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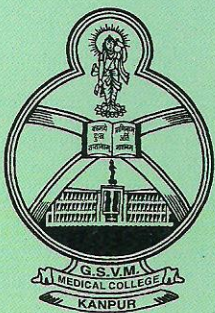
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EDITORIAL**PAST, PRESENT & FUTURE OF COMMUNITY MEDICINE**

All that is valuable in human society depends upon the opportunity for development accorded to the individual.

Albert Einstein :

The great words of a genius holds much of grounded even today when we ponder over the rapid strides of our branch community medicine.

It has always been pointed out since antiquity that hygiene had been an important component of the disease causation. Whether it was Sushruta "Sushruta - Samhita" which inherently emphasizes upon ancient surgical procedures but also throws light upon the importance of hygiene in disease causation. Hygiene has also been stressed upon in ancient India and is mentioned in the laws of Manu which were a code of personal hygiene. The archaeological excavations done at Harappa & Mohenjo-daro of the Indus valley era depicts the advanced sense and practices adopted by them in the field of sanitation.

Ayurveda system also throws light upon it through its Tridosha theory of disease wherein the three doshas are vata (wind) pitta (gall) and kapha (mucus). It associates the causation of the disease to the disturbance in equilibrium between the three humors. A similar Greek theory associates the disease with "the theory of four humors". Also in Greek Medicine there is mention of a greek leader Aesculapius who bore two daughters namely Hygiea & Panacea. Subsequently Hygiea was worshipped as the goddess of health & Panacea was worshipped as the goddess of medicine. Thus there was a significant divide in the list of followers as Hygiea got more attention of the intellectual stuff while the Panacea was a boom for those who were after the monetary gains.

Hippocrates whom we most reverently bow as the "Father of medicine" had also been an excellent epidemiologist since he was always in search of the disease causation & its study. His appetite for epidemiology was so vast that he was constantly associating the disease with factors such as climate, clothing, diet, etc. The book titled "Air, Water and Places" written by him is considered still an epitome of epidemiology scriptures.

The middle ages (500-1500 A.D.) saw the debacle of the public health with the fall of the Roman empire. The diseases which had always haunted the mankind like plague, smallpox, leprosy and tuberculosis spread far and wide & even Europe was not spared of its ill-effects. There was pre-dominance of superstition & dogma in the society wherein the association of the disease was related to spirits. Then with some initial efforts put in by Arabs of preserving the ancient medical traditions, a major thrust to it was given to it by the christians

as they spread worldwide and established proper hospitals for the upkeep of the patients.

With the revival of medicine in 14th to 18th century there was a major breakthrough in the inventions that proved to be a milestone in medical sciences. During the 19th century there was a lot of sanitary awakening in England which ushered in a phase of public health. During this time itself John Snow studied the epidemiology of cholera in mid 19th century and established the role of polluted drinking water in its spread in London. By the beginning of 20th century various European countries had started developing their public health foundations.

Preventive medicine has its origin mainly in 18th century when James Lind established the role of fresh fruits in scurvy prevention. Sometime later there was a discovery of smallpox vaccine by Edward Jenner which was a major breakthrough. A very firm basis to preventive medicine was provided with the discovery of causative agent & establishment of the Germ theory of disease. Soon in 19th Century there were marked discoveries like Pasteur's anti-rabies treatment, cholera vaccine, disinfectants, etc. The process of disease transmission was also thoroughly understood during this phase e.g. Ross established the malaria transmission by female anopheles. With the better knowledge of bacteriology various measures of curtailing the disease transmission like quarantine, disinfection, water purification were duly adopted.

The concept of preventive medicine lies in prevention of disease and promotion of health in healthy individuals. With the advent of various vaccines there was a definite triumph over the high morbidity these diseases had inflicted over the human race. Vaccines like polio were also discovered in 1950s by the advancements like tissue culture techniques.

The eradication of smallpox was a defining moment of preventive medicine as it had conquered the all time menace. The present day preventive medicine is much more holistic in vision and is working in broader sense than ever before.

