhi.

Till 2005 drugs for medical purposes were not patentable in India. Therefore, it was apprehended that the switchover from the non-patent regime to the patent regime would not be a smooth one. India has high technical expertise and infrastructure to manufacture medicines. Even then, almost 60% of Indian population is not under the reach of modern medicines and depend on local treatments or herbal formulations. The low coverage of the modern medicine is mainly due to low earnings, poor accessibility of medical facilities and low awareness or education among the mass. Even in the last few years, the price of many of the medicines including essential antibiotics have skyrocketed due to organized efforts of the manufacturing firms and monopolistic conditions existing in the drug industry. Low profit margin on the low cost medicine for the poor has desisted many of the pharmaceutical companies from venturing into that sector. Moreover, many of the new medical researches are targeting the developed countries with promising profits for medicines for lifestyle diseases, whereas developing countries are still in need of basic health care. In these circumstances, it will not be improper to expect a price rise for many of the medicines in India. Comparing the price for same medicine among countries with and without patent regime for medicines, it was found that in some countries with patent right, the drug price was higher up to 41 times than in India prior to 2005 (with no drug patents).

The policy option in this sector mainly lies in the development of low cost medicines in the country itself with an eye on bringing more and more rural poor under modern medical facilities. Similarly, there is option for controlling the price by even provisions available in the TRIPs itself like compulsory licensing and parallel import (which requires political will).

Besides, the other important issues are that awareness about IPRs is relatively low in India as compared to developed countries. Entrepreneurs, researchers, technocrats and concerned person should be given proper awareness through mass media and seminars in this area. The legal base is also needed to be strengthened. Further the IPRs should be viewed not only from the viewpoint of 'strategic management' but also from the viewpoint of business ethics and 'Corporate Social Dharma'. Again there is an urgent need to protect the traditional knowledge and folklore wisdom from being appropriated by the corporate in their search to increase their bottom-lines. In this regard proper measures are required to be taken to protect indigenous knowledge mainly in the fields of traditional Indian System of Medicine. This would help in achieving a balance between corporate and communities by balancing the return on investment (ROI) approach and returns to community (RTC) approach to intellectual property issues.

PERCEPTIONS AND PRACTICES OF RURAL MEN ON RTIs/STIs AND THEIR EXPECTATIONS ON ITS MANAGEMENT AT PUBLIC HEALTHCARE FACILITIES: A QUALITATIVE INSIGHT

Beena Joshi*, Ragini Kulkarni*, Sanjay Chauhan*, Deoki Nandan**, Sanjay Zodpey***, Deepak Raut****, Sunil Khaparde*****, Sajjida Ahmed*****, N. Chitra*****, and Rajeshree Manjrekar*****

ABSTRACT

Research on RTIs/STIs in the country has so far concentrated only on estimating the prevalence among women and their health seeking behaviour. Little is known about men's awareness regarding causation, transmission and prevention of RTIs/STIs, treatment seeking behaviour--their perceptions about quality, cost, privacy and client satisfaction, perceptions related to HIV/AIDS, and gender dimensions and vulnerability perceptions. Such information was collected from six different representative regions in 2006 by a team of public healthcare personnel and social workers using qualitative tool--focus group discussions (FGDs). A total of 12 FGDs were conducted among randomly selected married men aged 20-45 years residing in rural areas. The findings reveal that men consider sex within marriage to be safe and free of risk, but sex with 'bad' women (sex workers or promiscuous women) as risky that makes one vulnerable to RTIs/STIs. Awareness of HIV/AIDS is more than that of RTIs/STIs. Treatment seeking behaviour and partner notification is influenced by social stigma that is associated with RTIs/STIs. Knowledge about condoms has not necessarily led to its use with many male participants. Triangulation of these findings with the information obtained from in-depth interviews of service providers and programme managers along with facility surveys justifies the need for improving overall awareness and knowledge both of the service providers and community and improving the overall RTI/STI service delivery.

Key Words: RTI/STI, HIV/AIDS, Sexual Transmission, Men's Perceptions, Treatment Seeking Behaviour.

The efforts to gather evidence on RTIs/STIs and related risk factors have improved over the past decade. However, several gaps in our understanding continue to constrain our methods to curb these infections. Though available studies shed some light on the liberal healthcare offered in the public health sector, there are a few cryptic issues that men and women face in accessing and utilising these services, which are less understood properly. The role of a wide variety of possible influences such as cost, geographical access to services,

gender-based issues, perceptions on the quality of care are yet to be accounted.

Some studies report that men who suffer, either neglect or resort to self-treatment for STIs (Santhya, 1999, Ravi Verma et al. 2000). A few studies, however, report that almost half of all symptomatic men consult someone or seek allopathic treatment (Carolina Population Centre 1997, Joseph et al. 1998).

Non-compliance with the treatment regimen and self-treatment are

*Scientist-C, Scientist-B, Scientist-E, National Institute for Research in Reproductive Health, (NIRRH), Parel, Mumbai-12, India; ** Director, National Institute of Health and Family Welfare, New Delhi; ***Director, Public Health Education, Public Health Foundation of India, New Delhi; **** Assistant Director General and Joint Director, Central Bureau of Health Intelligence, Directorate of Health Services, New Delhi; ***** Government of India, Ministry of Health and Family Welfare, New Delhi; ***** Professor and Head, Department of Community Medicine, Guwahati Medical College, Guwahati; ***** Principal, HMDI, Villupuram, Tamil Nadu; ***** Lecturer, LTMG Medical College, Sion, Mumbai.

common among men as well (Ganguli et al. 1985). It is reported that over one-half of the cases seen at larger public hospitals are repeat patients who come with persistent or aggravated symptoms after considerable 'cure-shopping' (Ramasubban et al 2000). In a study of reproductive morbidity amongst males in an urban slum in the Northern part of the country, 33.6 per cent reported one or more perceived symptoms of RTIs/sexual morbidity (Y Uppal S).

The management of RTIs is the most needed inclusion, particularly in the rural and urban slums of our country in the Phase-2 of the RCH Programme. Therefore, Ministry of Health and Family Welfare, Government of India, being keenly interested in introducing services for prevention and case management of RTIs/STIs in this package, directed the National Institute for Research in Reproductive Health, Mumbai, and the Indian Council of Medical Research to formulate national guidelines for management of RTIs/STIs in a research mode. Hence evidence-based rapid assessment survey (RAS) was undertaken, based on which the national guidelines on management of RTIs/STIs was formulated.

OBJECTIVES

The overall objective of the RAS was to assess the existing management practices on reproductive health, including RTIs/STIs in public health facilities, their service readiness, and build community-based supportive evidence for formulating tailor-made guidelines.

The major focus of this paper is on the community-based evidence in relation to perceptions, healthcare seeking behaviour of rural men on RTIs/STIs and their expectations on its management at public healthcare facilities.

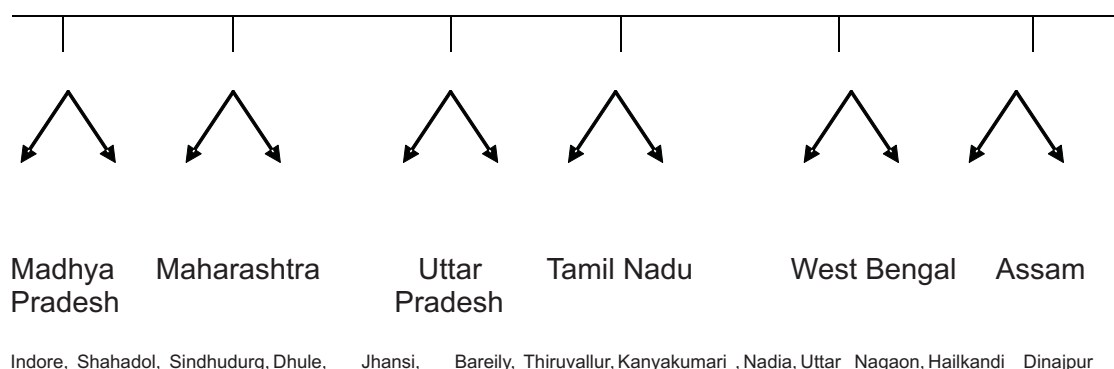
MATERIALS AND METHODS

All the FGDs were conducted in the health facility premises, Anganwadis (Kindergartens) or Yuvak Mandals (youth clubs) after ensuring that the venue was accessible and convenient for the participants. In all, 12 FGD sessions were conducted in the local language, responses recorded and then transcribed and translated into English. The research team comprised trained public healthcare personnel and those with a social background. The moderator, who headed our research team, explained to the participants about the necessity of recording the discussions and assured them of confidentiality. A prior written informed consent was obtained from the participants and their queries, if any, were answered after the discussions. The moderator ensured that there was good interaction within the group and between the group and the moderator.

Sampling

The sampling frame proposed by the International Institute for Population Sciences for RAS was used to assess the overall service delivery in the public healthcare system with regards to RTIs/STIs. One state was selected from each of the six representative zones - the Central, Western, Northern, Southern, Eastern, and Northeastern regions and from each selected state, two districts were selected. The districts were selected based on the performance indicator of institutional deliveries. One district with good institutional deliveries and one district with bad institutional deliveries were chosen. The same districts were chosen for the conduct of 12 FGDs among the selected rural married men in the 20-45 age bracket. The details are as follows:

States from six representative zones



Selection of Participants

To encourage lively and focused discussions, it was decided to deal with smaller groups of eight-ten men at a time. We were liberal in the inclusion criteria, the minimum of which were that all our participants were married men living in village and were in the 20-45 age group.

RESULTS

a. Background Characteristics

The six zones selected have diverse populations, speaking different languages and belonging to different cultures. Although majority of them were Hindus they differed in their culture and traditions. All of them had access to the healthcare facilities. The age range of the participants (20-45 years) was broad, wherein they represented early, middle and late adulthood and include low as well as middle-income group. All were residents of the village and were literate too.

1. Signs and Symptoms of STIs/RTIs

Almost half of the participants from each group from the Western, Eastern, Northeastern, and Southern zones were able to name some STIs like syphilis, gonorrhoea and AIDS which

they referred to as garami (syphilis) and parama (urethral discharge) and HIV respectively in the local language. Besides these participants were able to identify the problems associated with RTIs/STIs in men by their symptoms like dysuria, white discharge through urine, ulcers, foul smelling discharge, swelling and itching in the genitals, groin, and scrotum. Less than half of the participants from each group also attributed symptoms related to appendix, irregular bowel habits, liver problems, white patches on the skin, asthma, tuberculosis, cancer, haemorrhoids, and even impotency to reproductive tract infections.

Men from the Northeast and North referred to RTIs/STIs as guptrog (hidden disease) which means that these cannot be disclosed to others. Those from the North felt that guptrog means impotency, which they would not reveal to others. One group replied that women were in a better position to answer this question since they knew more about RTIs. This group also felt that excessive bleeding and white discharge were related diseases in women.

Modes of Transmission of RTIs/STIs

Sexual Route

Regarding the causes of STIs, almost all groups were aware of the

consequences of having multiple sexual partners and unprotected sex. Some participants across the groups spoke about extramarital relations of husbands and wives and visiting sex workers in red light areas as the probable reasons of RTIs.

A participant from the North mentioned that 'less brained' individuals who had sex with wife during menstruation could have caused such diseases. Many of them identified correctly high risk sexual behaviour for contracting HIV/AIDS. However, the same was not true regarding RTIs/STIs.

When one group in the South was asked about the causes of HIV/AIDS they answered that it was due to multiple sexual partners and unprotected sex. They called HIV/AIDS as a man-made killer disease which has been around for a long time but is known of only now. All of them had poor knowledge about HIV/AIDS. They felt that sex workers were responsible for giving the disease to men.

One group from the East called AIDS as well as syphilis a rented disease because it was acquired from a 'rented' place like a brothel or hotel. They were aware that it did not spread by casual touch, eating, drinking or by mosquito bites. They said 'rural people are not spoilt as compared to city people' and sexual relations outside marriage were generally abhorred by the society. Men who frequented red light areas or had multiple sexual partners, women who were commercial sex workers (often referred as 'bad women') and truck drivers were perceived as groups vulnerable to RTIs/STIs. A quarter of them from this group said that those who were 'always after sex could also get this disease'. They further added that occasional sex might not give rise to infection but sex with a bad woman or those having poor resistance power, were vulnerable.

Non-sexual Route

Besides the sexual route as the chief mode of contracting these diseases, the participants also knew about the non-sexual routes like infected blood, needles and syringes, reuse of shaving blade and transmission from the mother to the child. However, a few thought it spread by excess heat in the body, unclean genitals and undergarments, improper sanitation, open air defecation, long-term use of common toilets, bathing in a common lakes or ponds especially with undergarments on, toiling with heavy work, cutting hair and beard in saloons.

One group from the South mentioned that living with cattle could lead to RTIs whereas another from the Central Zone felt that abortions carried out by illegal providers could cause AIDS. Participants from the North also blamed home deliveries in unhygienic conditions by dais, but did not link them directly with RTIs/STIs.

Inter-Spousal Communication on the Issue

Men Sharing about Their Infections with Wives

There were varying responses on this. A few participants from the South strictly excluded their wives or family members in discussions related to their sexual health and preferred to share it with their close friends or doctor or the local health inspector only. Those from the North shared that they rarely discussed about their sex diseases with their spouses. Villagers were hesitant about discussing such issues even amongst one another as against educated couples in cities who are more open. One group from the East too had the same opinion because they feared that it could lead to family problems, but another group from the same region chose to share it with their wives and friends.

Men's Perceptions about Women Sharing about RTIs/STIs with Their Husbands

Participants from the West felt that women rarely discussed these problems with men. Participants from the Central and Western Zones felt that women tended to suffer more from RTIs, which presented with common symptoms like white discharge and weakness (kamjori). Participants from the Central Zone opined that educated and bold women shared their problems immediately and easily with their partners whereas illiterate women refrained from discussing because they were shy. 'Those women who do not hesitate tell about the problems immediately. Women feel shy because of illiteracy. If they were educated, they could speak'. They also felt that women do not speak out immediately, thinking that the problem will resolve spontaneously and when things deteriorate, they seek medical advice. Some still continue to bear the pain silently. They said '20 per cent women tell quickly, 80 per cent do not tell and go to doctors when the problem increases. They ought to tell their husbands if there is any problem'. Participants from the East shared that women sometimes abstained from sharing about their symptoms since they feared that their in-laws might blame them.

Consequences of RTIs/STIs

When asked about the consequences of untreated RTIs/STIs, some participants answered that it could be dangerous to life leading to slow death, damage to all body parts, possibility of a mental disorder, cancer, nervous breakdown, loss of weight and transmission of infection to wife and child.

Treatment Options

Participants sought treatment for RTIs/STIs from an array of services like the primary health centres (PHCs), sub-

centres or district hospital, private practitioners, ayurvedic and homoeopathic practitioners, faith-healers, black magicians, local medical shops and self-medication through herbs.

Only the participants from the Northeast mentioned that one must visit a dermatologist for problems related to RTIs/STIs. Some participants from the Central Zone said that treatment for RTIs/STIs was available in the nearby PHC where they would go for treatment. In general, if participants did not get cured in the PHC, then many of them either went to specialists at the district hospital or to private practitioners or preferred to go to faith-healers and informal treatment providers since it was less expensive. One group from the South said that they went to Siddha doctors whose advertisements feature in the local newspapers. Muslim participants from the North mentioned about going to Miyan (religious priests) for treatment, but felt that they were dishonest who deceived in the name of god. A few other participants from the North went to quacks in case health problems troubled at odd hours or in case the government facility was very far. For most other participants from almost all the states gave a negative feedback about their experiences with the government hospitals that acted as a deterring factor in accessing healthcare from public healthcare set-ups. "The available health facilities are not that much satisfactory," they said.

Some participants from the South however argued that the PHC was meant for the poor and the government was trying to do its best given its limitations. One group from the Central Zone was satisfied with the services from the PHC and said that the doctors examined the patients in a separate room and gave a patient ear to their complaints. "There is no difference in the behaviour of private and government doctors. It is good. There is

a cabin in which there is one consultation at a time while the others wait. Yes, privacy is maintained. Confidentiality is kept about RTIs/STIs." Some participants from the North gave a positive feedback about the behaviour of the doctors in the PHC. They added that if they spoke politely with the doctors they too reciprocated and if they complained the doctors would not like it.

Those who went to private practitioners were assured of privacy and confidentiality. Doctors listened to their complaints patiently, examined them, advised tests if required and gave them effective medicines that resulted in complete cure in a short span. Many participants expressed satisfaction about the services but complained about the amount of money spent in the private set-up. A few participants from the South mentioned that to extract money, some private practitioners threatened them that "they would die if they did not take treatment for RTIs/STIs." Some participants from the West shared that in 90 per cent cases they hide about their STIs and if at all, they would prefer private practitioners because they are assured of privacy and confidentiality since no record is maintained about their visit unlike a PHC. They even added that, "we would go anywhere if privacy were maintained".

Participants from the North said that when they went to a PHC, they waited for all the patients to go before they explained their problem about RTIs/STIs to the doctor. If need be, they would wait till the evening, but speak to the doctor only in private. This is because they felt too shy to talk in front of the female patients and feared that the doctor might remark. "If you are feeling shy, then stay at home. Why did you come for treatment?" These participants believed that rural people were hesitant about sharing their problem with the doctor as against the urban population who were more forthcoming.

Treatment of Spouse

Participants from the South said that they would take their wives for treatment if they had RTIs/STIs while some were not aware of it. Some participants from the Central Zone said that if women also spoke about their problems, men would realise the need for treatment. Some also said that they would take their wives for treatment to a private practitioner to maintain privacy. Participants from the Central Zone felt that women had the freedom to seek healthcare services in their area. "She could go independently to a healthcare centre if needed. However, majority of them felt that women generally would go only when their condition worsened. Some of them felt that educated women go on their own without much delay as against their uneducated counterparts. Participants from the North opined that if their wives were suffering from any RTI/STI they would get her treated from the doctor and would ensure that complete treatment was taken irrespective of cost.

Cost of Treatment

With regards to cost, our samples could spend in varying proportions, depending on their financial condition. Although they did not have to spend anything significant at government hospitals participants were dissatisfied to a large extent with the service provided there and therefore resorted to other sources for treatment. Participants from the North complained that though they had to pay only Re 1 at the PHC for getting prescriptions from the doctor, the medicines had to be purchased from outside on their own. "In government hospital though less than 50 per cent fee is required as compared to private hospitals, medicines are hardly ever available there," they complained.

Some people went to faith-healers or traditional healers wherein they had to spend Rs 20-30 but often complete cure was never guaranteed. "Quacks are

taking money for the treatment where we have to pay only Rs 5-10." Some others went to local medical shops for medicines but chronic cases could not be treated this way. Some people even resorted to self-medication with herbs but landed up going to an allopathic doctor when it became severe. They had to spend Rs 50-5,000 with a private practitioner depending on the problem but were happy with the outcome.

Participants from the Central Zone shared that some middle-class people had to mortgage or sell their land/ornaments to arrange money, while the labour class chose to labour it out for the same. "Mostly the labour class people are here, especially farmers, who do not have that much money. In villages, land also is sold for the treatment. They are willing to pay money. The people in villages also have such feeling that even if he is poor, he tries to get rid from the diseases and for that he tries his best, to the extent of selling his ornaments or mortgage his field; but try his best and get treated," they averred.

According to the participants from the North East, the cost for an average episode of RTI/STI may amount to Rs 400–500 and in some cases it would go up to Rs 1,000 including the doctor's fee and medicines in a private set-up.

Gender of the Treatment Provider

All the participants were more comfortable to discuss their problems with a male doctor. One group each from the West and South said that they discussed their problems with a male health worker/local health inspector but refrained from going to the doctor in the PHC who is of the opposite gender. Another reason for preferring the private practitioner was that they could approach a male doctor of their choice. Participants from the North shared that if both male and female doctors were present in their PHCs, they would prefer to go to the male doctor.