There is always an ongoing search for newer and effective vaccines like malaria, syphilis, leprosy which can enhance the capabilities further. AIDS vaccine is also a subject of great research as still it is undergoing trials. Adequate funds for research is now being provided by organizations like Bill & Melinda Gates foundation and also WHO. Besides it, newer strategies like tackling deficiencies like nutritional blindness & Iodine deficiency disorders is now being focused. The present awakening for intake of

vitamins, Minerals & the most recent emphasis on fibre diet realizes all the importance of preventive medicine also known as community medicine.

With time and enhanced research into medications drugs such as antileprosy, anti-malarials, anti-tuberculous, and also recent anti-retroviral drugs strengthens the preventive aspect of medicine & constitutes an important part of it. It's the man's quest for knowledge which has shaped up the preventive component beautifully.

Chemoprophylaxis and mass drug treatment took a major leap into a newer league where it had an all important role for prevention of many infectious diseases. People of many developing regions of the world are now being able to live longer and healthier than ever before.

There also floated an idea of eradication of diseases in today's era after many achievements in its clutches. Smallpox eradication was a part of such a drive which was marvelously executed and implemented. This has further boosted energies to carry on this eradication drive for many other diseases which also now are on verge of its destiny. Regular polio surveillance at the national level is also impacting the past status of this disease to its present level where its eradication seems to be in sight.

The outstanding aspect of screening for the diagnosis of disease has made a significant impact in curtailing various diseases in its pre-symptomatic stages e.g cancer, diabetes, cardio-vascular disease which comprise a large chunk of modern diseases.

The future of the branch of preventive medicine has a much heavier role destined to it. The problems of population explosion & global warming which haunt our generation and which is assuming greater magnitude for future assigns a role community medicine to prevent its deleterious effects over mankind. The wide spread research in contraception will

prove to be an important pillar to tackle various problems effectively. Also generic counseling and research will in future make it more fruitful branch for some of the most harsh problems of all times.

Various programmes which are currently running in the county have made some serious breakthroughs and future has great success in foresight for them. NRHM launched for 2005-2012 will alter the picture of health in rural India which needs attention. The achievements of individual programmes under it RNTCP, NVBDCP had been stupendous all these years and future needs great focus on its proper implementation. Newer challenges posed by disease like AIDS should be addressed duly by change in some strategies so that it further strengthens the programmes. As for now we are closing towards eradication of polio through successful programme run all over India and we hope we are able to provide a safe environment for coming generations.

Preventive aspects are being applied on increasing basis on the chronic, degenerative and hereditary aspects of many chronic and incurable diseases. Thus with advances in time preventive aspect is going to attain greater magnitudes. The growth of preventive cardiology and preventive geriatrics reflects its future trends. Modern preventive medicine truly covers all the aspects of prevention and can be thus summarized as the art and science of health promotion, disease prevention, disability limitation and rehabilitation.

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BREAST-FEEDING PRACTICES AMONG MOTHERS AND ASSOCIATED MALNUTRITION IN CHILDREN OF RURAL AREAS OF DEHRADUN

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ABSTRACT:

Breast-feeding is the nature's gift for the child yet ironically it is one of the most neglected and least properly practiced among the mothers. The present study was carried out among mothers with children 1-3 years of age in the field practice areas of our Institute. Out of the 228 children 73.6% had been given prelacteal feeds, in case of 77% of the children breast-feeding had been initiated in more than one hour, only 28.9% were exclusively breast fed & supplementary feeding was started in 6 months for 39% 43.8% were undernourished for age of which 58% were having Grade I malnutrition. Thus the present study reaffirms the contention that though rural mothers breast-feed their children, they abide by cultural practices more than the advice of the health workers or doctors and this study supports that these improper feeding practices do affect the child's health adversely.

Key words: Breast-feeding practices, prelacteal feeds, and supplementary nutrition, malnourished for age.

Introduction:

Breast-feeding is the fundamental right of the child. The anti-infective qualities, freedom from the risk of contamination, psychological benefits for the mother and the child and its nutritional superiority over animal milk makes breast milk definitely the feed of choice, more so in a developing country like ours¹.

But unfortunately this naturally gifted practice has declined worldwide in the recent years, which can be largely attributed to rapid urbanization, marketing of infant milk formulae and maternal employment - to name a few².

WHO and other international agencies recommended that mothers should breast feed their children exclusively for 6 months from birth & continue it along with appropriate supplements up to the second year of age^{3,4}. Initial 5-6 months lay the foundations of the child's health.

The present study was undertaken to explore the breast-feeding practices amongst the mothers in early six months to one year and its association with malnutrition regardless of the present calorie intake of children.

Materials & Method:

The study was conducted in the field practice areas of the Department of community medicine, Himalayan Institute of Medical Sciences from March 2003 - Sept 2003. It was a cross-sectional study where 228 children between 1-3 yrs of age were identified by a house-to-house survey done by a team of interns, PGs & supervised by faculty members. The interns interviewed the mothers of the children by using a prestructured questionnaire to obtain information regarding the sex of the child, birth order, mother's practices of breast-feeding irrespective of their level of education. To assess the malnutrition, present calorie intake of children were not taken into consideration. Checking for the BCG scar & asking about the polio drops & other injections, in case the mother did not

possess the immunization card, determined the Immunization status of child. Assessment of malnutrition was done by plotting weight (taken by a weighing machine) against age (in months) on ICDS growth charts. Statistical test (chi square test) was carried out to find out any association between the variables.

Findings:

Out of the 228 children 128 i.e 56.14% were males & 100 i.e. 43.86% were females.

Prelacteal feeds were given to nearly 74% of the children in the form of honey, sugar water and ghutti etc. On statistical analysis, this practice showed a distinct relation with the age of the mother ($p < 0.005$). In case of children with mothers less than 20 years of age, 78.26% were given prelacteal feeds, while this was least (64%) for children with mothers more than 30 years of age (Table I). In our study all the mothers aged less than 20 years had only one child. They as per their age were more susceptible to the influence of peer groups as well as the elderly women of their house regarding feeding practices and childcare. The mothers aged more than 30 yrs had normally more than 2 children. They were more sensitized to the various aspects of breast-feeding, either by their personal experiences or by the constant inputs from the field workers & the health education being imparted at our center. This very much explains the difference in the prelacteal feeding practice in both the age groups as found in our study.

Also the practice of starting supplementary feeding at the age of 6 months was found to be statistically significant as against age of the mother. It was maximum in the mothers >30 years of age (60%), followed by those in age group 20-30 years (34.85%), ($P < 0.01$, $df=2$). Malnutrition too was reported high in children of mothers of these age groups being 60% and 40.91% respectively. This could be due to low calorigenic supplement feeds as per cultural rituals (in form of

very thin kichidi or dal ka pani or diluted cow's milk and increasing parity in these age groups. Overall 60.5% of the children in the study area were started supplementary feeding after 6 months of age (Table I).

Only 28.95% were exclusively breast fed till the age of 6 months and there was no significant relation between the age of the mother & the practice of exclusive breast-feeding. This practice was highest (34.78% of children) in case of mothers less than 20 years of age. The mothers in this age group were currently married and were having only one child, hence capable of giving more time to feed their child.

100 children (43.86%) were malnourished for age out of which 55% were males & 45% were females, but there was no significant relation between sex of the child and the prevalence of malnutrition. Maximum prevalence of 60% was seen in children with mothers above 30 yrs of age (51.9% males, 48.1% females) followed by 41.91% in 20-30 years of age and minimum being 34.78% among children of mothers less than 20 yrs of age. A significant association was seen between the maternal age and the prevalence of malnutrition. ($P < 0.05$, $df = 2$). Although as stated earlier practice of prelacteal feeding was less among the mothers of this age group but malnutrition in this age group was reported high. This might be due to increasing parity in this age and low nutritional supplement of these children. Moreover in a hilly state like U.A. where alcoholism is very predominant among the males & agriculture being the main occupation, the women of this age group are the prime bread earners and they are out to the fields very early in the morning & in the latter half of the day for daily livelihood & the children are left indoor at the mercy of the elders in the house who seldom take such interest in their feeding as the mother could. 58% of the children had Grade I malnutrition while minimum were having Grade IV malnutrition. This can be prevented by providing rich diet & improving personal hygiene.