Prevention of RTIs/STIs

Use of condom topped the chart as the most important prevention strategy with almost all the FGD groups. Participants had heard of condoms and were well aware that it was available in medical shops and hospitals. Participants from the North also mentioned about condoms being available in grocery stores and with the ANMs and Aanganwadi workers. The group from the Central Zone acknowledged that condoms were freely available in their health centres. "Yes, stock of condom is available at the health centre, however some people purchase from medical stores."

One group from the South named different brands of condoms like Nirodh, Kohinoor, Moods and Kama Sutra. They perceived that the costly varieties of condoms were better in comparison to the ones distributed by the government free of cost. The same group also said that they had all used condoms in the past for varied reasons like prevention of pregnancy, for a trial purpose prior to marriage, when visiting a sex worker or when the women insisted on its use. However, one person opined that use of condom affected orgasm and it was not worth having sex with condom on. One group from the Central Zone opined that educated people in cities use condoms while illiterate people in villages did not use it. "It is used in cities but very few persons in villages use it." Participants from the North shared that a condom averted pregnancy. One participant remarked that "condom is used so that women don't become mothers, for this condom should be used when she is menstruating." They were also aware that it aided in preventing AIDS.

When FGD groups in the South were asked about the need of condom after sterilization, they were confused about. Yet they correctly said that a condom might be useful in case of genital infections to protect the wife from such

infections. However, one group added this could lead to marital disharmony and unnecessary suspicions. Participants from the East said that they did not use condoms if their wives underwent sterilization procedure. Participants from the North-east added that use of condom after sterilization of the wife might lead to the wife suspecting infidelity or presume that he was suffering from some major illness. However, one person from this group shared that in such cases the man must explain to his wife the exact problem and avoid direct sexual contact.

Participants listed some other prevention strategies for RTIs/STIs like having a monogamous relationship, avoiding sex with “bad women”, avoiding sexual contact with a person suffering from this disease, keeping utensils and clothes separate of the infected person, using disposable syringes and needles, using screened blood for transfusions, using new blade for shaving at a barber's shop, treatment of the partner, avoiding abortions by illegal providers, avoiding deliveries by untrained dais, maintaining personal hygiene, avoiding sex during menstruation and spreading awareness about RTIs/STIs. Apart from some of the above preventive measures, participants from the North-east mentioned that people must develop a feeling of hatred towards sex workers or such behaviour to curb the spread of this disease.

Suggestions by the Focus Groups

Participants outlined a list of their woes at public health facilities and demanded the following:

- Assured privacy and confidentiality for patients.
- Availability of doctors, preferably of the same gender.
- Availability of diagnostic tests and effective medicines.
- Maintenance of cleanliness at the health facility.

- Prevent long waiting hours that leads loss of wages for daily wage earners.
- Accessibility of services, as many visits may be needed for cure.
- Sometimes money is required to be paid for the medicines at the PHC but it must not be too expensive.

The above-mentioned expectations go well with the lacunae at healthcare facilities which are being described below under the section on triangulation.

Triangulation of Findings from FGDs with In-depth Interviews of Programme Managers, Healthcare Providers and Facility Survey

The FGD data in fact helped triangulate the results obtained from the questionnaire survey tools used for facility survey and healthcare providers survey along with in-depth interviews of key informants with programme managers. Findings from the facility survey revealed that about 50 per cent of the facilities had no sign announcing the availability of services at the facility, visual and auditory privacy was available in approximately 40-60 per cent facilities, lab tests and antibiotics especially higher antibiotics were almost negligible except at district hospitals. The attendance at the PHCs of females (1,700 on an average) was more than the males (1,500 on an average) and among them 12 per cent females reported for one or more symptom of RTI/STI compared to only 6 per cent of men who mainly reported for burning micturition (46%), urethral discharge (33%) and genital pruritis/ulcer (9%).

The perception of the programme managers was that RTIs/STIs were not the focus of any awareness programmes of HIV/AIDS. An only limited focus RTIs/STIs programme got was during family health awareness campaigns. General perception was that skilled manpower was not available

at most of the facilities and there was a high turnover of doctors. The medical officers managed these cases based on symptoms alone without any clinical examination. Their knowledge on various drug regimens for management of RTIs/STIs was poor. IEC material specific to RTIs/STIs was not available. The laboratory testing facilities at the centres was also almost non-existent.

DISCUSSION

There were a number of similarities between the zones on the issues related to symptoms, risk factors, and the relation of HIV/AIDS to RTIs/STIs and that people often resort to home remedies and traditional medicines. Participants often referred to HIV/AIDS while answering questions related to RTIs/STIs. Given the plethora of HIV/AIDS awareness programmes implemented by different government and NGOs, participants well remembered the modes of transmission of HIV/AIDS, vulnerable groups, and prevention strategies. In general, they were aware of all routes of transmission of HIV and inclined to equate these routes of transmission synonymously with those of RTIs/STIs.

From our discussion, we perceived that participants considered any problem related to genitals or the reproductive tract to be a sexual disease that is transmitted by sex with a wrong person or with improper hygiene and sanitation. Although some participants recalled that infections in the reproductive tract could be due to lack of personal hygiene, yet by and large, they felt that RTIs/STIs implicitly speak about a person's sexual behaviour.

Participants portrayed a sex worker as a bad woman, who is a reservoir of different sexual diseases and responsible for spreading the infection to men. Sex within marriage is considered to be safe and free of risk. They blamed certain groups of people based on their sexuality or sexual

behaviours and practices. This has implications on the fact that some people may not personalise the risk of contracting an infection even though they may be engaging in risk behaviours. Misconceptions prevailed everywhere and there was a variety in each zone.

According to men, women are generally conditioned to bear their health problems silently till they become intolerable. They refrain from discussing about it with their partners thereby delaying their treatment and that educated women are more liberal and forthcoming in this respect. Knowledge about simultaneous spouse treatment in case a person is suffering from RTIs/STIs is still lacking. In a community-based study in rural Tamil Nadu, none of the symptomatic (suggestive of RTIs) women and only 5.7 per cent of the symptomatic men were advised to have their spouses examined and treated for a possible infection (Santhya 2002).

Most of the participants knew about condom as an effective way to prevent STIs, AIDS and pregnancy although intercepted by lot of myths and misconceptions. But knowledge about condom use as a preventive mechanism has not necessarily resulted in behavioural changes. Studies also show that incorrect knowledge and misconceptions such as use of condom to prevent pregnancy rather than to prevent both STIs and pregnancy are major barriers to consistent condom use (Balaiah et al 1999, Sharma, et al 1997). Although condom promotion is not new to our country, it never gained popularity as a contraceptive method for a variety of reasons until the HIV/AIDS pandemic, as one of the most effective ways to prevent infection. In other words, the condom became famous due to HIV/AIDS, but unfortunately it got associated with morbidity and promiscuity. Studies show that unmarried men and women are more likely to use condoms than their married counterparts (Roth et al 2001).

There is a lot of social stigma associated with RTIs/STIs. Participants prefer to go to allopathic private practitioners despite having to spend more money because they are assured of good treatment and cure. Faith-healers, quacks, ayurvedic and homoeopathic doctors and black magicians are not completely unheard of, although they are not very popular. There are different opinions about the quality of care at the government health set-ups and only the Central and South Zones are satisfied with the facilities. Participants in all the groups have placed a very high value to privacy and confidentiality vis-à-vis seeking treatment for RTIs/STIs. The gender of the service provider is also crucial to the participants. The data make evident that participants have a set of expectations that play an important role in deciding the healthcare set-up to be approached for treatment. The poor choose private providers for a variety of reasons as well. Studies have found that a common complaint of client attending clinics for STDs is lack of privacy and confidentiality (RCH Rapid Household Survey 2003). The findings from the RAS that only 6-12 per cent of male and female general clients report for any RTI/STI problem reiterated the findings of the NACO which estimated that only 5-10 per cent of patients with STIs present to public sector healthcare. It is important to note the fact that participants in many instances were referring to their treatment seeking behaviour not only with regard to RTIs/STIs, but for other common ailments as well.

The overall low awareness, misconceptions and the views of the programme managers reveal that not enough attention has been devoted to spreading information on RTIs/STIs. The gaps in the knowledge and attitude demands that our IEC messages should focus more on eliminating myths and misconceptions and BCC programmes are required for behaviour change in terms of effective condom

use and empowering women to seek services and de-stigmatising the disease. The attendance at the healthcare facilities of men also reveals the stigma associated with the disease. Inadequate knowledge about partner management, preference of private practitioners clubbed with information from healthcare providers and programme managers about untrained staff and inadequate investigation facilities and poor reporting system raises issues about the quality of care, which needs to undergo a phenomenal change and gain the trust and support of the rural masses thereby improving the health seeking behaviour.

ACKNOWLEDGEMENT

The authors acknowledge the encouragement received from the Indian Council of Medical Research (No. NIRRH/MS/9/2008), the Ministry of Health, Government of India for identifying the institute to conduct the study, the WHO for funding, the collaborating institutes for networking and all the men and women who participated in the FGDs and Sheetal Goel for consultancy in analysis and report writing.

REFERENCES

1. Balaiah, D., D.D. Naik, R.C. Parida et al. (1999) Contraceptive Knowledge, Attitude and Practices of Men in Rural Maharashtra. *Advances in Contraception*, 15: 217-34.
2. Carolina Population Centre (1997). North Male Reproductive Health Survey 1995-1996. Carolina Population Centre, North Carolina (POPLINE Document Number: 142818)
3. Ganguli, D.D., V. Ramesh, S.A. Zaheer et al. (1985) Profile of Gonorrhoea in Males. *Indian Journal of Sexually Transmitted Diseases*, 6: 44-46.
4. Joseph, A., R.A. Srikanth, S. Abraham et al. (1998) Sexual

- Behaviour: Older Husbands, Younger Wives. (Paper) Men as Supportive Partners in Reproductive and Sexual Health, Kathmandu, 23-26 June 1998.
5. Ramasubban, R. and B. Rishyasringa.(2000) Treatment Seeking by Women in Mumbai Slums. (Paper) Reproductive Health in India: New Evidence and Issues, Pune, 28 February-1 March 2000.
 6. Ravi K. Verma, G.Rangaiyan, R. Singh et al (2001):A Study of Male Sexual Health Problems in a Mumbai Slum Population *Culture, Health & Sexuality*, Vol. 3, No. 3 (Jul.-Sep., 2001), p.339-352.
 7. RCH Rapid Household Survey (2003), IIPS, Mumbai.
 8. Roth, J, S.P. Krishnan and E. Bunch (2001). Barriers to Condom Use: Results from A Study in Mumbai (Bombay), India. *AIDS Education and Prevention*, 13(1): 65-77.
 9. Santhya, K.G. (1999) Factors Affecting Reproductive Tract Infections in Southern India. Ph.D. Thesis (Ph D), Flinders University, South Australia.
 10. Santhya, K.G. (2002) Reproductive Tract Infections and Sexually Transmitted Infections: Unpublished Draft Working Paper.
 11. Sharma, V., S. Dave, A. Sharma et al. (1997). Condoms: Mis-use = Non-use: The Condom Equation in Gujarat, India. *AIDS Care*, 9(6): 707-13.
 12. Y Uppal S Garg, B Mishra, VK Gupta et al (2007). Prevalence of Reproductive Morbidity amongst Males in an Urban Slum of North India, *Indian Journal of Community Medicine*, Vol. 32, NO.1, 54-58.

PERINATAL MORTALITY AND ITS RISK FACTORS IN LUDHIANA: A POPULATION-BASED PROSPECTIVE COHORT STUDY

A.I. Benjamin*, Paramita Sengupta** and Shavinder Singh**

ABSTRACT

A prospective, cohort study was carried out to determine the perinatal mortality rate (PNMR) among the population of Ludhiana in Punjab. The study population comprised 20,000 urban, 20,000 urban slum and 10,000 rural residents of the field practice areas of the Department of Community Medicine, Christian Medical College, Ludhiana (CMCL). The study cohort comprised 1,551 pregnant women detected and followed up till 7 days after the termination of the pregnancy, during the 2-year period from January 2006 to December 2007. Out of the 1,551 pregnant women identified, 80 suffered an abortion while 40 were lost to follow-up, hence 1,431 pregnant women from the cohort completed the study. Out of 1,431 total births, 33 were stillbirths. Of the 1,398 live-born, 40 suffered early neonatal (first week) deaths, thereby totalling 73 perinatal deaths. Hence, the PNMR was 51/1000 total births. Mother's age < 20 years, illiteracy, lack of regular paid employment, nuclear families, urban slum-dwellers and poverty are observed to be important socio-economic determinants of perinatal mortality. Multigravidity and maternal anaemia are significant ante-natal risk factors, while spacing < 3 years and lack of ante-natal care including tetanus and anaemia prophylaxis also carry a higher risk of perinatal mortality. LBW, gestational age < 37 weeks and delivery conducted by untrained hands are observed to be significant intra-natal risk factors. Promoting female literacy, late marriages, spacing and limitation of childbirths, improving maternal nutrition and providing universal ante-natal, intra-natal and post-natal care are priority actions that can reduce perinatal mortality. But here, what is needed is adoption of a "risk approach" where the most vulnerable, the poor and the marginalised are targeted for priority care.

Key Words : Perinatal Mortality, Risk Factors, Prospective Cohort Study.

Globally, over 3.3 million stillbirths and over 3 million early neonatal deaths are estimated to occur annually. And most of these deaths occur in the developing world. In 2000, of the over 6.3 million perinatal deaths occurred worldwide, almost all of them, a full 98 per cent, happened in the developing countries and out of which 27 per cent took place in the least developing countries. In developing countries stillbirths represent more than half of perinatal deaths, while in developed countries, where interventions have largely

eliminated excess early neonatal mortality, over 6 out of 10 perinatal deaths are stillbirths. More than one-third of stillbirths occur intra-partum, and are largely avoidable. Deaths occurring in the perinatal period are largely due to obstetric causes.¹ Perinatal mortality rate (PNMR), therefore, is the most sensitive index of the quality of MCH services.

The PNMR is five times higher in the developing than in the developed regions: 10 deaths per 1,000 total births

*Professor, Department of Community Medicine, Christian Medical College, Ludhiana-141008; ** Department of Community Medicine, Christian Medical College, Ludhiana-141008, Punjab.

in the developed regions, while 50 per 1,000 in the developing regions and over 60 per 1,000 in the least developed countries.¹ SRS estimates (2003) put the PNMR in India at 33/1,000 total births, about 36/1,000 for rural and 20/1,000 for urban areas.² The alarmingly high rate of perinatal mortality in the country makes it a major health problem, necessitating a precise definition of the factors which contribute to its high incidence.

Most of the studies on pregnancy outcome in the country are hospital-based and do not reflect the true situation in the community. Moreover, there is a dearth of longitudinal studies on the same.

AIMS AND OBJECTIVES

The present study was conducted to find out the magnitude and the major risk factors of perinatal mortality in the study population of Ludhiana, Punjab.

MATERIALS AND METHOD

All the pregnant women in the field practice areas (urban, rural and slums) of the Department of Community Medicine of the Christian Medical College, Ludhiana, identified and delivered in the two-year study period from January 1, 2006 to December 31, 2007, formed the study cohort. The women joined the study at varying gestational period, depending on the time of their identification and registration, and were followed up till 7 days after the termination of their pregnancies. Of the approximately 50,000 population (20,000 urban, 20,000 slum and 10,000 rural) 1,551 pregnancies were detected during the study period, out of which 80 were aborted and 40 went to their parental home for delivery during the study or were otherwise lost to follow-up. Consequently, 1,431 pregnant women completed the study.

According to WHO standards, anaemia in pregnancy is present when the haemoglobin concentration in the peripheral blood is 11gm/dl or less. During pregnancy the plasma volume expands (maximum around 32 weeks) resulting in haemoglobin dilution. For this reason, haemoglobin level below 10gm/dl at any time during pregnancy is considered anaemia (WHO 1993, CDC 1998).³ Hence, for this study haemoglobin level of < 10 gm/dl at any time during the pregnancy was taken to indicate maternal anaemia.

The gradation of body mass index (BMI) as normal (18.50–24.99), overweight (≥ 25.00) and underweight (< 18.50) was as per WHO classification.⁴

The collected data were analysed using Epi-Info version 6 software.⁵ Data analysis included calculation of the perinatal mortality rate in terms of perinatal deaths per 1,000 total births (live + stillbirths), the relative risk and its 95 per cent confidence interval.

RESULTS

Out of 1,551 pregnant women identified for the study, 1,431 completed the study. Hence, the loss to follow-up was 7.7 per cent.

Out of the total of 1,431 births studied, 33 (2.3%) were stillbirths and 1,398 (97.7%) livebirths. There were 40 early neonatal (first week) deaths. Hence, the total number of perinatal deaths was 73, and the PNMR was, therefore, 51/1000 total births.

Table 1 shows the perinatal outcome in relation to some socio-demographic factors.

Maternal age: Mothers aged < 20 and ≥ 30 years were found to have suffered higher perinatal mortality than those aged 20-29 years. The < 20 years old mothers were found to be at significantly higher risk of perinatal mortality, with a relative risk of 2.61 [CI

1.37, 4.97] in comparison to the 20-29-year-old mothers.

Maternal education: The PNMR was highest (64.9/1000 total births) in the illiterate mothers, and decreased with higher maternal education status. The illiterate mothers were at significantly higher risk of perinatal mortality, with RR of 1.75 [CI 1.03, 2.98], as compared to those with higher level of education.

Maternal occupation: Housewives suffered a higher perinatal mortality (51.5/1000) as compared to those who worked outside the home (43.9/1000). However, the difference was statistically not significant.

Family type : Mothers of nuclear family suffered significantly higher perinatal mortality (PNMR 73.9/1000, RR 1.80 [CI 1.15, 2.82]) as compared to those living in a joint family (PNMR 41.1/1000).

Residence : The PNMR was highest in the slum dwellers (76.4/1000), followed by the rural (53.3/1000) and the urban (27.2/1000). The slum dwellers were found to be at a significantly high perinatal mortality (RR 2.80 [CI 1.62, 4.86]) in comparison to the urban mothers.

Income: The poor, with monthly per capita income (MPCI) of less than Rs 500, suffered the highest perinatal mortality (76.4/1000), followed by the better-off, those in the MPCI range of Rs 500–999 (46.4/1000) and the rich, those with MPCI of Rs 1,000 or more (28.9/1000). The poor suffered significantly higher perinatal mortality as compared to the rich (RR 2.64 [CI 1.42, 4.90]).

Table 2 shows the perinatal outcome in relation to some ante-natal factors.

Gravidity: The perinatal mortality was highest in the multigravidae (73.9/1000), followed by the primigravidae (58.4/1000), and lowest

(38.9/1000) in the second/third gravidae. The multigravidae were at significantly higher risk of perinatal mortality (RR 1.90 [CI 1.09, 3.33]) as compared to the second/third gravidae.

Ante-natal visits: 59.9 per cent mothers had three or more ante-natal visits, 31.1 per cent had 1-2 visits, while 9 per cent did not have any ANC visits to a healthcare facility. The highest perinatal mortality (69.8/1000) was experienced by those who did not have any ANC visits to a healthcare facility, followed by those who had <3 visits (51.7/1000) and the lowest perinatal mortality (47.8/1000) was found in those who had three or more visits, but the differences were statistically not significant.

Tetanus prophylaxis: 96.5 per cent of the delivered women had received two doses/booster dose of tetanus toxoid. The PNMR amongst those who did not receive complete tetanus prophylaxis was 80/1000 as compared to 50/1000 in those who had received complete tetanus prophylaxis. However, the differences were statistically not significant (RR 1.60 [CI 0.61, 4.21]).

Anaemia prophylaxis: 92 per cent of the delivered women had received fersolate-folate tablets during the ante-natal period. The PNMR in those who did not take anaemia prophylaxis was 60.3/1000 as compared to 50.2/1000 in those who had received the tablets. However, the differences were statistically not significant (RR 1.20 [CI 0.56, 2.56]).