Our health center teams actively work along with the anganwadi workers and assure that the lactating mothers and the children with various grades of malnutrition get the enriched flour, sattu (i.e. 160 grams/d) etc. and guides the workers to monitor the weight of these children on a monthly basis. Free OPD services for minor ailments are being offered though our center and specialist clinics too are organized on a fortnight basis.

Table III compares the effect of various feeding practices & immunization on the child's growth in our study. Practice of giving prelacteal feeds shows no association with the malnutrition of the child ($df = 4$, $p < 0.07$) whereas the timing of initiation of breast-feeding & exclusive breast-feeding was significantly related to the child's health ($df = 8$, $p < 0.003$ & $df = 4$, $p < 0.002$ respectively). The supplementary nutrition shows mild relation with the prevalence of malnutrition. The place of delivery & the immunization status however showed no significant association.

Thus our study reinforces the need of promotion of proper breast-feeding practices amongst the mothers, which ensure a healthy childhood for the baby.

Discussion :

We have concluded that incorrect breast-feeding practice during first six months of age is also a contributing factor for malnutrition in the children aged 1-3 yrs. The study revealed that the incorrect breast feeding practices within 6 months of age were responsible for the present malnutrition that is carried forward in the coming years in terms of inadequate supplementary feeding & a high birth order.

In our study exclusive breast-feeding was reported to be 28.95% that is much lower than that reported by Banappurmath et al who reported it to be 60%, and this is seen to be affecting the health of the child in our study⁷. Prelacteals were mainly plain water, jaggery water, honey, ghutti etc advised as per cultural practices by elders & relatives. These interfere with the mother's confidence, the suckling stimulation, & prolactin production besides introducing infection. In our study, practice of prelacteal feeding was significantly high i.e. 73.68% as against 36.1% reported by R.N. Kulkarni et al in a study based at Mumbai⁸. 60.5% of the children were given supplementary feeding after 6 months which was much higher than that observed by Gajanan et al who reported it to be 17.83% in his study⁹. According to the report of NFHS-2, 47% of Indian children fewer than 3 years of age suffer from undernutrition and our study also reported 44% to be undernourished for age that is comparable to NFHS-2 data.

Thus, we can see that breast-feeding practices in the rural areas of Dehradun is chiefly governed by the advice of the elders or the prevailing age-old practices. Hence, it calls upon to reinforce efforts by the service providers, the ground level health workers including us to insist upon the need of breast-feeding practices including exclusive breast-feeding and the need to start appropriate and sufficient supplementary feeding by 6 months, among mothers and adolescent girls to ensure the health of our future generation¹⁰.

Conclusion :

In this study we have attempted to reaffirm that health status of the child is essentially dependent on proper breast-feeding practices i.e. discouraging prelacteal feeds, exclusive breast feeding, starting of adequate supplementary feeds by 6 months which in our country is predominated by the existing cultural / advice of elders. In spite of much effort made in this direction (field workers imparting health education & during our specialist gynaec camps the doctors insisting on the breast-feeding practices) not much headway has been made in this direction & in our study the malnutrition identified in the age group 1-3 yrs & the positive association seen with the feeding practices called more concerted efforts to create awareness & attitude among the mothers.

Table 1
BREAST-FEEDING PRACTISES AMONG MOTHERS

Age group of mothers (in yrs)	Total No. of Children (1-3 yrs)	Sex		Prelacteal feeds not given	Initiation of breast feeding given in <1hr	Exclusive breast feeding given	Supplements started at 6 months
		Male	Female				
<20	46	26 (56.52%)	20 (43.48%)	10 (21.74%)	8 (17.39%)	16 (34.78%)	14 (30.43%)
20-30	132	72 (54.55%)	60 (45.45%)	32 (24.24%)	34 (25.76%)	38 (28.79%)	46 (34.85%)
>30	50	30 (60%)	20 (40%)	18 (36%)	10 (20%)	12 (24%)	30 (60%)
Total	228	128(56.14%)	100(43.86%)				

p<0.005

p<0.01

Table 2
PREVALENCE OF DIFFERENT GRADES OF MALNUTRITION

Age group of mother (in yrs)	Total Children	Malnutrition +ve	Grade			
			I	II	III	IV
<20	46	16 (34.78%)	8	6	2	-
20-30	132	54 (40.91%)	30	16	6	2
>30	50	30 (60%)	20	8	2	-
Total	228	100 (43.86%)	58 (58%)	30 (30%)	10 (10%)	2 (2%)

p<0.05

Table 3
EFFECT OF IMPROPER FEEDING PRACTICES ON THE CHILD'S HEALTH

Parameters	Condition	Normal wt	Grades of malnutrition				Total
			GI	GII	GIII	GIV	
Prelacteal feeds	Not given	40	16	4	-	-	60
	Given	88	42	26	10	2	168
							df=4, p<0.07
**Initiation of Breast Feeding	<1 hr	32	18	2	-	-	52
	1 hr-1 day	50	12	10	2	2	76
	> 1 day	46	28	18	8	-	100
							df=8, p<0.003
**Exclusive breast feeding	Yes	50	12	4	-	-	66
	No	78	46	26	10	2	162
							df=4, p<0.002
*Weaning	4-6 mths	60	20	10	-	-	90
	After 6 mths	68	38	20	10	2	138
							df=4, p<0.019
Total in wt category		128	58	30	10	2	228

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★ *Drive Slowly*
★ *Reach Safely*

PROFILE OF HYDROPHOBIA CASES ADMITTED TO INFECTIOUS DISEASES HOSPITAL, CSM MEDICAL UNIVERSITY, LUCKNOW

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ABSTRACT:

Objective : To study the epidemiological characteristics of hydrophobia cases admitted to IDH.

Study Design : Descriptive Cross Sectional.

Study Period : May 2005 to June 2008.

Study Setting : Infectious Diseases Hospital (I.D.H), CSM Medical University, Lucknow.

Material and Methods : Secondary data pertaining to 234 hydrophobic cases admitted to IDH, over a period of 3 years was collected from case sheets of patients on a predesigned schedule and was analysed using SPSS 13 software. Case sheets with incomplete data were excluded from the study.

Study Subject : Hydrophobia cases admitted to IDH.

Study Variables : Age, sex, habitation (rural/urban) and vaccination status of patient. Type of animal bite, category of exposure, site of bite and monthly trends in incidence of animal bite.

Statistical analysis : Percentage and Proportions

Results : Out of the total 234 cases admitted to I.D.H, 81.6 % were males and 18.4 % were females. Majority 94.5 % of the cases were of Dog bite and a few were of other animals like Jackal, Mongoose, Fox etc. Amongst the admitted cases, 84.6 % and 15.4 % belonged to rural and urban areas respectively. Maximum, 31.2 % cases were in the age group of 20-44 years. Category III exposure was seen in 67.5 % of cases. Lower limb was the most common site of bite 32.4 %. No case had complete post exposure vaccination. 85 % of cases did not receive any post exposure vaccine (91.4 % in rural and 50 % in urban areas). Incomplete vaccination was found in about 15 % of the total cases. No case was reported to be as a consequence of accompanying or handling a hydrophobia case.

Introduction:

Rabies is one of the oldest recognized disease affecting humans. It is a viral zoonosis, of which a number of carnivores and bat serve as natural reservoirs. About 99% of human deaths, due to rabies globally are a consequence of bite by rabid dogs¹. Human infection usually occurs following a transdermal bite or scratch by an infected animal. Transmission may also occur when infectious material, usually saliva comes in direct contact with the victim's mucosa or fresh skin lesions. Very rarely, rabies may occur through inhalation of virus containing aerosol or via infected organ transplant. Although all age groups are susceptible, children aged below 15 years are at particular risk, predominantly males.

In humans rabies is almost invariably fatal once clinical signs occur. Rabies poses a potential threat to more than 3.3 billion people residing in more than 100 countries where it is enzootic, primarily in Asia and Africa². In India alone, 20,000 deaths are estimated to occur annually, i.e. 2 per 1,00,000 population; in Africa the corresponding figures are estimated

at 24,000 or 4 per 1,00,000 population. Approximately 55,000 people are reported to die from rabies each year (90 % confidence interval: 24,500-90,800). However, deaths are likely to be grossly underreported in enzootic countries, particularly in young age groups. It is estimated that rabies is responsible for 1.74 (90 % CI: 0.25-4.57) million DALY lost each year globally³. The annual global expenditure for rabies prevention is, by conservative estimates, >US\$ 1 billion.