Maternal anaemia: 36 per cent of the mothers had haemoglobin < 10 gm/dl at some time during the ante-natal period. They experienced significantly higher perinatal mortality (97.1/1000) than those with haemoglobin 10 gm/dl or more (25.1/1000), and the difference was statistically highly significant (RR 3.87 [CI 2.39, 6.26]).

Spacing: (428 primigravidae excluded, hence n = 1003). Those with spacing

(interval between the last childbirth/abortion and the present conception) of less than 3 years experienced higher perinatal mortality (51.6/1000) than those with spacing of 3 years or more (35.1/1000), but the differences were statistically not significant (RR 1.47 [CI 0.70, 3.10]).

Table 3 shows the perinatal outcome in relation to some intra-natal factors.

Birth weight: The low birth weight (LBW) babies (birth weight < 2.5 kg), suffered a significantly higher perinatal mortality (PNMR = 179.3/1000, RR 8.07 [CI 5.09, 12.78]) as compared to the normal birth weight babies weighing 2.5kg or more (PNMR = 22.2/1000).

Birth attendant: Those delivered by untrained *dais* (traditional birth attendants or TBAs) suffered a significantly higher perinatal mortality (PNMR 214.3/1000, RR 5.14 [CI 2.59, 10.22]), followed by those delivered by trained *dais* (PNMR 49.9/1000) and those delivered by doctor (PNMR 41.7/1000).

Delivery type: Those born by normal vaginal delivery suffered a slightly higher perinatal mortality (52.4/1000) in comparison to those born by caesarean sections (40.7/1000). However, the differences were statistically not significant (RR 1.29 [CI 0.60, 2.76]).

Gender of the baby: Male babies suffered a higher perinatal mortality (60.7/1000), as compared to female babies (39.6/1000), though the difference was not statistically significant (RR 1.53 [CI 0.96, 2.45]).

Gestational age of the baby at the time of birth: Babies with gestational age <37 weeks at the time of birth experienced significantly higher perinatal mortality (PNMR 280/1000, RR 8.28 [CI 5.41, 12.68]) than those with gestational age 37 weeks or more (PNMR 33.8/1000).

DISCUSSION

The PNMR in our study population was 51/1000 total births, which is in agreement with the WHO data for Asia¹ as well as that reported by Agarwal *et al.*⁶ An ICMR study⁷ reported a PNMR of 65/1000 births in ICDS project areas of urban slums in Delhi. Kapoor *et al.*⁸ reported PNMR of 59/1000 births in 25 Anganwadi centres of urban Lucknow.

In our study a higher PNMR was found in mothers who were either too young (<20 years old) or too old (≥30 years old), with the former group being the most vulnerable. Our findings are in agreement with those of Kapoor *et al.*⁸ in Lucknow and of Kusiako, Ronsmans & Vaan der Paal⁹ in Matlab, Bangladesh. The highest perinatal mortality was observed in the illiterate, the housewives not working outside the home, those in nuclear families, the slum dwellers and the poor. Our findings are in agreement with those of other studies in the country and other developing countries.^{8, 10-12} Illiteracy, early marriage resulting in early childbirth, lack of regular employment, are all facets of the poverty syndrome and are inter-related. Increased levels of mothers' education were observed to be associated with improved chances of child survival in a wide range of the developing countries.¹⁰ Education is the dimension of socio-economic level that is most strongly and consistently associated with health among women and their children.¹¹ Our findings emphasise the priority need for encouraging female literacy, which by itself is expected to provide multiple benefits like delaying the age at marriage and, consequently, the age at childbirth and also provide better chances for regular, paid employment and thereby help in mitigating poverty.

In rural Tamil Nadu, nuclear families are found to be significantly associated with higher perinatal mortality.¹² The traditional joint family system, with its benefits of strong family support for the

pregnant woman by other adult female members of the family, is fast disappearing for various reasons even in rural areas where it was almost universal. Nuclear families lack such family support, which may be the reason for higher perinatal mortality in nuclear families.

The multigravidae, those with spacing <3 years, those without any antenatal visits to a healthcare facility, those who had not received tetanus and anaemia prophylaxis and those with anaemia during pregnancy experienced a higher perinatal mortality. Out of these maternal factors multigravidity and maternal anaemia were observed to be most strongly associated with perinatal mortality. Other researchers¹²⁻¹⁴ have also found similar association in their studies, though Kapoor⁸ and Sinha¹⁵ have found the primiparae to be at highest risk of perinatal mortality followed by the multiparae. Lack of ante-natal check-ups has been shown to be associated with increased perinatal mortality^{8, 13-16}. Our findings underscore the need for provision of health education and MCH services like family planning to encourage spacing and limiting births, and provision of ante-natal services including anaemia prophylaxis.

A minuscule of 7 per cent of the babies born were preterm, with gestational age < 37 weeks. Bamji *et al*¹⁶ also found the same proportion of preterm babies in Andhra Pradesh. LBW babies, babies with gestational age < 37 weeks and those delivered by untrained *dais* suffered significantly higher perinatal mortality. LBW babies contributed to 64.4 per cent of the total perinatal mortality. More boys (54.1%) than girls (45.9 %) were born in the study population during the study period, the sex ratio at birth being 848.8/1000. The sex ratio at birth is slightly favourable to boys. This means that more boys are born as compared to girls. This is a natural phenomenon. The sex ratio at birth is usually between 940-950 girls per 1,000 boys. Our study demonstrates the alarming situation of

the adverse sex ratio in this part of the country. The child sex ratio for Ludhiana district is 817 girls/1000 boys as per the Census 2001.¹⁷

The PNMR was also higher in the male babies and in those born by normal vaginal delivery. Bhardwaj *et al*¹⁸ also found higher perinatal mortality among male babies. The lower perinatal mortality amongst those who were born by caesarean sections may be a reflection of the fact that the operative procedure is carried out in hospitals/nursing homes by skilled doctors. Our study demonstrates the need to encourage institutional deliveries. It is also encouraging to note that the PNMR in those delivered by trained *dais* was much less than in those delivered by untrained *dais*, emphasising the importance of training of untrained *dais*. Our study also emphasises the need for concerted efforts to reduce the incidence of preterm and LBW babies.

CONCLUSION

The study shows that the perinatal mortality in the study population is unacceptably high at 51/1000 total births. Mother's age < 20 years, illiteracy, lack of regular paid employment outside the home, nuclear families, residence in urban slums and poverty are observed to be important socio-economic determinants of perinatal mortality. Multigravidity and maternal anaemia were identified as significant ante-natal risk factors for perinatal mortality. Spacing <3 years and lack of ante-natal care including tetanus and anaemia prophylaxis also carried a higher risk of perinatal mortality. LBW, gestational age < 37 weeks and delivery by untrained *dais* are observed to be significant determinants of perinatal mortality.

Concerted efforts in the social, economic and healthcare sectors are required to reduce perinatal mortality. Promotion of female literacy, delaying the age at marriage and the age at first childbirth, spacing and limitation of

childbirth, facilitating employment of women, improving maternal nutrition and provision of universal ante-natal, intra-natal and post-natal care by trained personnel to all pregnant women are areas where priority action is required, directed particularly at the most vulnerable and "at risk" poor, the slum-dwellers and the marginalised.

REFERENCES

1. World Health Organization, Geneva (2006): Neonatal and Perinatal Mortality: Country, Regional and Global Estimates, p. 20.
2. Government of India (2005): Sample Registration System Statistical Report 2003. Report No. 2 of 2005.
3. Dutta DC (2004): Textbook of Obstetrics Including Perinatology and Contraception. 6th edition, New Central Book Agency (P) Ltd., Kolkata, p. 262.
4. World Health Organization, Geneva (2000): Obesity: Preventing and Managing the Global Epidemic. Report of a WHO Consultation. *WHO Technical Report Series, No. 894*, Table 2.1.
5. Dean AG, Dean JA, Coulombier D, Brendel KA, Smith DC, Burton AH *et al* (1994): Epi Info Version 6: A Word Processing, Database, and Statistics Programme for Epidemiology on Microcomputers. Centres for Disease Control and Prevention, Atlanta, Georgia, U.S.A.
6. Agarwal VK, Gupta SC, Roychowdhary S, Narula KK, Sharan R, Pandey RC *et al* (1982): Some Observations on Perinatal Mortality. *Indian Paediatrics*, 19: 233-38.
7. Indian Council of Medical Research (1990): A National Collaborative Study of Identification of High Risk Families, Mothers and Outcome of Their Offsprings with Particular Reference to the Problem of Maternal Nutrition, Low Birth Weight, Perinatal and Infant Mortality and Mortality in Rural and Urban Slum Communities: A Task Force Study. New Delhi, ICMR, p. 45-82.
8. Kapoor RK, Srivastava AK, Misra PK, Sharma B, Thakur S, Srivastava KL *et al* (1996): Perinatal Mortality in Urban Slums in Lucknow. *Indian Paediatrics*, 33: 19-23.
9. Kusiako T, Ronsmans C and Van der Paal L (2000): Perinatal Mortality Attributable to Complications of Childbirth in Matlab, Bangladesh. *WHO Bulletin*, 78 (5): 621-627.
10. Hobcraft J (1993): Women's Education, Child Welfare and Child Survival: A Review of the Evidence. *Health Transition Review*, 3 (2): 159-173.
11. Kramer MS, Seguin L, Lydon J and Goulet L (2000): Socio-economic Disparities in Pregnancy Outcome: Why Do the Poor Fare so Poorly? *Paediatric and Perinatal Epidemiology*, 14: 194-210.
12. Nielsen BB, Liljestrand J, Hedegaard M, Thilsted SH and Joseph A (1997): Reproductive Pattern, Perinatal Mortality and Sex Preference in Rural Tamil Nadu, S. India: A Community Based, Cross-sectional Study. *British Medical Journal*, 314 : 1521
13. Das L, Satapathy U and Panda N (2005): Perinatal Mortality in a Referral Hospital of Orissa – A 10 Year Review. *Journal of Obstetrics and Gynaecology India*, 55 (6): 517-520.
14. Gaddi SS and Seetharam S (2001): A Study of Perinatal Mortality in Headquarters Hospital Bellary. *Journal of Obstetrics and Gynaecology India*, 51 (6): 101-103.
15. Sinha S (2006): Outcome of Ante-natal Care in An Urban Slum of Delhi. *Indian Journal of Community Medicine*, 31 (3): 189-191.
16. Bamji MS, Murthy PVVS, Williams L and Rao MVV (2008): Maternal Nutritional Status and Practices and Perinatal, Neonatal Mortality in Rural Andhra Pradesh, India. *Indian Journal of Medical Research*, 127: 44 -51.

17. GOI, MOHFW, Office of the Registrar General and Census Commissioner of India, and UNFPA (2005): Missing–Mapping the Adverse Child Sex Ratio in India, p. 5.

18. Bhardwaj N, Hasan SB and Zaheer M(1995): Maternal Care Receptivity and Its Relation to Perinatal and Neonatal Mortality – A Rural Study. *Indian Paediatrics*, 32 : 416–423.

TABLE 1
PERINATAL OUTCOME IN RELATION TO SOME SOCIO-DEMOGRAPHIC

Factors	No. of Births (n=1431)	Still Births (n=33)	First Week Deaths (n=40)	Perinatal Deaths (n=73)	Perinatal Mortality Rate	RR [95 % CI]
Mother's Age						
< 20 years	90	07	03	10	111.1	2.61 [1.37, 4.97]
20-29 years	1150	20	29	49	42.6	1.00
30 years or more	191	06	08	14	73.3	1.72 [0.97, 3.05]
Mother's Education						
Illiterate	478	13	18	31	64.9	1.75 [1.03, 2.98]
Up to Middle School	360	10	10	20	55.6	1.50 [0.83, 2.70]
Matriculate and above	593	10	12	22	37.1	1.00
Mother's Occupation						
Housewife	1340	32	37	69	51.5	1.17 [0.44, 3.14]
Working outside	91	01	03	04	43.95	1.00
Family Type						
Nuclear	433	13	19	32	73.9	1.80 [1.15, 2.82]
Joint	998	20	21	41	41.1	1.00
Residence						
Slum	563	20	23	43	76.4	2.80 [1.62, 4.86]
Urban	624	7	10	17	27.2	1.00
Rural	244	6	07	13	53.3	1.96 [0.96, 3.97]
Monthly Per Capita Income (Rs)						
0-499	485	17	20	37	76.4	2.64 [1.42, 4.90]
500–999	496	10	13	23	46.4	1.61 [0.82, 3.13]
1000 and above	450	6	07	13	28.9	1.00

TABLE 2
PERINATAL OUTCOME IN RELATION TO SOME ANTE-NATAL FACTORS

Factors	No. of Births (n=1431)	Still Births (n=33)	First Week Deaths (n=40)	Perinatal Deaths (n=73)	Perinatal Mortality Rate	RR [95 % CI]
Gravidity						
1	428	15	10	25	58.4	1.50 [0.89, 2.53]
2–3	746	10	19	29	38.9	1.00
> 3	257	8	11	19	73.9	1.90 [1.09, 3.33]
Ante-natal Visits						
0	129	3	6	09	69.8	1.46 [0.73, 2.93]
< 3	445	11	12	23	51.7	1.08 [0.66, 1.78]
3 or more	857	19	22	41	47.8	1.00
Tetanus Toxoid (2 doses/Booster)						
Not received	50	2	2	4	80.0	1.60 [0.61, 4.21]
Received	1381	31	38	69	50.0	1.00
Fe/FA						
Not received	116	2	5	7	60.3	1.20 [0.56, 2.56]
Received	1315	31	35	66	50.2	1.00
Maternal Anaemia						
Hb < 10 gm/dl	515	22	28	50	97.1	3.87 [2.39, 6.26]
Hb $\geq$ 10 gm/dl	916	11	12	23	25.1	1.00
Spacing (n=1003, primigravidae excluded)						
<3 years	775	15	25	40	51.6	1.47 [0.70, 3.10]
$\geq$ 3 years	228	03	05	08	35.1	1.00
BMI						
Normal (18.50–24.99)	1112	22	32	54	48.6	2.12 [0.67, 6.69]
Overweight ($\geq$ 25.00)	131	03	0	03	22.9	1.00
Underweight (< 18.50)	188	08	08	16	85.1	3.72 [1.11, 12.50]

TABLE 3
PERINATAL OUTCOME IN RELATION TO SOME INTRANATAL FACTORS

Factors	No. of Births (n=1431)	Still Births (n=33)	First Week Deaths (n=40)	Perinatal Deaths (n=73)	Perinatal Mortality Rate	RR [95 % CI]
Birth Weight						
< 2.5 kg	262	22	25	47	179.3	8.07 [5.09, 12.78]
=/> 2.5 kg	1169	11	15	26	22.2	1.00
Delivery Conducted by						
Doctor	648	14	13	27	41.7	1.00
Trained Dai	741	13	24	37	49.9	1.20 [0.74, 1.95]
Untrained Dai	42	06	03	09	214.3	5.14 [2.59, 10.22]
Sex of the Baby						
Male	774	19	28	47	60.7	1.53 [0.96, 2.45]
Female	657	14	12	26	39.6	1.00
Delivery Type						
Normal Vaginal	1259	30	36	66	52.4	1.29 [0.60, 2.76]
Caesarean Section	172	03	04	07	40.7	1.00
Gestational Age						
< 37 weeks	100	10	18	28	280.0	8.28 [5.41, 12.68]
=/> 37 weeks	1331	23	22	45	33.81	1.00

A STUDY ON PERCEPTION OF PLHA TOWARDS HIV AND PREVAILING SOCIO-CULTURAL SCENARIO IN SELECT DISTRICTS OF MP

Sanjay Dixit*, A.K.Bhagwat**, Deepa Raghunath*** Gunjan Taneja****,
and Sanjay Gupta*****

ABSTRACT

Background: Effectively addressing the twin issues of disclosure and discrimination is essential in combating AIDS/HIV epidemic.

Objective: Ascertain the perception of patients regarding HIV, the disclosure of their serostatus to others and the stigma and discrimination faced by them.

Methods: A cross-sectional study on 150 PLHA in Indore, Neemuch and Ujjain the districts of Madhya Pradesh using semi-structured interview schedules.

Results: In Neemuch 32 per cent of respondents are working as CSWs, in spite of being seropositive. Only 23.33 per cent of respondents are aware of their disease before the test. Major reactions following test result are of shock and despair and concern about the future of their families. Immediate testing of family members (within a week of the result of index case) is observed in 67.5 per cent of ever-married patients. Disclosure by patients is maximum to spouses/partners. As many as 25 per cent who disclosed their status to relatives suffer discrimination, 47 per cent admitted to healthcare centres are discriminated, though 30 per cent of respondents feel that the approach of health workers to HIV patients has improved over the past few years.

Conclusion: Ensuring effective and comprehensive knowledge to the people and the patients is still the key to tackle the third epidemic of HIV.

Key Words: Disclosure; Discrimination; PLHA; Stigma.

Effectively addressing the twin issues of disclosure and discrimination is essential in combating the AIDS epidemic that's plaguing the world. Disclosure of serostatus by people living with HIV/AIDS (PLHA) and the stigma and discrimination perceived by them affect the overall management of the epidemic in various ways. Equally important is the knowledge about the existing condition among the patients.

Negative attitudes in the society affect the disclosure rates among HIV positives that in turn adversely impact the perception of the PLHA towards the disease. According to founding director of WHO's Global Programme on AIDS Jonathan Mann, there are three distinct phases to this epidemic: the phase of HIV epidemic, the phase of AIDS epidemic and the epidemic of stigma, discrimination and denial.¹ We are

*Prof and Head, **Professor, ***Assistant Prof, ****P.G. Student, Department of Community Medicine, M.G.M. Medical College, Indore, Madhya Pradesh; *****Reader, National Institute of Health and Family Welfare, New Delhi-110067.

slowly moving towards the third phase and though various strategies have been formulated to reduce the discrimination perceived and experienced by the PLHA, it still exists hampering the public health measures being undertaken to control the epidemic in general and specifically those concerned with providing effective care and support to the affected.

The findings presented below are a part of a larger study, which chiefly addressed the immediate and long-term needs of the PLHA. In addition the issues pertaining to the disclosure and discrimination are studied to get an insight into the prevailing conditions and suggest measures to rectify the gaps.

OBJECTIVES

- To assess the knowledge and perception level of respondents regarding HIV/AIDS;
- To assess the disclosure of serostatus to spouse/partners, first degree relatives, and at workplace; and
- To assess the stigma and discrimination faced by the PLHA.

MATERIALS AND METHOD

The infection rate in MP shows a preferential geographical distribution with it being concentrated in some select districts. As per the official data for Indore, the maximum number of AIDS cases. It is essentially the HIV capital of the state and the neighbouring districts of Dewas and Ujjain are close seconds. A second peak is being witnessed in the border districts of Neemuch, Mandsaur and Burhanpur. The state has presently three functional ART centres at Indore, Jabalpur and Bhopal.

This cross-sectional study has been carried out on 150 PLHA in Indore, Neemuch and Ujjain districts during February-March 2008 in collaboration

with the MP Voluntary Health Association (MPVHA), an NGO working on HIV in the state. From each district 50 PLHA pre-identified by the MPVHA health workers have been selected for the study. One-to-one interviews using predesigned and pretested semi-structured schedules have been conducted with the study group after obtaining written and informed consent from them. If case of both the partners being HIV positive, then only one has been included in the study. Data have been collected and analysed using SPSS version 12.

RESULTS

Socio-demographic Profile of Respondents

Of the 150 respondents 73 (48.66%) are males, while 77 (51.33%) are females. All the respondents are in the age group of 15-60; 52 respondents (34.7%) are illiterate, and graduates are only 5.3% of the sample. A majority of 132 subjects (88%) have a monthly family income of less than Rs 5,000; 53 per cent are employed as labourers, farmers or servicemen, 11 (7.33%) are employed in various NGOs working in the field of HIV/AIDS. In Neemuch, 16 (32%) informants have been working as commercial sex workers (CSWs) and still continue to be in trade in spite of being seropositive. As many as 130 out of 150 interviewed (86.67%) have been diagnosed HIV positive during the last five years with 50 per cent cases in Neemuch testing positive within the last year alone.

A many as 123 (82%) respondents are ever-married, 77 (51.33%) are presently married, and 58 (75%) are using barrier methods of contraception regularly, 10.40 per cent do not use condoms regularly, and the rest 15.6 per cent do not use condoms at all. While 41 are widowed, 35 (85.37%) of them are females and the rest six (14.63%) are males. At least one child is positive in 10.60 per cent of families.

Knowledge and Perception to HIV

Of the total, 35 interviewees (23.33%) have confirmed having known about the disease before the test, while 115 (76.67%) have replied in the negative, 10 per cent of the participants from Indore and Ujjain had prior knowledge about the disease compared to 4 per cent in Neemuch.

Close to two-thirds (92 respondents) or 61.33 per cent are on ART, 106 (70.7%) have knowledge regarding CD₄ count and know that it is used as a marker to start ART. In Indore 42 (84%) know the importance of CD₄ count as compared to 32 (64%) in Neemuch and Ujjain.

117 patients (78%) had their confirmatory tests at Integrated Counselling and Testing Centres (ICTCs), 22 per cent had the tests at private facilities. More than 90 per cent of respondents were satisfied with the counselling offered at the time of their diagnosis. After the counselling session 76.67 per cent were shocked and depressed, 22 per cent were concerned about the fate and future of their family especially children. 7.33 per cent of

patients had thought about suicide and 2 had even attempted it. (Table 1).

As many as 60 patients (40% of those interviewed) have spent up to Rs 10,000 for treatment, while 17 per cent have spent over Rs 20,000. Of the 30 patients on ART in Ujjain 28 (93.33%) spent money to come to Indore for monthly ART. In Neemuch, the figure is 28.57 per cent. The rest are getting travel allowance from different support groups to reach Indore for their monthly dosage. (Table 2).

Out of the 123 ever-married patients in 83 (67.48%) cases the spouses and children underwent HIV testing (within one week of the index case test result). This finding is best noted in Indore where 80 per cent families had immediate tests. In 21 (17%) families, the tests were conducted anywhere between 1 week and 6 months; in Neemuch family members of 15 out of 31 ever-married patients (48%) were tested in this time-frame. Only 8 per cent of the total families studied had testing after 6 months. In 7.5 per cent cases the family members are yet to be tested. (Table 3)

TABLE 1
REACTION ON TESTING POSITIVE

Characteristic	Indore	Neemuch	Ujjain	Total	Per cent
Depressed, shocked	34	44	37	115	76.67
Concerned about family	13	11	8	32	21.33
Suicidal tendency	5	2	4	11	7.33
Accepted the condition	6	4	5	15	10.00
Ashamed	5	1	---	6	4.00
No reaction	3	2	4	9	6.00

TABLE 2
EXPENDITURE ON TREATMENT

Characteristic	Indore	Neemuch	Ujjain	Total	Per cent
Less than Rs 5,000	17	8	10	35	23.33
5,000-10,000	11	9	5	25	16.67
10,001-15,000	2	3	3	8	5.33
15,001-20,000	---	4	3	7	4.67
Over 20,000	6	7	13	26	17.33
None	14	19	16	49	32.67

TABLE 3
TIME FOR TESTING OF FAMILY MEMBERS
(FOR 123 EVER-MARRIED PATIENTS)

Characteristic	Indore	Neemuch	Ujjain	Total	Per cent
Immediate (within 1 week)	40	12	31	83	67.48
1 week- < 6 months	1	15	5	21	17.08
> 6 months	3	3	4	10	8.12
Not tested	4	1	4	9	7.32

Disclosure, Support and Discrimination

Around 112 (91%) ever-married respondents disclosed their serostatus to their partners, while only 7.3 per cent ever-married patients got to know about the infection only after the death of their partners. Over one-third or 42 (34.15%) spouses were shocked and depressed on knowing the seropositivity of their partners, while 36 (29.27%) of them accepted the condition and for 26 (21.14%) get full support from their spouses. In 3.25 per cent cases the wives held their husbands responsible for the condition and in 4 per cent of cases the partners are separated.

Nearly three-fourths or 105 patients (70%) told their close relatives about the infection, out which in 37 (35%) cases their family members reacted positively and offered them support though in majority of cases it was just emotional support. One-fourth 26 (25%) patients faced discrimination at the hands of relatives, while 42 (40%) they neither suffered discrimination nor had any support from family members.

However, only 26 (17%) respondents disclosed their status at their workplace,

rest 109 (73%) are yet to disclose the status.

Of the total who disclosed their health status to their employers, only 54 per cent (14) of them got support (monetary help and emotional support) from their employers. While 11 are employed as community workers in various capacities at NGOs working in the field of HIV/AIDS, 12 per cent of them suffered adverse behaviour at their workplace though none has been forced to quit. Of the total only 15 are unemployed.

Close to half (48%) or 72 patients were admitted to hospitals at least once during the course of the illness. Thirty-four (47%) of them had to face discrimination in some form at the health centres. While over 90 per cent did not get proper care during the stay at the hospital, the rest said were refused admission. This was more pronounced in Indore and Neemuch where 60-65 per cent faced discrimination. However, 45 (30%) say that the staff at hospitals are now much more co-operative as compared to a few years back. (Table 4)

DISCUSSION

All the subjects in the study are from the

TABLE 4
DISCRIMINATION AT HEALTH CENTRES

Characteristic	Indore	Neemuch	Ujjain	Total	Per cent
Admission at hospital	21	25	26	72	48.00
Discrimination faced	14	15	7	34	47.22
No discrimination	7	10	21	38	52.78

economically productive age group. As per HIV Sentinel Surveillance Report 2007, the corresponding figure for this group at the national level is only 88.7 per cent. The Madhya Pradesh State AIDS Control Society (MPSACS) reports that 86 per cent of AIDS cases in the state belong to the age group of 11-45 years. The majority of respondents belong to the lower socio-economic groups with minimal education.

In case of Neemuch, 16 (32%) are working as commercial sex workers in spite of being seropositive. Vocational rehabilitation measures are needed to check the spread of HIV and high risk groups like CSWs should be provided with alternate employment opportunities. The fact that a large majority of 86.7 per cent interviewed are seropositive since the past 5 years shows the increasing infection level in the study areas, which calls for educational and interventional measures to curtail the deadly epidemic.

A variety of responses have been obtained from the respondents regarding use of condoms such as 'I don't use condoms with my wife, but do use if I go to other women', 'I don't know how to use condoms', 'If I get it free, I use it otherwise not' etc. Out of the 77 presently married patients, 20 (26%) either use condoms irregularly or avoid while having sex with their partners. A study by Archana Sharma on condom usage among seropositive couples in 2005 revealed that the maximum condom usage was 20.7 per cent⁴. The National AIDS Control Programme⁴ (NACP) stresses on the need for universalising condom usage among couples with equal emphasis on HIV positive couples whether seroconcordant or serodiscordant. The findings suggest that condom usage is definitely on the rise though still measures have to be taken to achieve the target level of 100 per cent. Focus has to remain on health education for effective condom use, increasing the number of condom dispensing units

with enhanced access to people and provision of free condoms of all types at government and non-government settings can be taken up to further condom usage.

Only 35 (23.33%) respondents knew about the disease prior to their diagnosis, while 106 (70.2%) knew about the importance of CD4 count in initiating treatment. 'Yes, the CD4 count is done free of cost at the ART Centre, Indore every six months'. 'My CD4 count is good so I was not started ART'. Thakare SB reported in a study that only 8.92 per cent study subjects knew of HIV⁵

In a study by Sobhan et al among the rural males it has been found that though 90 per cent knew about AIDS, only 25 per cent could state its effect on the body and 40 per cent its relationship with sexually transmitted diseases (STDs)⁶. Adequate knowledge related to the basic facts of the disease still lacks among the general population which in turn correlates with the stigmatizing attitudes prevailing in the community.

The major reactions on testing positive are of shock and despair and concern about the family's future. 'I was afraid, what would I tell my parents', 'I tried to commit suicide, I consumed pesticide, after that I did not leave my home for months' are some of the reactions that the respondents gave. A study in Zimbabwe also reported similar findings: while 33.3 per cent felt hurt, 41 per cent were depressed on knowing their serostatus⁷. Strengthening of counselling provided to the PLHA by incorporating routine sessions with psychotherapists might be a viable option. As many as 101 (67.33%) respondents spent up to Rs. 20,000 on treatment which included expenditure for reaching Indore for ART. 'My father-in-law sold the farm for Rs 30,000 and treated us with traditional medicines'. 'I had to sell my property to get myself treated for various infections after I was diagnosed positive'.

A study by Duraiswamy et al in Chennai evaluated the median out-of-pocket medical and non-medical expenses for treatment and services at Rs 6,000 over a six-month period⁸. At present, the major form of support to the patients is the free ART available at government medical centres. These centres are located in major cities and travelling to these centres involves major expenses in terms of time and money. Money is also spent on lab investigations and medicines for opportunistic infections. These additional expenditures affect the compliance of the patients for ART. The Chennai study concluded that the median cost significantly increased with stage of the disease, income and poverty levels with the financial burden of the disease more on lower income households (82%) as compared to higher income households (28%)⁸. Provision of travelling and dearness allowance to the patients for visiting the centres, decentralising ART centres and providing medicinal and laboratory support at these centres at reduced costs might be undertaken.

In the study, 91 per cent subjects disclosed their HIV status to their intimate partners/spouses and 67.5 per cent of ever-married patients had their families tested for HIV within a week of obtaining their test results. This is definitely a positive outcome and points towards the effectiveness of the counselling sessions offered to patients. Immediate testing of family members is definitely important. This helps healthcare professionals in providing effective and timely initiation of anti-retroviral therapy and proper management of opportunistic infections. Also counselling given to families where both partners are HIV positive differs to families where a single partner is infected. Prompt information about the serostatus of children in infected families is also of utmost importance.

While 70 per cent informants disclosed their serostatus to close relatives, 25 per cent of them had to face

discrimination post this. "The relatives don't allow me to enter the kitchen; I am served food in separate utensils," said a female patient. "After my husband expired the in-laws say all of them are going to die, the whole property will be ours," said another female patient whose daughter is also HIV positive. "None of my relatives attended my son's wedding," said a male patient.

Tarwiyi F in his study in urban Zimbabwe reported that 85 per cent of study subjects do not disclose their serostatus to anyone, 55 per cent subjects experienced self-induced stigma and 38.3 per cent community induced stigma⁷. In their study on 145 PLHA in West Virginia, Derlega et al reported that 72 per cent of male participants reported their serostatus to their intimate partners, 80 per cent to friends and 71.4 per cent to one of their parents while the figures for women were 60 per cent, 70.3 per cent and 55.6 per cent respectively. A Tanzanian study reported that people often chose to postpone the disclosure of their HIV status because they felt that they didn't deserve the blame or to avoid the family burden of stigma¹⁰.

The existing support system in the society is also a major factor in determining the rates of disclosure. In the study majority of patients were receiving support from their partners and only 4 per cent are separated. In a study by Pranita Taraphdar on 46 PLHA in Calcutta, 87.5 per cent participants reported positive outcomes following disclosure to their sexual partners, there was no break-up of marriages and negative outcomes were reported by 16.6 per cent women and 11.5 per cent men: blame, anger, violence and abandonment¹¹. The support obtained by the PLHA from partners, families and peers is mostly in the form of emotional bonding. "The family members treat me in the same way as before; I still get the same respect." "I get support but only limited to emotional bonding."

Inadequate support infrastructure compromises the rates of disclosure by patients. Establishing effective support systems is needed. Providing routine counselling to peers/family members of the PLHA to become effective support pillars to patients should be advocated. Whatever the reasons for disclosure the rates are related to the prevailing attitudes in the community towards HIV.

In this study, 30 per cent of the subjects believed that discriminatory attitudes has reduced at healthcare settings now. "I was suffering from TB. The staff at the hospital treated me very well. I am very grateful to them." However, 47 per cent of patients admitted to have faced discrimination at the hospitals. "I was not looked after properly at the hospital. The staff did not administer injections to me."

In his study on 1,103 health professionals Gobopamang Letamo reported that 9 per cent of professionals reported refusing to care for a patient with HIV/AIDS and 9 per cent reported that they refused admission to an HIV positive patient. Two-thirds of the respondents observed other health professionals refusing care to HIV positive patients and 43 per cent refusing admissions to hospitals¹². Lack of confidentiality at healthcare centres is a major problem. Studies by the WHO in India, Indonesia, Philippines and Thailand found that 34 per cent of respondents reported breaches of confidentiality at healthcare settings¹³. In a study aimed at reducing the stigma in Indian hospitals, researchers reported a reduction in sharing of information about HIV status of patients among healthcare professionals in hospitals after interventional strategies. This was more in case of doctors disclosing the information to nurses, but none of the nurses disclosing status to ward staff¹⁴. Health workers are at a greater risk to the dangers of HIV as compared to general population so it is essential that the risks and fears of healthcare providers are taken into account before formulating workplace

policies to create a safe environment for working: ensuring adequate logistics and maintaining protocols for occupational prophylaxis are of utmost importance.

CONCLUSION

Stigma and disclosure go hand in hand. Ensuring effective and comprehensive knowledge to the people and the patients is still the key to tackle the third epidemic of HIV. Going back to basics has been envisaged by the WHO to combat AIDS: using different preventive measures to complement each other. Still for every two new people starting anti-retroviral drugs another five become newly infected, stigma and discrimination persist impeding universal access. The time is ripe to deliver on the promises and commitments on the sociological aspects of the disease for only when these goals are attained that medical management will be most effective and the aim of universal access to HIV prevention, treatment, care and support by 2010 be realised.

ACKNOWLEDGEMENTS

The authors are highly indebted to the staff and workers of the MPVHA for providing their support in the conduction of the study.

REFERENCES

1. ICMR Bulletin: Live and Let Live: Acceptance of People Living with HIV/AIDS in an era where Stigma and Discrimination Persist; Nov-Dec 2002; 33: 11-12.
2. HIV Sentinel Surveillance and HIV Estimation in India: A Technical Brief. National AIDS Control Organization, Ministry of Health and Family Welfare; New Delhi: Government of India; October 2008. Available from: www.nacoonline.org
3. Age-wise Distribution of AIDS Cases up to August 2008. Madhya Pradesh State AIDS Control Society, Ministry

- of Health and Family Welfare; Government of Madhya Pradesh. Available from: www.mpsacsborg/scenario.html.
4. Sharma Archana and Marfatia Y S. An Epidemiological Study of HIV Seroconcordant vs. Serodiscordant Couples (A Female-based Study). *Indian J Sex Transm Dis* 2005; 26: 4-6.
5. Thakare SB et al. Awareness Among Patients Attending HIV/AIDS Counselling Centre in Rural India. Souvenir. XXIX Annual Conference of Indian Association of Preventive and Social Medicine, February 15-17, 2002: 113.
6. Sobhan K, Kumar TS, Kumar GS et al. HIV and AIDS - Awareness and Attitudes among Males in a Rural Population. *Indian Journal of Community Medicine* 2004; 29: 141-2.
7. Tarwireyi F. Stigma and Discrimination: Coping Behaviours of People Living with HIV and AIDS in An Urban Community of Mabvuku and Tafara, Harare, Zimbabwe. *Cent Afr J Med*. 2005 July-August; 51 (7-8):71-6.
8. Duraisamy P, Ganesh AK, Homan R and Kumarasamy N. Costs and Financial Burden of Care and Support Services to PLHA and Households in South India. *AIDS Care* 2006; 18(2):121-127.
9. Derlega JV, Winstead B, Greene K, Servoich J and Elwood WN. Perceived HIV-Related Stigma and HIV Disclosure to Relationship Partners after Finding Out about the Seropositive Diagnosis. *J Health Psychol* 2007; 7: 415-432. Available from: <http://hpq.sagepub.com/cgi/content/7/4/415>.
10. Lie, G. T., and Biswalo, P. M. (1996). HIV-Positive Patients' Choice of a Significant Other to be Informed about the HIV-Test Result: Findings from an HIV/AIDS Counseling Programme in the Regional Hospitals of Arusha and Kilimanjaro, Tanzania. *AIDS Care*; 8(3): 285-296.
11. Taraphdar P, Dasgupta A and Saha B. Disclosure Among People Living with HIV/AIDS. *Indian J Community Med* 2007;32:280-2.
12. Letamo G. The Discriminatory Attitudes of Health Workers Against People Living with HIV. *PLOS Med* 2 (8): e 261 doi:10.1371/journal.Pubmed 0020261.
13. WHO (2008). Towards Universal Access: Scaling up Priority HIV/AIDS Interventions in the Health Sector. Progress Report 2008.
14. Mahendra VS, Gilborn L et.al. Reducing AIDS Related Stigma and Discrimination in Indian Hospitals 2000 - 2004. Available from: www.popcouncil.org/pdfs/horizons/inplha/friendly.pdf.

INJURY PATTERNS IN JAMNAGAR CITY

Deepak Sharma*, B. S Yadav** and S Yadav***

ABSTRACT

This study analyses various types of injury patterns in Jamnagar city, and their association with various variables like age, sex and mechanisms of injuries. A total of 1,496 subjects were studied in the present study. The results were statistically analysed using Chi-square test, which revealed that (i) out of the total 1,496 samples, 178 (11.89%) gave positive history of injury during last one year, (ii) gender-specific incidence of injuries for males was 17.39 per cent and for females it was 5.79 per cent, (iii) amongst 137 males having history of injury, the highest (34.30%) was from road accidents, followed by work-related injuries (33.57%) and falls (24.81%). Out of the 41 females having had a history of injury, the highest (34.14%) was from road accidents, followed by falls (31.70%) and burns (19.51%), (iv) out of the total 178 injuries, the maximum number of injuries were in the 25-44 age group (29.77%), followed by the 15-24 age group (23.03%), and (v) out of the total mechanisms of injuries, road accidents were the maximum in the 25-44 age group which were (45.90%) as also work-related injuries in the same age group which were (38.77%). Falls were most common in the 5-14 age group (34.04%).

Key Words: Road Accidents, Work-Related Injuries, Drowning, Burns, Animal Related Injuries, Injury by Sharp Objects, Fall.

The term 'injury' by definition means that there is a body lesion due to an external cause, either intentional or unintentional, resulting from a sudden exposure to energy (mechanical, electrical, thermal, chemical or radiant) generated by an agent-host interaction. This leads to tissue damages when it exceeds the physiological tolerance of the individual.

Road accidents are a major but neglected global public health problem, requiring concerted efforts for effective and sustainable prevention of all the systems that people have to deal with on a daily basis. Road transport is the most complex and the most dangerous mode of commuting.

More than half the people killed in traffic crashes are young adults aged between 15 and 44 years, often the breadwinners in a family.

Worldwide, the number of people killed in road accidents each year is estimated at about 1.2 million, while the number injured could be as high as 50 million--the combined population of five of the world's large cities.¹

The introduction of new hazards into our homes is a part of the price we pay for progress.

Carelessness, errors in judgement, lack of skills and ignorance are the real causes of accidents at home, just as they are the real causes of many accidents in other settings.

*Assistant Professor, Department of Community Medicine, Pramukh Swami Medical College, Karamsad, Anand, Gujarat. **Professor, ***Professor and Head, Department of Community Medicine, MP Shah Medical College, Jamnagar, Gujarat.

Home accidents, like other accidents can be prevented. Basic factors in home accidents include both the environmental and human elements.

Falling is one of the principal causes of deaths and injuries at home, accounting for nearly half of all home accident fatalities.²

Despite the undisputed impacts of the injury burden, limited attention has been paid to injury as a public health problem particularly in low-income countries.³

The magnitude of the problem can be quantified in terms of the number of years lost due to premature deaths, and the number of years lived with disabilities (burden of disease). Globally, injury currently accounts for 10 per cent of all disability-adjusted life years (DALYs) lost, and this is expected to increase to 20 per cent by 2020.^{4,5}

Lack of reliable and good quality national or regional data has thwarted the very meaning of the efforts so far taken. Many injuries are linked to social, environmental, cultural and biological issues in causation, recognised as man-made and behaviour-linked disorders and linked to socio-demographic transition. Prevention, acute and long-term care and rehabilitation are the major challenges we are facing today.

OBJECTIVES

The study was carried out with the objectives of finding the incidence of injuries in the study population, gender-specific incidence of injuries, sex-wise distribution of injured by mechanism of injury, and to find out the most frequent age-group in a particular mechanism of injury, with a special focus on Jamnagar city (urban slums and urban area) for seven different types of injuries--road accidents, falls, work-related, burns, animal-related injuries, injury by sharp objects and drowning.

MATERIALS AND METHOD

Period of Study: From November 2004 to September 2005.

Type of Study: Cross-sectional.

Area of Study: Jamnagar city.

Sample Size: The incidence of accidents in families was derived through pilot study which was found to be 8 per cent. This incidence was used for calculating the sample size of the study by using the formula $4pq/L^2$, p is 8, L 20% of p.

The sample size came out to be 1,150 which required that a minimum of 230 families studied (considering that each family has 5 members). Thus 300 families were studied and the total subjects studied were 1,496.

Sampling method: 30 cluster sampling method was used to draw samples from whole of Jamnagar city.

First of all, the total population of Jamnagar city was divided by 30 to find out the sampling interval, $4,43,520/30 = 14,784$.

Then a random number of less than sampling interval, but with the same number of digits was chosen and considered as the first cluster. Our random number comes out to be 11,562. Then to this number, the sampling interval was added and that was taken as the second cluster and to this second cluster again the sampling interval was added and the number which came was taken as the third cluster. By this way, the total 30 clusters were chosen.

There are 17 wards under Jamnagar Municipal Corporation. The number of areas from different wards was taken in accordance to the cumulative population of different wards. Total 30 areas from different wards were selected. In each area, 10 families were selected by a random sampling

TABLE 1
DISTRIBUTION OF SUBJECTS ON BASIS OF INJURY

History of Injury	No	%
Yes	178	11.89
No	1,318	89.11
Total	1,496	100.00

$$\chi^2 = 47.8 \text{ } p < 0.001$$

technique and each family member was screened and studied in detail for injury.

The study was conducted by taking interviews of respondents. Data were collected in a pre-designed proforma.

By interviewing the respondents, which was one per family, an enquiry was done for each family member regarding injuries in past one year. The respondent was the head of the family or any other responsible adult in the family.

The data were analyzed using SPSS software. A Chi-square test was applied to check the significance between proportions of groups and for the rest of the results percentages were calculated.

FINDINGS

The distribution of subjects on the basis

of injury is depicted in Table 1. Out of the total 1,496, 178 (11.89%) gave positive history of injury during the past one year.

Table 2 shows that gender-specific incidence of injury for males is (17.39%) and for females it is (5.79%). The results are highly significant.

Table 3 shows the sex-wise distribution of injured subjects by mechanism of injury. Amongst 137 males having history of injury, the highest (34.30%) were injured through road accidents, followed by work-related injuries (33.57%) and injury through falls (24.81%). Animal-related injuries and injury by sharp objects were (5.10%) and (1.45%) respectively. Amongst 41 females having history of injury, the highest (34.14%) was through road accidents, followed by falls (31.70%), burns (19.51%), work-related injuries (7.31%), through animals and sharp objects (2.43% each).

TABLE 2
GENDER-SPECIFIC INCIDENCE OF INJURY

Gender	No	No of Injury Cases	Gender Specific Incidence of Injury
Male	788	137	17.39
Female	708	41	5.79
Total	1,496	178	11.89

TABLE 3
SEX-WISE DISTRIBUTION OF INJURED BY MECHANISM OF INJURY

Mechanism of Injury	Male		Female		Total	
	No	%	No	%	No	%
Animal-related	7	5.10	1	2.43	8	4.49
Burns	1	0.007	8	19.51	9	5.05
Drowning	0	0.00	1	2.43	1	0.005
Falls	34	24.81	13	31.70	47	26.40
By sharp objects	2	1.45	1	2.43	3	1.68
Road accidents	47	34.30	14	34.14	61	34.26
Work-related	46	33.57	3	7.31	49	27.52
Total	137	100	41	100	178	100

Table 4 reveals the distribution of injured showing most frequent age group in particular mechanism of injury.

Road traffic injuries are the maximum in the 25-44 age group at 45.90 per cent as also work-related injuries in the same age group at 38.77 per cent. Falls are most common in the 5-14 age group at 34.04 per cent. Burns and animal-related injuries were most common in the 25-44 and 5-14 age groups at 44.44 per cent and 50 per cent respectively.

The most frequent mechanism of injury in particular age groups is depicted in Table 5. The results reveal that the most common mechanism of injury is falls in the 0-4 age group (73.33%), 5-14 years (53.33%) and in more than 60 years (84.62%). The most common injury is road accidents in the 15-24 age group (56.10%) and 25-44 age group (52.83%). Work-related injury is the most common in the 45-59 age group (57.69%).

DISCUSSION

The incidence of injuries in the present

study come out to be (11.89%). Sathiyasekaran B.WC⁶ in his study on slum dwellers of Chennai found the incidence to be (12.7%). According to a study by Verma PK⁷, the annual incidence of accidents for the entire study population was 93.15 per 1,000 population. In our study of the 178 injuries, (76.97%) were males and (23.03%) were females indicating a much higher injury occurrence in males. Sathiyasekaran B. W. C. (1996)⁶ also noted that the incidence of injuries in males to be higher at 13.7 per cent as compared to females at 11.8 per cent. Gururaj G. (2002)⁸, in his study indicated a much higher incidence of injuries in males than females. Candida Moshire et al. (2005)⁹, in his study found that of the injured person 62 per cent were males.

Injuries through road accidents (34.30%), work (33.57%) and falls (24.81%) are the three leading injuries in males, while road accidents (34.14%), falls (31.70%) and burns (19.51%) are the three leading causes amongst females. Road accidents are almost equal (34.30%) and (34.14%) in

TABLE 4
DISTRIBUTION OF INJURED SHOWING MOST FREQUENT AGE
GROUP IN PARTICULAR MECHANISM OF INJURY

Age group	MECHANISM OF INJURY													
	Animal Related		Burns		Drowning		Falls		Injury by Sharps		Road Accident		Work Related	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
0-4	0	0.00	1	11.11	1	100	11	23.40	1	33.33	1	1.63	0	0.00
5-14	4	50.00	2	22.22	0	0.00	16	34.04	2	66.66	4	6.55	2	4.08
15-24	2	25.0	1	11.11	0	0.00	2	4.25	0	0.00	23	37.70	13	26.53
25-44	1	12.50	4	44.44	0	0.00	1	2.12	0	0.00	28	45.90	19	38.77
45-59	1	12.50	1	11.11	0	0.00	6	12.76	0	0.00	3	4.91	15	30.61
≥ 60	0	0.00	0	0.00	0	0.00	11	23.40	0	0.00	2	3.27	0	0.00
Total	8	100.0	9	100.0	1	100.0	47	100.0	3	100.0	61	100.0	49	100.0

TABLE 5
MOST FREQUENT MECHANISM OF INJURY IN PARTICULAR AGE GROUP

Age group	MECHANISM OF INJURY													
	Animal Related		Burns		Drowning		Fall		Injury by Sharps		Road Accident		Work Related	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%
0-4	0	0.00	1	6.67	1	6.67	11	73.33	1	6.67	1	6.67	0	0.00
5-14	4	13.33	2	6.67	0	0.00	16	53.33	2	6.67	4	13.33	2	6.67
15-24	2	4.88	1	2.44	0	0.00	2	4.88	0	0.00	23	56.10	13	31.71
25-44	1	1.89	4	7.55	0	0.00	1	1.89	0	0.00	28	52.83	19	35.85
45-59	1	3.35	1	3.85	0	0.00	6	23.08	0	0.00	3	11.54	15	57.69
≥ 60	0	0.00	0	0.00	0	0.00	11	84.62	0	0.00	2	15.33	0	0.00
Total	8	4.49	9	5.06	1	0.56	47	26.40	3	1.69	61	34.27	49	27.53

males and females respectively in the present study. Candida Moshiro et al (2005)⁹ found males having significantly increased risk of transport injuries as compared to females. In the present study, burns is (19.51%) highest among females while it is almost nil among males. Similarly, injuries by sharp objects are higher among females (2.43%) than males (1.45%). O. Kobusingye et al (2001)¹⁰ found that burns, cuts/stabs to be higher among females. Chan K.Y. et al (2002)¹¹, Zhu Z.X. et al. (1988)¹² found burn-related injuries to be higher among females than males. Gururaj G. (2002)⁸, also found that burn injuries to be higher among women than among men in the ratio of (1.6:1). In animal-related injuries males constituted (87.50%) whereas females constituted (12.50%) and children from 5-14 age group showed highest number of cases (50%). According to a study by Kokhar A. et al¹³ in Delhi on dog bites, males constituted 69.9 per cent of the total cases whereas among females it is even less than half at 30.1 per cent only.

Road accidents (45.90%) and work-related injuries (38.77%) are seen maximum in the 25-44 age group. Falls (34.04%) and injuries caused by animals (50%) are most commonly seen among the 5-14 age group. Commonest age of burns is 25-44 years (44.44%) and drowning is seen among the 0-4 age group (100%), Candida Moshiro et al (2005)⁹ found age to be important risk factor for certain types of injuries. They also found transport related injuries to be much common among adults in 15 years and above while burns are most common among children under 5. Sharma AK et al (1993)¹⁴, Bandi SK and Agarwal SN (1980)¹⁵ found falls to be the most common potential mode of childhood injuries. Gururaj G (2002)⁸ also noted that children and the elderly account for 30-40 per cent and 10-20 per cent of the total falls. Harnam Singh and SK Dhattarwal (2004)¹⁶ found the

commonest age for road accidents to be 21-30 years (27.3%), followed by 31-40 years (20.6%). These observations are also similar to the observations of the present study which found that road accidents (83.60%) to be concentrated between 15-44 years of age. J Lain (1997)¹⁷ in his study found that almost half (47.4%) of the victim of animal related injuries are less than 11 years which is similar to the observation of this study in which it is (50%) for the 5-14 age group. He also found that victims 20 years and younger males are more likely than females to be victims of an animal attacks (59.5% v/s. 40.5%). A study done by Khokhar A et al¹³ in Delhi on dog bites revealed that children under 15 years accounted for the maximum (53.99%) of the total. Celis A (1997)¹⁸, Kibel SM et al (1990)¹⁹ and Kozik CA et al (1999)²⁰, Tan Z et al (1998)²¹ found that children aged 1-4 and young people appear to be at the greatest risk with drowning. Mago V et al. (2004)²² in their study found that most of the patients of burns were in the 13-25 age group followed by 26-39 age group. Jie X and CB Ren (1992)²³ and Liu EH et al (1998)²⁴ found that burns related injuries accounted for a much higher proportion of injuries on young children compared with other age groups.

CONCLUSION AND RECOMMENDATIONS

Of all the injuries studied, the three most important mechanisms of injuries are road accidents, work-related and falls. The maximum number of injury cases are from the 15-44 age group. All these injuries can be prevented to some extent. Availability of first aid box in all the vehicles needs to be emphasised. Strict observation of traffic rules by commuters as well as traffic police needs to be implemented to prevent road accidents. Maintenance of roads, lightings on roads, use of traffic signs etc should be observed by civic authorities. Similarly, strict enforcement

of speed limits, periodical check of drivers for alertness, stringent measures for defaulters in use of helmets and seatbelts should be observed which all can prevent a lot of accidents.

Proper handling of the kitchen equipment, hot water etc to prevent burns at home needs to be highlighted. Awareness regarding telephone numbers of fire brigade, hospitals and ambulance etc needs to be created. Practice and availability of first aid in vehicles in emergency needs to be given to schoolchildren and others so that timely first aid can be given. Properly closing of underground tanks can prevent drowning. Separation of cooking areas from playing areas should be done to minimise burn injuries. Control of unrestrained household and stray dogs and licensing of dogs can prevent animal-related injuries.

REFERENCES

1. Peden M, Scurfield R, Sleet D, Mohan D, Hyder AA, Jarawan E et al (2004). World Report on Road Traffic Injury Prevention. World Health Organization, Geneva.
2. Maxwell NH (1961) Accident Prevention. The Role of Physicians and Public Health Workers, UNICEF, 93-104.
3. Sethi D, Habibula S, McGee K, Peden M, Bennett S, Hyder AA, et al (2004) Guidelines for Conducting Community Surveys on Injuries and Violence. WHO.
4. Murray CJL and Lopez AD (1997) Alternative Projections of Mortality and Disability by Cause. 1990–2020, Global Burden of Disease Study. *Lancet*, 349: 1498–1504.
5. Peden M, McGee K, Sharma G (2002) The Injury Chart Book: A Graphical Overview of the Global Burden of Injuries. World Health Organization, Geneva.
6. Sathiyasekaran BWC (1996) Population-based Cohort Study of Injuries. 27(10): 695-698.
7. Verma PK (1998) An Epidemiological Study of Accidents Among Rural Population. MD Thesis Submitted to the Delhi University.
8. Gururaj G (2005) Injuries in India: A National Perspective. In: Burden of Disease in India; Equitable Development - Healthy Future. National Commission on Macroeconomics and Health. Ministry of Health and Family Welfare, Government of India. New Delhi, 325 - 350.
9. Candida M, Ivar H, Anne NA, Philip S., Yusuf H and Gunnar K (2005) Injury Morbidity in An Urban and Rural Area in Tanzania: An Epidemiological Survey. *BMC Public Health*, 5:11.
10. Kobusingye O, Guwatudde D and Lett R (2001) Injury Patterns in Rural and Urban Uganda. *Injury Prevention*, 7:(1) 46–50.
11. Chan KY, Hairul O, Imtiaz H, Zailani M, Kumar S, Somasundaram S, et al (2002) A Review of Burns Patients Admitted to the Burns Unit of Hospital Universiti Kebangsaan Malaysia, *Medical Journal of Malaysia*, 57: (4) 418–25.
12. Zhu ZX, Yang H, and Meng FZ (1988) The Epidemiology of Childhood Burns in Jiamusi, China. Burns Including Thermal Injury, 14 (5): 394-396.
13. Khokhar A, Meena GS and Mehra (2003) Profile of Dog Bite Cases Attending M.C.D. Dispensary at Alipur, Delhi. *IJCM*, 28, No. 4. 157-160.
14. Sharma AK, Sarin YK, Manocha S, Agarwal LD, Shukla AK, Zaffar M et. al (1993) Pattern of Childhood Trauma: Indian. Perspective. *Indian Paediatric*, 30: 57-60.
15. Bandi SK and Agarwal SN (1980) Analytic Study of Trauma Pattern in Paediatric Age Group in Indore

- Region. *Indian Journal of Paediatrics*, 17(6): 434-437.
16. Harnam S and Dhattarwal SK (2004) Pattern and Distribution of Injuries in Fatal Road Traffic Accidents in Rohtak, Haryana. *JIAFM*, 26(1):20-23.
 17. Lain J (1997) Texas Department of Health. Zoonosis Control Division, Austin, Texas. 1996. Severe Attack Surveillance Summary.
 18. Celis A (1997) Home Drowning Among Preschool Age Mexican Children. *Injury Prevention*, 3 (4): 252-256.
 19. Kibel SM, Nagel FO and Myers J (1990) Childhood Near-drowning. A 12 Year Retrospective Review. *South African Medical Journal*, 78 (7): 418-421.
 20. Kozik CA, Suntayakorn S, Vaughn DW, Suntayakorn C, Snitbhan R and Innis BL (1990) Causes of Death and Unintentional Injury Among School Children in Thailand, *Southeast Asian Journal of Tropical Medicine and Public Health*, 30(1): 129-135.
 21. Tan Z, Li X and Bu Q (1998) Epidemiological Study on Drowning in Wujin, Jiangsu. *Chinese Journal of Epidemiology*, 19(4):208-210.
 22. Mago V, Yaseen M and Bariar LM (2004) Epidemiology and Mortality of Burns in JNMC Hospital, AMU, Aligarh. A Five Year Study. *Indian Journal of Community Medicine*, 29(4):187.
 23. Jie X and Ren CB (1992) Burning Injuries in the Dong Bei Area of China: A Study of 12606 Cases of Burns. *Burns*, 18(3): 228-232.
 24. Liu EH, Khatri B, Shakya YM and Richard BM (1998) A 3 Year Prospective Audit of Burns Patients Treated at the Western Regional Hospital of Nepal. *Burns*, 24(2):129-133.

URBAN-RURAL DIFFERENTIALS IN MATERNAL AND CHILD HEALTHCARE

Dewaram A. Nagdeva*

ABSTRACT

The present paper examines the urban-rural differentials and the factors influencing net change in maternal and child healthcare inputs, their utilization and the output during the National Family Health Survey round I and II (NFHS-I and NFHS-II). The National Family Health Survey (NFHS) collected data from 89,777 ever-married women in the age group of 13-49 in 1992 (NFHS-I) and 90,000 eligible women in the age group of 15-49 in 1998 (NFHS-II) and this paper analyses these data. The variables have been grouped into healthcare inputs regarding ante-natal care, post-natal care and child care, utilization regarding maternal and child healthcare and maternal and child healthcare outcomes. An analysis has been done by using a Bivariate analysis and the Chi-square test. The Chi-square test has been used to observe the significant association, if any, between each of the independent and dependent variables. The analysis reveals that there is an increase in healthcare inputs, utilization and outputs during the intra-survey period. Overall, the urban-rural differentials still exist and the government must take the necessary steps to improve MCH programmes, including the provision of information and education campaigns, and sending dedicated healthcare personnel to remote and inaccessible rural areas to reduce maternal and child mortality rates.

Key Words: Malnutrition, Anaemia, Contraception.

Following the Alma Ata Declaration of 1978, the Government of India unveiled an accelerated primary healthcare programme under the aegis of its '**Health for All by 2000**' goals by strengthening the family welfare and maternal and child healthcare (MCH) programmes, adopting new strategies, and opening more healthcare facilities in rural areas. Since India being a signatory to the Alma Ata Declaration which aimed at attaining a level of health that will permit all the people of the world to lead socially and economically productive lives by 2000. Again, the World Health Organisation has unveiled a slogan 'Move for Health' on the occasion of World Health Day on April 7, 2002. Under the 2000 health for all goal, the Government of India shifted

its emphasis from family planning programmes to family welfare programmes to give wider scope for promoting maternal and child healthcare programmes to improve the health of mothers and their young children.

The MCH programmes emphasised the need to ensure that pregnant women receive adequate prenatal care, safe delivery, post-natal care and sought to address high risks that women in many contexts face during child bearing. The health status of children is significantly associated with maternal health that can be measured in reduced child mortality rates or risks to child survival (Caldwell, 1979; Cleland and Van Ginneken, 1988). The intake of MCH

*Reader and Head, Fertility Studies Department, IIPS, Mumbai.

facilities mainly depends on the socio-economic characteristics of the individuals of a community and success in child immunization programmes which leads to the better child survival rate (UNICEF, 1990; Kim-Farley et al, 1992; Grant, 1993). Better maternal health ensures the health of expectant mothers, especially on their nutritional status, and avoidable complications of pregnancy. Childhood immunization is the most important factor in healthcare. It is more advantageous to prevent children from acute diseases, which will affect their early ages.

Majority of our population live in rural and remote areas. Healthcare services are not sufficiently available, accessible and affordable to the most socially and economically disadvantaged rural population. There is higher maternal mortality, higher incidence of infant and child mortality, high fertility and low maternal and child healthcare utilization in rural areas as compared to urban areas. At present, the government is focusing on stabilising population growth and achieving the desired goals set for different socio-demographic indicators by 2010 and 2045. Many such short and long-term goals are mentioned under the National Population Policy 2000. Rural areas are lagging far behind to urban areas in different maternal and child health indicators which act as an obstacle in achieving the national demographic goals. Despite recent innovations in healthcare system management in the country, there are still urban-rural differentials in maternal and child healthcare. These concerns provided the motivation to study the urban-rural differentials in maternal and child healthcare.

OBJECTIVES

Keeping in view of the above facts, this paper is an attempt to examine the urban-rural differentials in the maternal and child healthcare inputs, their intake and output during NFHS-I and NFHS-II.

The specific objectives of the study are as follows:

1. To study the urban-rural differentials in maternal and child healthcare inputs and net changes;
2. To study the urban-rural differentials in maternal and child healthcare utilisation and net changes;
3. To study the urban-rural differentials in maternal and child healthcare output and net changes; and
4. To examine the factors influencing the net change in maternal and child healthcare utilization and outcome.

MATERIALS AND METHOD

The data for this study have been collected from the National Family Health Surveys (NFHS-I in 1992 and NFHS-II in 1998). The National Family Health Survey (NFHS) collected data from 89,777 ever-married women in the age group of 13-49 in 1992 (NFHS-I) and 90,000 eligible women in the age group of 15-49 in 1998 (NFHS-II). The data have been analysed using Bivariate analysis and Chi-square test. The Chi-square test has been used to observe the significant association, if any, between each of the independent and dependent variables. The following variables have been selected for the study:

1. Health inputs regarding ante-natal care, post-natal care and child care: (i) women received ante-natal check-ups only at home from healthcare workers; (ii) pregnant women supplied with tetanus vaccination; (iii) pregnant women supplied with iron folic acid (IFA) tablets; (iv) assistance during delivery by doctor, nurse, dai; (v) percentage of women given vaccination cards; (vi) knowledge of diarrhoea care; and (vii) knowledge of any contraceptive methods.
2. Utilisation regarding maternal and child healthcare: (i) respondent went for ante-natal care visit outside

home; (ii) child fully vaccinated by 12-23 months age; (iii) percentage of children taken to healthcare facility or providers for treatment of diarrhoea; (iv) place of delivery: public or private; and (v) use of contraception.

3. Maternal and child healthcare outcomes: (i) delivery complications; (ii) low birth weight baby; (iii) prevalence of diarrhoea; (iv) neonatal mortality; (v) post neonatal mortality; (vi) infant mortality; (vii) child mortality; (viii) under five years-of-age mortality; and (ix) total fertility rate.

RESULTS AND DISCUSSION

Urban and rural differentials in healthcare input between NFHS-II and NFHS-I is presented in Table 1. The data indicate that both in urban and rural areas the incidence of ante-natal check-ups only at home from healthcare workers decreased. In urban areas, the decrease in home ante-natal checks may have been because more women visited urban family welfare centres, general hospitals or maternity centres for their ante-natal care. In rural areas, it may have been due to the more women were attending healthcare centres for ante-natal care, because it was impossible for the auxiliary nurse midwives (ANM) to provide ante-natal care at home for all women in the 8-10 villages under their care. Supply of tetanus vaccinations to pregnant women increased overall. More women had two or more vaccinations during their pregnancy rather than one. The gap in urban-rural differentials of pregnant women supplied with two tetanus vaccinations decreased from 26.7 per cent to 19.4 per cent during the intra-survey period of 1992-1998.

The percentage supply of iron folic acid tablets increased in both urban and rural areas, and significantly, the urban-rural gap also slightly decreased during this period. In both urban and rural

areas, during delivery the women had the assistance of a doctor/ANM, trained birth attendants or dais. In urban areas, the women had more assistance from a doctor than an ANM and trained birth attendants or dais, whereas in rural areas, it was the reverse. The urban and rural gap in the women who had the assistance of a doctor/ANM, trained birth attendants or dais (net change of -0.9, -1.8 and -23.1 per cent respectively), indicates wide differences in the percentage of deliveries conducted by trained persons in both urban and rural areas. Though the percentage of women supplied with vaccination card increased both in urban and rural areas, the increase was more visible in urban areas. Women in rural areas less likely to have a Western-trained health professional in attendance at delivery due to non-availability of Western-trained health professional, but this availability improved over the research period.

The knowledge of diarrhoea care increased both in urban and rural areas but more so in urban areas. Similarly, knowledge of any contraceptive methods increased both in urban and rural areas but again the similar pattern is seen as more urban women are better informed of contraceptive methods compared to rural women during the intra-survey period 1992-1998.

A positive net change in healthcare input occurred during 1992-1998 but the urban-rural differentials still exist. Mothers in rural areas not provided with ante-natal care and delivery by trained persons may be more likely to develop post-natal complications that endanger their lives.

The urban-rural differentials in health utilization are shown in Table 2. There is an increase in ante-natal visit outside home, in both urban and rural areas, but significantly, the increase is greater in the rural areas. This may have been due to a decrease in ante-natal check-up only at home by healthcare workers.

The urban-rural differentials decreased from 33.6 per cent in 1992 to 30.8 per cent in 1998.

There is also an increase in the immunization rate of children in the 12-23 months age bracket, but the urban-rural differentials increased from 19.8 per cent in 1992 to 23.9 per cent in 1998, despite a net change in both urban and rural areas. The treatment of diarrhoea increased in both urban and rural areas, but the urban-rural differentials increased from 9.4 per cent in 1992 to 15.3 per cent in 1998, despite a net change in both the areas. The deliveries in government hospitals also decreased in urban areas and increased in rural areas. In both urban and rural areas, deliveries in private hospitals increased during the intra-survey period of 1992-1998. The urban-rural differentials in delivery in government hospitals decreased from 20.2 per cent to 16.6 per cent, whereas the urban-rural differentials in private hospitals deliveries increased from 21.4 per cent to 23.9 per cent during the intra-survey period.

There is an overall increase in the total number of respondents who used any family planning method, representing an increase of 7.2 per cent in urban areas and 7.8 per cent in rural areas during the period under review. Similarly, the urban-rural differentials in couples using any contraception or family planning method decreased from 14.1 per cent in 1992 to 13.5 per cent in 1998. The use of contraception increased among couples using any modern method, this inter-survey increase in health consciousness is, however, relatively higher in rural areas. Regarding the use of contraception, there is an increase in both urban and rural areas, but the percentage of usage are higher in urban areas in both the surveys. The urban-rural differentials in couples using any modern method has decreased from 12.2 per cent in 1992 to 11.3 per cent in 1998, whereas there is an increase in the urban-rural

differentials for total couples using any modern temporary method and any traditional method. This indicates a net change in healthcare utilisation although urban-rural differentials still exist.

The urban and rural differentials in health output are presented in Table 3. Respondents reporting delivery complications have increased by 4 per cent and more than 13 per cent in urban and rural areas, respectively. There is a 2.3 per cent increase in the number of birth weights of less than 2.5 kg in rural areas, but the increase is a negligible 0.8 per cent in urban areas, which can be due to malnutrition, lack of proper care and anaemia in the mother. During the 7 year-period between the two surveys, neonatal mortality has decreased both in urban and rural areas but it is higher in rural areas.

There is also a decrease in post-neonatal mortality by more than 8 per cent both in urban and rural areas. The infant mortality, child mortality and under-5 years mortality have declined both in urban and rural areas. The urban-rural differential has increased negatively in neonatal mortality, post-neonatal mortality, infant mortality, child mortality and under-5 mortality too. The probability of child mortality is linked to low maternal education levels and short birth intervals and rural background. Women with greater exposure to formal education are more likely to seek care than those with lower or no exposure (RB Wolf, 1993). Ante-natal care and delivery assistance can improve the health of both the mother and child.

The total fertility rate has declined by less than half child (0.43 child) in urban area and more than half child (0.60 child) in rural areas and the total fertility rate is higher in rural areas in both the surveys. Overall, there is a net change in healthcare output, but the urban-rural differentials still persist and mortality is still higher in rural areas, compared with urban areas.

A study in the South has indicated there are differences between educated mothers and uneducated mothers in seeking treatment for their children (Caldwell, Reddy and Caldwell; 1983). In another study conducted in 1993 in the Ludhiana slums, it has been observed that the relationship between education and poverty influences the achievement of complete immunization (P Panda et. al, 1993). Socio-economic conditions, education, nutrition and healthcare are often more important determinants of women's health and survival (UN, 1994).

In the present study it has been observed that among background characteristics of respondents, the educational level of mother is consistently related to net changes in the percentages of respondents who went for ante-natal check-ups outside home, whose children were fully immunized within 12-23 months, and who took their children to healthcare facility for diarrhoea treatment. As the level of maternal education increases, the percentage of net change in MCH indicators also increases.

The background variables affecting percentage of net change in healthcare utilization between NFHS II and NFHS I is given in Table 4. There is an overall positive change in the utilization of healthcare services between the two surveys. The increase in percentages change in ante-natal check-ups outside home, full immunization of children in the 12-23 months age bracket and those who took their wards to healthcare facility for diarrhoea treatment are relatively high in case of mothers who are high school educated.

Religion-wise utilisation of ANC shows that the highest percentage change has taken place among Christians at 12.2 per cent, which could have been due to the missionary activities, while the lowest percentage change is among the Muslims at 8.7 per cent. Significantly, the Sikhs and Jains have reported a

negative percentage change of 12.2 per cent and 2.6 per cent respectively, between the NFHS II and NFHS I.

Same pattern is visible when it comes to percentage change in immunization among children under the 12-23 months age bracket too, as the highest change is noticed among the Christians at 18.7 per cent and the lowest among the Hindus and Muslims at 6.4 per cent each with the Buddhists and Jains have reported negative percentage change of 0.7 per cent and 8.4 per cent respectively during the reporting period. However, the percentage change in going to a healthcare facility for diarrhoea treatment has been highest among the Jains at 33.1 per cent and lowest among the Hindus, Muslims and Buddhists/Neo-Buddhists.

The percentage change in utilisation of ANC by caste/tribe is highest among the Scheduled Tribes at 18.2 per cent followed by Scheduled Castes at 14 per cent. The percentage change in immunization of children in the age bracket of 12-23 months by caste/tribe is highest among the Scheduled Tribes at 13.4 per cent, followed by the Scheduled Castes at 8.6 per cent. The percentage change in children taken to health facility for diarrhoea treatment is highest among Scheduled Castes at 3.4 per cent and lowest among Scheduled Tribes at 0.7 per cent.

The percentage change in utilisation of ANC is greater in rural areas than urban areas. This may have been due to home visits by ANMs in rural areas. But the percentage change in full immunization of children of 12-23 months is much higher in urban areas. The percentage change in children taken to healthcare facilities for diarrhoea treatment is more in urban areas than in rural areas during the intra-survey period. The percentage change in who had ante-natal check-ups outside is highest in case of the first child and decreases as number of children goes up. This may have been due to the more interest and care that

the parents have on the first child. The percentage change in full immunization among children of 12-23 months by birth order is highest in case of 4-5 birth orders and lowest among more than 6 birth orders. The percentage change in children taken to healthcare facility for diarrhoea treatment is highest in case of first birth order and lowest among 2-3 birth orders and negative in case of 6 and more birth orders. The survey also shows that with the increase in the number of birth orders women chose to avoid ante-natal check-ups outside. There exists a clear and significant positive association between the mother's education and women who had ante-natal check-ups outside home, full immunization among children of 12-23 months and children being treated at healthcare facility for diarrhoea. Almost similar pattern is also noticed at significant levels by religion, caste/tribe, place of residence and birth orders.

The Chi-square test is used to analyse the association between the indicators of healthcare intake and different background characteristics. The association is observed for both the NFHS-II and NFHS-I. The analysis reveals that the background characteristics like mother's education, religion, caste and place of residence are highly associated ($p < 0.01$) with all the healthcare intake indicators like, availing of healthcare facility, full immunization of children within 12-23 months and treating children with diarrhoea at a healthcare facility.

Background variables affecting percentage net change in health outcome are presented in Table 5. The percentages of neonatal mortality, infant mortality, child mortality and under-5 mortality have shown considerable decrease in both urban and rural areas during the reporting period. There is an unexpected 1.7 per cent increase in neonatal mortality among literate to less than middle school completed and 1.3 per cent

increase in child mortality among the children of respondents with middle school education. Among the Hindus and Muslims the overall mortality has declined but the decline is significant in infant mortality and under-5 mortality among the Muslims. In case of caste/tribe, there is a considerable decline in all types of mortalities. The percentage change in neonatal mortality, infant mortality, child mortality and under-5 mortality is highest in case of first birth order and decreases as the birth order increases. However, there is marked decline in these rates with increase in the number of birth orders. Also, there is a decline in the neonatal mortality, infant mortality, child mortality and under-5 mortality during the intra-survey period.

To find out the association between the characteristics of women and the health outcome of the children, we have used a Chi-square test. It is observed that the neonatal mortality, infant mortality and child mortality are highly associated with the mother's education and the birth order and the result is consistent in NFHS-II and NFHS-I. However, there is no significant association between religion and child mortality. The association between the characteristics of the women and under-5 mortality is also not found to be much significant.

CONCLUSION

A positive net change in healthcare inputs occurred during 1992-1998 but urban rural differentials still exist. Health inputs, utilisation and output showed a positive net change, which indicate an improvement in healthcare facilities between NFHS-II and NFHS-I. Increase in healthcare inputs and utilisation contribute to positive health output. However, there is no major difference in the percentage change of background characteristics according to the output of healthcare indicators. The educational level of mothers is consistently related to net change in the

percentage of respondents who had gone for ante-natal check-ups outside home, the percentage of respondents whose children were fully immunized within 12-23 months, and the percentage of respondents who had taken their children to healthcare facility for diarrhoea. As the level of maternal education increased, the percentage of net change in MCH indicators also increased.

There has been an increase in health inputs, utilization and output during the intra-survey period. At the same time, contraceptive use has greatly gone up too. The analysis reveals that the background characteristics like mother's education, religion, caste and place of residence are highly associated ($p < 0.01$) with all the healthcare utilization indicators like, whether gone to the health facility, full immunization within 12-23 months and the children taken to healthcare facility for the diarrhoea for NFHS-II as well as NFHS-I. The neonatal mortality, infant mortality and child mortality are highly associated with the mother's education and birth order of children and the result is consistent in NFHS-II and NFHS-I. Overall, the urban-rural differentials still exist and the government must take the necessary steps to improve maternal and child healthcare programmes, including the provision of information and education campaigns, and sending dedicated healthcare personnel to remote and inaccessible areas to reduce child mortality.

REFERENCES

1. Bhatia J.C., (1993), Levels and Causes of Maternal Mortality in Southern India. *Studies in Family Planning*. Vol.24, No.5: 310-318.
2. Caldwell, J.C., (1979) Education as a Factor in Mortality Decline: An Examination of Nigerian Data. *Population Studies*. 33: 395-413.
3. Caldwell, J.C., P.H.Reddy and P. Caldwell, (1983). The Social Component of Mortality Decline: An Investigation in South India Employing Alternative Methodologies. *Population Studies* Vol. 37, No. 2:185-205.
4. Cleland J and Van Ginneken, (1988). Maternal Education and Child Survival in Developing Countries: The Search for Pathway of Influence. *Social Science and Medicine* 27: 1357-1368.
5. Grant J.P, (1993) The State of the World's Children; New York: Oxford University Press.
6. International Institute for Population Sciences (IIPS) (1994) National Family Health Survey: Andhra Pradesh Report. Bombay.
7. International Institute for Population Sciences (IIPS). (2000). National Family Health Survey: Andhra Pradesh Report. Mumbai. Kanitkar Tara, Development of Maternal and Child Health Services in India. In K Srinivasan P.C. Saxena, and Tara Kanitkar (eds), Child in India. Bombay: Himalaya Publishing House, 1979.
8. Kim-Farley, R. and the Expanded Programme on Immunization Team, (1992) Global Immunization. Annual Review of Public Health 13: 223-237.
9. Panda P., A.I.Benjamin and P. Zachariah (1993), Health Status of Under-fives in a Ludhiana Slum, *Health and Population-Perspectives and Issues*, Vol. 16, (No. 3&4).
10. UNICEF (1990), First Call for Children: World Declaration and Plan of Action from the World Summit for Children, New York.

11. United Nations, (1995) Reproductive Rights and Reproductive Health: A Concise Report.
12. Wolff, R. B., (1993) Maternal Education and Community Context in Maternal and Child Health Behaviour in Nigeria, Ann Arbor, Michigan, *University Microfilms International*, Vol.9, 250.

TABLE 1
PERCENTAGE CHANGE IN URBAN AND RURAL HEALTHCARE INPUTS BETWEEN NFHS-II AND NFHS-I

Health input	NFHS II			NFHS I			Change % (NFHS II – NFHS I)		
	Urban	Rural	Gap	Urban	Rural	Gap	Urban	Rural	Gap
Ante-natal check-up only at home from health worker	2.0	6.6	-4.6	3.9	15.4	-11.5	-1.9	-8.8	-10.7
Pregnant women supplied with tetanus vaccination									
One	7.3	8.5	-1.2	6.0	7.4	-1.4	1.3	1.1	0.2
Two or more	81.9	62.5	19.4	74.4	47.7	26.7	7.5	14.8	-7.3
Pregnant women supplied with iron folic acid tablet	75.7	52.5	23.2	68.7	45.1	23.6	7.0	7.4	-0.4
Assistant during delivery									
Doctor	55.8	23.0	32.8	47.6	13.9	33.7	8.2	9.1	-0.9
Auxiliary Nurse	17.2	9.8	7.4	17.7	11.1	6.6	-0.5	-1.3	-1.8
Midwife/nurse									
Dai/traditional birth attendant/ others	26.7	66.9	-40.2	22.0	39.1	-17.1	4.7	27.8	-23.1
Supplied with vaccination card	77.5	65.4	12.1	37.8	28.5	9.3	39.7	36.9	2.8
Knowledge of diarrhoea care	75.8	58.6	17.2	55.6	38.9	16.7	20.2	19.7	0.5
Knowledge of any contraceptive methods	99.7	98.7	1.0	98.5	94.5	4.0	1.2	4.2	-3

Data Source: National Family Health Survey (NFHS-I and II).

TABLE 2
PERCENTAGE CHANGE IN URBAN AND RURAL HEALTHCARE UTILISATION
BETWEEN NFHS-II AND NFHS-I

Health Utilization	NFHS II			NFHS I			Change % (NFHS II – NFHS I)		
	Urban	Rural	Gap	Urban	Rural	Gap	Urban	Rural	Gap
Ante-natal visit outside home	83.8	53.0	30.8	77.2	43.6	33.6	11.8	24.7	-12.9
Child fully vaccinated by 12-23 months age	60.5	36.6	23.9	50.7	30.9	19.8	15	13.9	1.1
Taken to health facility for diarrhoea treatment	75.2	59.9	15.3	68.7	59.3	9.4	6.5	0.6	5.9
Place of delivery									
Public	29.1	12.5	16.6	30.2	10.0	20.2	-1.1	2.5	-3.6
Private	36.0	12.1	23.9	27.4	6.0	21.4	8.6	6.1	2.5
Couples using any contraception or family planning method	58.2	44.7	13.5	51.0	36.9	14.1	7.2	7.8	-0.6
Any modern method	51.2	39.9	11.3	45.3	33.1	12.2	5.9	6.8	-0.9
Any modern temporary method	13.4	4.5	8.9	11.7	3.4	8.3	1.7	1.1	0.6
Any traditional method	6.7	4.4	2.3	5.8	3.8	2.0	0.9	0.6	0.3

Data Source: National Family Health Survey (NFHS-I and II).

TABLE 3
PERCENTAGE CHANGE IN URBAN AND RURAL HEALTHCARE OUTPUT
BETWEEN NFHS-II AND NFHS-I

Health Output	NFHS II			NFHS I			Change % (NFHS II – NFHS I)		
	Urban	Rural	Gap	Urban	Rural	Gap	Urban	Rural	Gap
Suffered from delivery complications	19.3	24.8	-5.5	15.3	11.2	4.1	4.0	13.6	-9.6
Birth weight >2.5 kg (%)	10.8	4.2	6.6	10.0	1.9	8.1	0.8	2.3	-1.5
Prevalence of diarrhoea (%)	19.6	19.0	-0.6	8.8	10.4	-1.6	10.8	8.6	-2.2
Neonatal mortality per 1000 population	33.5	51.7	-18.2	35.5	57.7	-14.8	-2.0	-6.0	-8.0
Post-neonatal mortality per 1000 population	15.8	28.0	-12.2	23.9	36.6	-0.2	-8.1	-8.6	-16.7
Infant mortality per 1000 population	49.2	79.7	-30.5	59.4	94.3	-15.1	-10.2	-14.6	-24.8
Child mortality per 1000 population	17.0	34.6	-17.6	20.1	40.4	-17.2	-3.1	-5.8	-8.9
Under five mortality per 1000 population	65.4	111.5	-46.1	78.3	130.9	-30.8	-12.9	-19.4	-32.3
Total fertility rate	2.27	3.07	0.80	2.70	3.67	-0.97	-0.43	-0.60	-1.40

Data Source: National Family Health Survey (NFHS-I and II).

TABLE 4
BACKGROUND VARIABLES AFFECTING PERCENTAGE CHANGE IN
HEALTHCARE UTILISATION BETWEEN NFHS-II AND NFHS-I

Background Variables	Went for ante-natal check-ups outside home			Full immunization within 12-23 months			Taken to health facility for diarrhoea		
	NFHS II	NFHS I	Change	NFHS II	NFHS I	Change	NFHS II	NFHS I	Change
Mother's Education									
Illiterate	43.6	34.8	8.8	27.8	24.0	3.8	58.5	58.0	0.5
Literate to less than Middle School completed	75.3	69.2	6.1	52.3	46.9	5.4	65.2	66.0	-0.8
Middle School completed	83.1	82.9	0.2	62.7	60.3	2.4	74.2	67.5	6.7
High School completed	92.7	90.9	1.8	72.7	70.0	2.7	78.2	70.9	7.3
Chi-square value	4558.9* (3)	7739.6* (3)	-	1099.3* (3)	203.4* (3)	-	119.4* (3)	43.4* (3)	-
Religion									
Hindu	58.6	47.8	10.8	42.4	36.0	6.4	62.0	60.3	1.7
Muslim	59.6	50.9	8.7	32.7	26.3	6.4	67.7	66.0	1.7
Christian	81.1	68.9	12.2	61.1	42.4	18.7	62.3	50.3	12.0
Sikh	69.7	81.9	-12.2	69.5	60.4	9.1	89.7	86.9	2.8
Jain	91.2	93.8	-2.6	73.0	73.7	-0.7	84.1	51.0	33.1
Buddhist/Neo-Buddhist	84.1	74.3	9.8	59.7	68.1	-8.4	55.6	55.7	-0.1
Chi-square value	208.3* (5)	483.9* (5)	-	156.9* (5)	21.5* (5)	-	36.2* (3)	36.1* (3)	-
Caste/Tribe									
Scheduled Caste	55.2	42.4	12.8	40.2	26.8	13.4	64.6	61.2	3.4
Scheduled Tribe	46.5	28.3	18.2	26.4	24.8	1.6	52.2	51.5	0.7
Others	67.3	53.3	14	46.8	38.2	8.6	66.1	62.4	3.7
Chi-square value	395.1* (2)	870.2* (2)	-	119.4* (2)	31.6* (2)	-	39.9* (3)	20.7* (2)	-
Residence									
Urban	83.8	77.2	6.6	60.5	50.7	9.8	75.2	68.7	6.5
Rural	53.0	41.4	11.6	36.6	30.9	5.7	59.9	59.3	0.6
Chi-square value	1730.4* (1)	2829.3* (1)	-	295.9* (1)	57.3* (1)	-	104.5* (1)	30.5* (1)	-
Birth Order									
1	73.8	62.3	11.5	54	45.5	8.5	68.8	64.4	4.4
2-3	63.6	53.0	10.6	48.9	38.3	10.6	62.8	61.6	1.2
4-5	44.1	38.1	6.0	38.8	26.1	12.7	61.2	59.0	2.2
6 and above	30.4	25.9	4.5	24.1	15.2	8.9	55.9	57.8	-1.9
Chi-square value	2420.9* (3)	370.8* (3)	-	530.4* (3)	383.1* (3)	-	37.7* (3)	9.9** (3)	-
Total	59.7	49.4	10.3	42.0	35.4	6.6	63.4	61.2	2.2

() shows df, * 1 per cent significance level, ** 5 per cent significance level

Data Source: National Family Health Survey (NFHS-I and II).

TABLE 5
BACKGROUND VARIABLES AFFECTING PERCENTAGE CHANGE IN HEALTH
OUTCOME BETWEEN NFHS-II AND NFHS-I

Background Variables	Neonatal Mortality			Infant Mortality			Child Mortality			Under-5 Mortality		
	NFHS-II	NFHS-I	Change	NFHS-II	NFHS-I	Change	NFHS-II	NFHS-I	Change	NFHS-II	NFHS-I	Change
Mother's Education												
Illiterate	55.3	60.6	-5.3	86.5	100.6	-14.1	39.7	44.3	-4.6	122.8	140.5	-17.7
Literate but not Middle School completed	40.5	38.8	1.7	58.5	62.5	-4	18.4	22.8	-4.4	75.8	83.9	-8.1
Middle School completed	33.7	37.6	-3.9	48.1	56.1	-8	10.5	9.2	1.3	58.1	64.8	-6.7
High School completed	24.3	25.3	-1	32.8	37.2	-4.4	4.4	6.2	-1.8	37.1	43.2	-6.1
Chi-square value	72.7* (3)	47.1* (3)	-	79.3* (3)	17.3* (3)	-	81.4* (3)	17.1* (3)	-	3.9 (3)	0.4 (3)	-
Religion												
Hindu	50.4	55	-4.6	77.1	90.4	-13.3	32.4	36.9	-4.5	107	124	-17
Muslim	38	47.1	-9.1	58.8	76.6	-17.8	25.4	32.2	-6.8	82.7	106.3	-23.6
Christian	29.8	32.6	-2.8	49.2	49.9	-0.7	19.7	19.4	0.3	68	68.4	-0.4
Sikh	38	27.7	10.3	53.3	47.2	6.1	12.3	18.5	-6.2	64.9	64.8	0.1
Jain	36.3	20.7	15.6	46.7	23.5	23.2	11.3	13.8	-2.5	57.5	37	20.5
Buddhist/Neo-Buddhist	39.5	36.6	2.9	53.6	56.4	-2.8	14.1	45.4	-31.3	66.9	99.3	-32.4
Chi-square value	16.2 (5)	13.7 (5)	-	12.9 (5)	3.7 (5)	-	22.2 (5)	3.4 (5)	-	9.2 (5)	-	-
Caste/Tribe												
Scheduled Caste	53.2	63.1	-9.9	83	107.3	-24.3	39.5	46.9	-7.4	119.3	149.1	-29.8
Scheduled Tribe	53.3	54.6	-1.3	84.2	90.5	-6.3	46.3	49.1	-2.8	126.6	135.2	-8.6
Others	40.7	50.6	-9.9	61.8	82.2	-20.4	22.2	32	-9.8	82.6	111.5	-28.9
Chi-square value	9.6** (2)	24.1* (2)	-	28.6* (2)	29.4 (2)	-	38.8* (2)	29.1* (2)	-	12.5* (2)	16.6* (2)	-
Place of Residence												
Urban	33.5	35.5	-2	49.2	59.4	-10.2	17	20.1	-3.1	65.4	78.3	-12.9
Rural	51.7	57.7	-6	79.7	94.3	-14.6	34.6	40.4	-5.8	111.5	130.9	-19.4
Chi-square value	0.2 (1)	1.9 (1)	-	2.7 (1)	7.9** (1)	-	5.1 (1)	7.6** (1)	-	3.7** (1)	0.4 (1)	-
Birth Order												
1	52.4	63.4	-11.0	74.9	93.0	-17.1	18.9	26.0	-7.1	92.3	116.6	-24.3
2-3	41.1	44.7	-3.6	63.7	74.5	-10.8	29.8	34.5	-4.7	91.7	106.4	-14.7
4-5	46.7	48.1	-1.4	74.6	87.0	-12.4	39.4	42.5	-3.1	111.1	125.8	-14.7
6 and above	62.5	69.8	-7.3	101.1	120.3	-19.2	49.8	54.3	-4.5	145.9	168.1	-22.2
Chi-square value	75.6* (3)	79.3* (3)	-	85.8* (3)	16.8* (3)	-	97.2* (3)	16.6* (3)	-	10.9** (3)	3.5* (3)	-
Total	47.7	52.7	-5.0	73.0	86.3	-13.3	30.6	35.5	-4.9	101.4	118.8	-17.4

DF, * 1 per cent significance level, ** 5 per cent significance level, total deaths in last 10 years in NFHS-I = 14,207, Total deaths in last 10 years in NFHS-II = 4,638.

INDIGENOUS HEALTH PRACTICES AMONG ANDHRA TRIBALS

Varadarajan*, Y.L. Tekhre** and Alka Sharma***

ABSTRACT

The health system and medical understanding of the tribals over the ages is recognised as conventional healthcare system and these depend both on herbal and on psychosomatic illness-based treatment. The present study attempts to explore the regional variations in the healthcare practices among the tribals of three different regions in Andhra Pradesh. It is found that the tribals in the state are in the different stages of epidemiological transition. The utilisation pattern of modern healthcare services by them varies widely across the different regions of the state. The study was conducted in the Vishakapatnam (Region I), Adilabad (Region II) and Medak (Region III) districts of the state. Since the study intends to focus on the regional differences in the utilisation of healthcare systems, analysis was made region-wise. While the tribals have started to accept primary healthcare services, the respondents from the Region I still largely depend on traditional system of medicines.

Key Words: Epidemiological Transition, Morbidity.

Health of any community, by and large, is a function of interaction among the socio-cultural and biological practices, genetic attributes and environmental conditions. Health conditions widely vary depending on the prevailing health practices of the individual and community at large. Many studies (Basu et al, 1990; Rizvi, 1986; Sahu, 2001) reveal that the socio-cultural variables are interrelated along with socio-biological norms such as age, marriage, childbirth and morbidity pattern etc. The environmental factor and usage of indigenous herbs, taboos and superstitions are also responsible for determining the healthcare practices and health status of any tribal group. In this context, individual healthcare practices may be categorised into primary, secondary and tertiary preventive behaviours (Smith, 1979).

Primary healthcare practices include self-care behaviour that prevents the onset of diseases. Secondary prevention practices include those activities that lead to the early detection of diseases. Tertiary prevention methods include the actual treatment seeking behaviour to prevent further complications. However, keeping in view of the population's knowledge about healthcare aspects, the focus of the present study is limited to primary and tertiary healthcare practices, keeping in view of the population's knowledge about health.

India has the largest concentration of tribals in the world except perhaps in Africa. According to the Census 2001, as many as 84.33 million are classified as Scheduled Tribes (STs) corresponding to 8.2 per cent of the total

*Deputy Director (Northeast Unit), Indira Gandhi National Open University, New Delhi 110068;
Professor, Department of Social Sciences, National Institute of Health and Family Welfare, Munirka, New Delhi-110067; *Professor and Head, Department of Sociology and Coordinator, Women's Development and Research Centre, Banasthali Vidyapeeth, Rajasthan-304022.

population of the country. The Census 2001 recognised 461 groups as tribes, while the estimate of the number of tribes touched up to 635 groups (Christian Erni & Shimreichon, 2001).

Tribes have their own cultural and social practices to treat various illnesses. Tribal communities possess a unique healthcare approach concerning the acceptance and rejection of modern medicine. It is very difficult to address the tribal healthcare problem only by providing healthcare set-ups, modern doctors, equipments and medicines to the tribal communities. Inadequate service quality and Western model of modern healthcare services fail to meet their expectations. The tribal concept of health, of disease, of treatment, of life and death is as varied as their cultures are. The tribal society is guided by traditionally laid down customs and every member is expected to conform to them. Tribals have retained much of their traditional healthcare culture. However, it has also been observed from a recent study that there is a keen inclination among them towards modern medical facilities if accessible (Gope Tapan Kumar 2007).

The ethno cultural complexity of the Andhra tribals reflects a miniature tribal India. Regional and ethnic diversities among various tribal groups in the state can be noticed with different clan and social structures. While most of the tribal groups residing in the agency tracts of the Vishakhapatnam region are characterised by well-developed portray organisation called the Savaras, have a social structure without any clan organisation. Besides, due to the horizontal stratification of each tribe in different regions, each tribal group has been socially stratified in the social hierarchy and status. The total population of the Scheduled Tribes constitutes 6.6 per cent as per the Census 2001 constituting 6 per cent of the country's ST population. The SC/ST Amendment Act of 1976 has notified 33 groups as STs in Andhra. The decadal

growth rate of the ST population (1991-2001) at 19.6 percent is higher compared to the overall 14.6 per cent growth of the state as a whole. Tribal groups in the state are showing significant changes in the process of development. Tribals mainly subsist on agricultural followed by agricultural labour while collections of non-timber forest produce are subsidiary occupation. They also started to migrate to nearby towns and cities for livelihood. They are engaged in daily wage jobs like construction work, roads, and other menial works.

OBJECTIVES

The main objective of the paper is to examine the pattern of healthcare practices of the tribals of Andhra in the light of regional variations. Besides, the morbidity pattern and the quantum of modern healthcare facilities utilised by various are examined and compared.

MATERIALS AND METHOD

The selection of the study area was entirely based on the concentration of tribals and a stratified sampling strategy was adopted to choose the sample. The Working Group on Scheduled Tribals of the Government of India has divided the tribal areas into three major categories-- (a) tribals residing in areas with traditional concentration, (b) primitive tribes concentration, and (c) dispersed tribal population.

Accordingly, one district from each region, namely Vishakhapatnam (Region I), Adilabad (Region II) and Medak (Region III) districts were selected. From each district one notified tribal PHC was randomly selected. The selections of villages were based on their distances from the PHC. Further it was decided to consider one PHC village, one sub-centre village and one village where no health centre was in place. From each village, 25 eligible couples were randomly selected for interviews which were conducted

through a pre-structured schedule. A total of 225 couples were covered in all the nine sample villages covering the three regions.

Concept of Morbidity

While the concept of morbidity or disease essentially means the absence of proper health, it also varies as per the individual perception. For instance, fever has both too broad and too narrow limits when it comes to be perceived as a disease among the tribals. It is very narrow in so far it does not affect their working capacity, and it is very broad when it affects their routine working capacity, and becomes a disease. Morbidity and disease are two related but different phenomena. A disease corresponds to some form of bio-physiological changes in the body. On the other hand, morbidity is a social phenomenon of meaning and experience that surrounds any disease. Therefore, any individual perception is mostly confined to the orbit of morbidity, unless it is medically diagnosed.

FINDINGS

(1) Prevalent Morbidity Pattern

In the light of the above understanding, the present paper explored the 107 incidences of self-reported morbidity cases in the sample households. The prevalence of various perceived morbid conditions are given in Table 1.

The table reveals that 14.9 per-cent of the respondents are suffering from some kind of menstrual disorder, followed by acute diarrhoea and gastroenteritis (14.0%). Menstrual disorders from the Region II and III is found to be more than Region I (19.2%). From Region I 26.6 per cent of the respondent are suffering from acute diarrhoea followed by scabies (13.0 %). From Region II, 30.5 per cent of the respondents are suffering from diarrhoea followed by knee pain (11.1%). Though, ear running (2.8%) and worm infections (0.93%) are lesser in magnitude, still these diseases are often caused by deficient nutrition and poor hygienic conditions. Respiratory

TABLE 1
DISTRIBUTION OF PERCEIVED MORBIDITY PATTERN
AMONG SAMPLE HOUSEHOLDS

Sl. No.	Morbidity	Region-I	Region-II	Region-III	Total
1	Acute diarrhoea/ gastroenteritis	12(26.6)	1(2.7)	2(7.6)	15(14.0)
2	Fever	1(2.2)	3(8.3)	-	4(3.7)
3	Cough and cold	3(6.6)	1(2.7)	1(3.8)	5(4.6)
4	Knee/joint pain	3(6.6)	4(11.1)	1(3.8)	8(7.4)
5	Scabies	6(13.3)	1(2.7)	-	7(6.5)
6	Diarrhoea	3(6.6)	11(30.5)	1(3.8)	15(14.0)
7	Ulcer	4(8.8)	3(8.3)	2(7.7)	9(8.4)
8	Worm infection	1(2.2)	-	-	1(0.93)
9	Respiratory infection	-	-	5(19.2)	5(4.67)
10	Tooth problems	5(11.1)	2(5.5)	4(15.4)	11(10.2)
11	Eye problems	3(6.6)	3(8.3)	2(7.7)	8(7.4)
12	Ear problems	-	-	3(11.5)	3(2.8)
13	Menstrual disorders	4(8.8)	7(19.4)	5(19.2)	16(14.9)
	Total	45(100.0)	36(100.0)	26(100.0)	107(100.0)

Figures in parentheses denote percentages.

infections (19.2%) and menstrual disorders (19.2%) are found to be the major diseases in the Region III. Working in *beedi* factories could be one of the main causes of respiratory disease in Region I, as this region has a large number of *beedi* factories. Ulcers and tooth problems seem to be common in all the three regions.

Significantly, more than one-fourth of the morbid cases from the Region I are reported as of acute diarrhoea. During discussion with area health officials, it has been found that these tribal areas are prone to ameobiasis infection. Ameobiasis is caused by a parasite infection by *entameba histolica*. It is more prevalent in humid and tropical regions and the Region I happens to be one of them.

(2) Epidemiological Transition

The above analysis shows that tribals in the study area are in different stages of epidemiological transition. The gradual shift from primary food production appears to be the basis of the changing disease pattern. The domestication of plants for animals in the Region I and II resulted in more prevalence of infectious diseases. Parasitic infections are more because of the proximity of the living areas to sources of water and the areas where human waste is deposited.

Diseases such as worm infections, gastroenteritis associated with domesticated goat, sheep and cattle may have infected the early tribals. Besides, dietary deficiency can also increase the impact of infectious diseases.

But in Region III the disease pattern is quite different. It is more related to respiratory and dental infections due to their exposure to unhygienic, polluted and crowded living conditions in the wake of daily movements to urban centres in search of employment. However, these tribals have not fully reached even the second stage of epidemiological transition. While the urban masses are passing through the third stage of epidemiological transition with rise in chronic degenerative diseases due to increased longevity and re-emergences of infectious diseases because of antibiotic resistance etc, the tribals in the study areas are entering the second stage of epidemiological transition only.

(3) Sources of Treatment

Sources of treatment are one of the indicators for assessing the existing healthcare practices in a given community. In the traditional system of curing, culture affects the way in which patients receive and define illness and influences the choice of treatment. As

TABLE 2
DISTRIBUTION OF SICK PERSONS BY SOURCES OF FIRST TREATMENT

Sl. No.	Sources	Region-I	Region-II	Region-III	Total
1	Medical Officer, PHC	6(13.3)	6(16.7)	6(23.0)	18(16.8)
2	Auxiliary Nurse Midwife	5(11.1)	-	2(7.7)	7(6.5)
3	Registered Medical Practitioners	-	3(8.3)	4(15.3)	7(6.5)
4	Local Healers	7(15.5)	11(30.5)	3(11.5)	21(19.6)
5	Community Health Centre/ Mandal Hospital	6(13.3)	6(16.7)	-	12(11.2)
6	NGO Volunteers	3(6.7)	-	-	3(2.8)
7	Private Doctors	-	-	1(3.8)	1(0.9)
8	Home Remedies/None approached	18(40.0)	10(27.7)	10(38.5)	38(35.5)
	Total	45(100.0)	36(100.0)	26(100.0)	107(100.0)

Figures in parentheses denote percentages.

such, the choices of sources for first treatment in the various regions are presented in Table 2.

The table indicates that a substantial proportion of the sick persons (35.5%) do not approach any healthcare personnel for any treatment but take home remedies. On the other hand, 19.6 per cent of the sick persons go to local healers, followed by 16.8 per cent who go to the medical officer at the PHC. In Region I, while 15.5 per cent of the sick persons go to local healers, almost an equal proportion (13.3%) also go to the local medical officer at the PHC/CHC. In Region II, 30.5 per cent of the sick go to local healers, followed by medical officer at the PHC. However, the availing of the PHC facility is more in Region III as 23 per cent go to the medical officer at the PHC, followed by registered medical practitioners (15.3%). Hence, one may conclude that treatment is still very much traditional and pluralistic in Regions I and II, while it

is more modern in Region III. However, in all the three regions the first level of treatment still has been home remedies for most of the tribals.

(4) Morbidity and Adopted System of Treatment

The system of medicine adopted, naturally gets influenced by the beliefs and customs of the community. However, the severity of morbid conditions also plays its own role in adopting of the system of medicine, as does their economic conditions. The Table 3 presents the morbidity specific system of treatment adopted by the tribals.

The data reveals that 65 per cent of the morbidity cases sought some kind of treatment either from modern or traditional sources. While remaining 35 per cent of the cases do not approach anyone sources but go for home remedies. Further, out of 107 only 34

TABLE 3
MORBIDITY AND ADOPTED SYSTEM OF TREATMENT

Sl. No.	Diseases	Modern	Traditional	Modern and Traditional	Home Remedies	Total
1	Acute diarrhoea diseases/ Gastroenteritis	4(11.7)	-	4(21.0)	7(18.9)	15(14.0)
2	Fever	-	-	1(5.2)	3(8.1)	4(3.7)
3	Cough and cold	-	1(5.8)	4(21.0)	-	5(4.6)
4	Knee/joint pains	3(8.8)	3(17.6)	1(5.2)	1(2.7)	8(7.4)
5	Scabies	3(8.8)	-	-	4(10.8)	7(6.5)
6	Eye problem	7(20.5)	-	-	1(2.7)	8(7.4)
7	Ulcer	6(17.6)	3(17.6)	3(15.7)	3(8.1)	15(14.0)
8	Menstrual disorder	1(2.9)	9(52.9)	3(15.7)	3(8.1)	16(14.9)
9	Ulcer	5(14.7)	-	1(5.2)	3(8.1)	9(8.4)
10	Worm infestation	1(2.9)	-	-	-	1(0.9)
11	Tooth problem	1(2.9)	-	-	10(20.7)	11(10.2)
12	Ear running	-	1 (5.8)	-	2(5.4)	3(2.8)
13	Respiratory infection	3(8.8)	-	2(10.5)	-	5(4.6)
	Total	34(100.0)	17(100.0)	19(100.0)	37(100.0)	107(100.0)

Figures in parentheses denote percentages.

sick receive medical care from qualified medical personnel, 20 of them take treatment from both modern as well as traditional system, while 17 of them have taken gone to traditional healers only. Moreover, priority of system of medicine chosen is based on the seriousness of the ailments that they suffer from. However, the modern healthcare system is predominantly accepted by the tribals for all serious ailments such as ulcers, knee pain, respiratory disorders etc. But for all diseases of ordinary ailments like tooth pain, menstrual disorder and scabies, they still resort to traditional medicines or home remedies. Thus, the treatment seeking pattern largely depends on the seriousness of illness although it is obvious that the tribals are slowly shifting towards modern healthcare system.

(5) Utilisation of Alternative Health Practices

Close association between healthcare providers and the public is more important to get successful medical treatment for any disease. Fiona Stevenson and Graham Scrambler (2005) have coined the term 'concordance' factors, which means a set of tuned relationships between the patients and practitioners for effective

treatment. Further, it is emphasised that there is a need for redefinition of relations that are developed between the doctor and patient in terms of involvement, participation and mutual trust while treating the patient. Again this trust must be seen in the context of mutual understanding and benefits. Otherwise, the possibility of declining trust in the medical profession may be increasingly observed and the patient may increasingly develop interest in alternative therapies (Eisenberg et. al; 1998, Murry and Shepherd; 1990). Padam Singh and others (2005) have found in their study that 33 develop of the respondents preferred indigenous medicines because of their long-standing faith and having no side-effects.

In the present study 120 out of 225 respondents prefer to utilise the alternative healthcare practices. Reasons given for preference of alternative health practices are reflected in Table 4.

The table reveals that for 19 per cent of the respondents the main reason for using alternative healthcare practices is the faith in the system, followed by (8%), and non-availability of medical officer at the PHC (8%). While for 12 per cent of the respondents in Region II, the main

TABLE 4
REASONS FOR ALTERNATIVE HEALTHCARE PRACTICES

Sl. No.	Reason	Region-I	Region-II	Region-III	Total
1	Faith in the system	9(12.0)	24(32.0)	10(13.3)	43(19.1)
2	Affordable	12(16.0)	-	6(8.0)	18(8.0)
3	More accessible	3(4.0)	-	2(2.6)	5(2.2)
4	Service at door-step	3(4.0)	-	3(4.0)	6(2.6)
5	No side-effect	3(4.0)	-	4(5.3)	7(3.1)
6	Local health providers visits us regularly	3(4.0)	9(12.0)	2(2.6)	14(6.2)
7	Medicine not available at PHC	6(8.0)	9(12.0)	1(1.3)	16(7.1)
8	Medical Officers at PHC not available	6(8.0)	3(4.0)	2(2.6)	11(4.8)
9	Not applicable	30(40.0)	30(40.0)	45(60.0)	105(46.6)
	Total	75(100.0)	75(100.0)	75(100.0)	225(100.0)

Figures in parentheses denote percentages.

reason for not going to modern system is the non-availability of medicines at PHC. Influence of local healers is comparatively high in this region. One may conclude that besides faith and affordability, absence of medical officers and non-availability of medicines at PHCs are two major reasons for using alternative healthcare practices.

Apart from all the above reasons, traditional drugs are designed to interact with the protein molecules that cause diseases. This might inhibit the production of the disease causing proteins and treat a wide range of diseases as well as boost the auto-immune system in the body. As a matter of fact, the tribals often treat health and diseases as related to sociological and cultural resources of community in specific environments.

CONCLUSION

It is concluded that the tribals in the study areas are in different stages of epidemiological transition as they do live in different geo-climatic conditions. The morbidity pattern of any one of the regions is of quite different from other regions. Utilisation of primary healthcare facilities is more in the Region III as 23 per cent of the sick have reported to be consulting the medical officer at the PHC, followed by registered medical practitioners (15.3%). Hence, it is concluded that treatment is still very much traditional in Regions I and II, while it is more modern in Region III. But in all the regions the first level of treatment is still home remedies for most of the tribals. The study has found that affordability and faith in alternative medicines, absence of medical officers and non-availability of medicines at PHCs are found to be major reasons for using alternative healthcare practices.

On the basis of the above findings, it is suggested that a region-wise specific health plan is more essential rather than the existing healthcare plan for entire tribals of the state as a whole.

REFERENCES

1. Basu, S. et al.(1990) Genetic and Socio-Cultural Determinants of Tribal Health, ICMR Final Report, NIHFV, New Delhi.
2. Rizvi, S.N.H. (1998) Practice of Native Medicine Among Jaunsari in Sexena et al (edited) Perspectives of Tribal Development, Bharat Book Centre, Lucknow.
3. Sahu, C (2001) Indian Tribal Life, Sarup and Sons Publications, New Delhi.
4. Smith, B.C. (1979) Community Health: An Epidemiological Approach, McMillan Press, New York.
5. Fiona Stevenson and Graham Scambler (2005) The Relationship between Medicine and the Public: The Challenge of Concordance, *Journal of Health*, Vol. 9 (1). P. 5-21.
6. Eisenberg et al. (1998) Trends in Alternative Medicine Use in the United States, 1990-1997 *Journal of American Medical Association*, Vol. 280, P. 1569-1575.
7. Murray, J and Shepherd, S (1990) Alternative or Additional Medicine? An Explanatory Study in General Practice, *Journal of Social Science and Medicine*, Vol. 37. P. 983-988.
8. Padam Singh et al (2005) Utilization of Indigenous System of Medicine and Homoeopathy in India, *Indian Journal of Medical Research*, Vol. 122 (2). P. 137-142.
9. Christian Erni and Shimreichon, (2001) Indigenous and Tribal Peoples in India by Christian Erni and Shimreichon, ILO (Desk Review).
10. Gope Tapan Kumar, (2007) Changing Health Care Practices Among the Tribals. Ambala Cantt., The Associated Publishers, 2007, xvi, 308, p., ISBN 81-8429-048-9.

A STUDY ON DISTRIBUTION OF PERMANENT METHODS OF CONTRACEPTION ACCEPTORS BY SELECT VARIABLES

Arshiya Masood*, S Dwivedi**, G Singh***, S Gupta**** and P Mishra*

ABSTRACT

This study was conducted in rural and urban areas of Allahabad district in Uttar Pradesh to find out the knowledge, attitude, and practices of contraceptives among the currently married women (15-45 years) and the number of children after which permanent method was used. This cross-sectional study included 1,063 and 1,082 eligible women in rural and urban areas, respectively, by stratified cluster sampling design. The study subjects were interviewed using a pre-designed schedule. Though no significant difference was found in the awareness level of women regarding contraception in rural (71.9%) and urban areas (92.9%). Only 13 per cent of rural women were using some method of contraception as compared to 47.1 per cent urban women. The most commonly used contraception method was permanent method (tubectomy) in both the areas (57.2% and 52% in rural and urban areas, respectively). But this method was used after one or two children only by 11.3 per cent and 18.3 per cent of women in rural and urban areas, respectively, thereby defeating the purpose of family planning to control population. Male sterilization accounted for only around 2 per cent of permanent methods. Significantly, only around 26 per cent rural women and 37 per cent of urban women were willing to use contraceptives in future.

Key Words: Contraceptives, Distribution, Permanent Methods, Select Variables.

Rapid population growth strains essential resources and impedes development of any country. With 1.027 billion¹ people, we are already the second most populous country in the world and is growing at 1.8 per cent per annum,² accounting for about 20 per cent of global births³. According to UN projections, our population will reach 1.53 billion by the turn of 2050, if the current growth rate continues and will be the most populous country. Out of the 1.27 billion, around 35 per cent are living in absolute poverty--on under \$1 a day².

Contraception plays an important role in family planning and birth spacing. Permanent methods of contraception, particularly tubectomy, is by far the most preferred method among currently married women accounting for 67 per cent of modern methods.⁴

Uttar Pradesh is the most populous state in the country with relatively weak demographic and health indicators. Within UP, the eastern part remains the most backward in most of the criteria set for achieving the desired developmental goals. The present study was carried out in Allahabad district, situated in eastern UP with the

*Assistant Professor, ****Associate Prof, Department of Community Medicine, Sri Guru Ram Rai Institute of Medical and Health Sciences, Dehradun, **Prof and Head, ***Ex-Prof and Head, Department of Community Medicine, MLN Medical College, Allahabad, UP.

following aims and objectives.

AIMS AND OBJECTIVES

- (1) To assess the knowledge, the attitude and practices of contraception among currently married women of reproductive age group (15-45 years); and
- (2) To study the number of children after which permanent method of contraception is used.

MATERIALS AND METHOD

This was a cross-sectional study using stratified cluster sampling technique. Thirty each clusters were selected from rural and urban areas of Allahabad district. Rural areas were divided into blocks and 15 blocks were selected randomly. These blocks were divided into villages and 30 villages were selected randomly as clusters. The urban areas were divided into wards and 30 wards were selected randomly as clusters.

Based on the awareness of contraception of 70 per cent in rural and 82 per cent in urban areas among currently married women of reproductive age group of 15-45 in a pilot survey and allowing for 5 per cent permissible error and 95 per cent confidence limit, the minimum sample

size was calculated to be 686 for rural and 352 for urban areas. A total of 1,063 eligible women in rural and 1,082 from urban areas were interviewed and the information was recorded on a pre-designed, pre-tested and pre-coded schedule, which was tested for its validity on the basis of a pilot survey. The study was carried out from April 2004 to March 2005. Chi-square and Z-Tests were used to assess the significance of the differences in the responses of the respondents.

RESULTS

Table 1 shows some general characteristics of eligible women. The socio-economic status of women in urban areas is significantly better than those in rural areas. Female literacy rate is higher in urban areas (55.8%) as compared to rural areas (26.5%). The percentage of women whose marriage consummated below 18 years is higher in rural areas (63.4%) than in urban areas (41.6%). In rural areas 58 per cent women are having more than three children, while only 17.2 per cent of those in urban areas have the same. The mean age of consummation is 16.9 and 18.5 years in rural and urban areas respectively.

Table 2 reveals an awareness level of around 72 per cent in rural and 93 per

TABLE 1
SOME CHARACTERISTICS OF THE CURRENTLY MARRIED WOMEN

S. No	Characteristics	Rural (N=1063)		Urban (N=1082)		Test Results
		No.	%	No.	%	
1.	Socio-economic Status					
	Class I	28	2.5	25	2.3	$\chi^2 = 176.87$ $P < 0.001$
	Class II	135	12.7	91	8.4	
	Class III	170	16.0	305	28.2	
	Class IV	283	26.6	569	52.6	
	Class V	447	42.2	92	8.5	
2.	Literacy	280	26.5	604	55.8	Z=9.09 $P < 0.001$
3.	Marriages consummated below 18 years	674	63.4	450	41.6	Z=6.25 $P < 0.001$
4.	No. of living children over 3 years	617	58.0	186	17.2	Z = 32.97 $P < 0.001$
5.	Mean age at consummation	16.9 years		18.5 years		

TABLE 2
CONTRACEPTIVE PRACTICES

	Characteristics	Rural (N=1063)		Urban (N=1082)		Test Results
		No.	%	No.	%	
1	Awareness	767	72.2	1005	92.9	P <.0001
2	Attitude (currently using and want to use)	412	38.8	906	83.7	P <0.001
3	Practice (All methods)	138	13.0	514	47.5	P <0.001
4	Practice (Permanent)	80	7.5	267	24.7	P <0.001
	Tubectomy	78		264		
	Vasectomy	02		03		
5	Unmet needs	272	25.6	396	36.6	P <0.001
6	Availability (as told by respondents)	316	29.8	958	88.6	P <0.001

cent in urban areas. Only 13 per cent of rural women are using some methods of contraception as compared to 47 per cent in urban areas. Permanent method is the most frequently opted contraception model in both the areas. In rural areas it is 57.7 per cent of all modern methods, while in urban areas it is 52 per cent. The percentage adoption of vasectomy is very low at 5 in both the areas. Regarding unmet needs, 25.6 per cent of rural women and 36.6 per cent urban women desire to use some methods of contraception in future. As far as the availability of various contraceptive methods is concerned, it is 88.6 per cent in urban areas but only 29.8 per cent in rural areas.

Table 3 shows the number of living children after whom the most frequently used method of contraception--the permanent method-- is used. Only 10 per cent rural women and 15.7 per cent in urban areas use permanent method after two children. Around 35 per cent of

women use permanent method after three children and around 25 per cent do so after four children in both the areas. Around one-third in rural and one-fourth in urban areas use the permanent method after five or more children. The difference in the usage pattern is statistically significant in urban and rural areas. A significantly higher number of urban women go for permanent method after 2-4 children, while significantly more rural women have undergone tubectomy after 5 or more children only.

DISCUSSION

Population growth is attributed to the following factors:

(1) A large number of people coming to reproductive age group because of high past fertility, (2) Large unmet need for contraception, (3) A large number of girls getting married below the legal minimum age (below 18 years), and (4)

TABLE 3
PERMANENT METHODS OF CONTRACEPTION ON THE BASIS OF THE NUMBER OF LIVING CHILDREN

S.No	No. of Living Children	Rural (N=80)		Urban (N=267)		Test Result
		No.	%	No.	%	
1	1	01	1.3	07	2.6	
2	2	08	10.0	42	15.7	P<000
3	3	25	31.3	92	34.5	P<000
4	4	20	25.0	66	24.7	P<000
5	5	13	16.2	25	9.4	P<000
6	6+	13	16.2	35	13.1	P<000

Improvement in female literacy and socio-economic status is closely correlated to decline in fertility⁵. The trend of fertility pattern in rural and urban areas is seen to be consistent with these facts.

Lack of knowledge can be a major obstacle in the adoption of family planning methods. This study shows an awareness of around 72 per cent in rural and 92 per cent in urban areas. The NHFS-III reveals an awareness of 98 per cent in rural and 99 per cent in urban areas regarding contraception. Bhasin SK et al⁶ reported an awareness of more than 90 per cent in east Delhi.

Only 13 per cent rural women are using some modern methods of contraception as compared to 47 per cent in urban areas. The survey also shows that 42.4 per cent use of some modern methods of contraception in UP. The national average is 45.3 per cent in rural areas and 55.8 per cent in urban areas. This study shows a higher adoption percentage in urban areas and lower in rural areas, which is consistent with the low awareness level in rural areas. A study by Sharma et al⁷ in Rajasthan shows 60.8 per cent awareness regarding contraception and 19 per cent usage.

Tubectomy is the most frequent contraception in the present study. The findings are in consonance with the findings of the NFHS-III. Vasectomy accounts for only around 2 per cent in this study showing lack of male participation in family planning. Similar are the findings of the NFHS-III.

While 25.3 per cent rural women and 36.4 per cent in urban areas reported to have unmet needs, according to this study, the NFHS-III shows over 20 per cent in whole of UP and 13 per cent nationally.

Around 10 per cent women in rural and 20 per cent in urban areas with 1-2 children are acceptors of tubectomy. In a study by Padma Mohanan et al⁸ in Mangalore, 29.3 per cent women were

doing the same.

A significantly higher number of women in urban areas have undergone tubectomy after 2 children as compared to women in rural areas, which seems to be consistent with higher literacy and better socio-economic conditions in urban areas.

CONCLUSION AND RECOMMENDATIONS

A large gap between knowledge and practice is seen despite good awareness. Only around 13 per cent of rural women and 47 per cent of urban women use some modern method of contraception. Permanent methods of contraception, mainly tubectomy, accounts for over 50 per cent contraceptive use. Only less than 20 per cent have undergone tubectomy after one-two children in both the areas. The rest of them have adopted this method only after adding a large burden to the population, thereby defeating the purpose of family planning. However, significantly more urban women have undergone tubectomy after 2-4 children than rural women where it is only after 5 or more children, which is in consonance with the higher literacy and better socio-economic status of women in urban areas. Another reason for lower adoption rate in villages is the poor availability of contraceptives, only 29.8 per cent, as reported by respondent women in rural areas.

The unmet need is around 26 per cent in rural and 36 per cent in urban areas. If this is met, the couple protection rate can increase considerably. A multipronged strategy aimed at sustained IEC efforts focusing on safety and beneficial effects of family planning methods, exploring various barriers of non-utilisation of contraceptives and removing the same is necessary.

REFERENCES

1. Census (2001), Web Edition, Provisional Population Totals, Series1, India.

2. UNICEF Annual Report (2003).
3. WHO Report (2004).
4. National Family Health Survey, India (2005-6) Summary Report, International Institute for Population Sciences; Bombay 2007.
5. K Srinivasan (2004) Population and Development in India Since Independence: An Overview; *The Journal of Family Welfare*, Vol. 50
6. Bhasin S K, Pant M, Mehta M, and Kumar S; (2005) Prevalence of Usage of Different Contraceptive Methods in East Delhi - A Cross-Sectional Study-*Ind J Comm Med*, Vol. 30, No.2, April-June, p-53-55.
7. Sharma V and Sharma A (1991) Family Planning Practices among Tribals of Rajasthan, India; *J Res Edu Indian Med*; 10 (4):5-9.
8. Mohanan P, Kamath A and Sajjan B S (2003); Fertility Pattern and Family Planning Practices in a Rural Area in Dakshin Kannada: *Ind J Com Med*, Vol. XXVIII, No. 1, Jan-Mar, p-15-18.