The present study was carried out to know the epidemiological characteristics of hydrophobia cases admitted to IDH.

Materials and methods:

In the present study, secondary data pertaining to a total number of 234 hydrophobia cases admitted to IDH, over a period of 3 years from the time of its inception in May 2005 to June 2008 was collected from case sheets of patients on a predesigned schedule and was analysed in terms of tools like percentage and proportions using SPSS 13 software. Case sheets with incomplete data were excluded from the study.

Results :

Table 1
TYPE OF ANIMAL BITE AND PLACE OF RESIDENCE

Type of animal	Place of residence				Total	
	Rural		Urban			
	No.	%	No.	%	No.	%
Dog	186	79.5	35	15	221	94.5
Jackal	10	4.3	0	0.0	10	4.3
Others	2	0.8	1	0.4	3	1.2
Total	198	84.6	36	15.4	234	100.0

Table-1 shows that majority (84.6%) of the cases belonged to rural areas. Dog bite 94.5% (79.5% in rural and 15% in urban) was the most common animal bite reported. Jackal bite was reported in 4.3% cases, all among rural habitants. A very few i.e. 1.2% of the cases were of bite by other animals like fox, mongoose and cow. No case was reported to be a consequence of handling or accompanying a rabies patient.

Table 2
MONTHLY TREND IN INCIDENCE OF ANIMAL BITE CASES

Month	Type of animal bite						Total	
	Dog		Jackal		Others			
	No.	%	No.	%	No.	%	No.	%
January	24	10.9	0	0.0	1	33.3	25	10.7
February	9	4.1	1	10	0	0.0	10	4.3
March	9	4.1	1	10	1	33.3	11	4.7
April	25	11.3	1	10	0	0.0	26	11.1
May	23	10.4	0	0.0	0	0.0	23	9.8
June	27	12.2	0	0.0	0	0.0	27	11.5
July	9	4.1	0	0.0	0	0.0	9	3.8
August	9	4.1	2	20	0	0.0	11	4.7
September	10	4.5	0	0.0	0	0.0	10	4.3
October	11	5	1	10	0	0.0	12	5.1
November	36	16.3	2	20	0	0.0	38	16.2
December	29	13.1	2	20	1	33.3	32	13.7
Total	221	100	10	100	3	100	234	100

Table-2 shows that maximum incidence of animal bite cases was in the winter months of November, December, January (38+32+25=95 i.e. 40.6 %) and in the summer months of April, May and June (26+23+27=76 i.e. 32.5%). Incidence of jackal bite was also more common (5 out of 8 total cases) in the winter months of November, December and January.

Table 3
AGE AND SEX OF CASES

Age in Years	Males (n=191)		Female (n=43)		Total (n=234)	
	No.	%	No.	%	No.	%
<5	14	6.0	7	3.0	21	9.0
5-9	31	13.2	14	6.0	45	19.2
10-14	27	11.5	2	0.9	29	12.4
15-19	10	4.3	3	1.3	13	5.6
20-44	62	26.5	11	4.7	73	31.2
>44	47	20.1	6	2.6	53	22.6
Total	191	81.6	43	18.4	234	100.0

Table-3 shows that out of the total 234 cases admitted, majority 81.6 % were males, whereas 18.4 % were females. Maximum number of cases, 31.2 % were in the economically productive age group of 20 to 44 years. Children in the age group <5 year, 5-9 year and 10-14 year had 9%, 19.2% and 12.4% of cases respectively, and added together the age group 0-14 year accounted for a substantial 40 % of the cases.

Table-4
SITE OF ANIMAL BITE IN DIFFERENT AGE GROUP

Age in Years	Site of bit									
	Lower limb		Upper limb		Trunk		Head/Face		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
<5	2	0.9	2	0.9	5	2.1	12	5.1	21	9.0
5-9	9	3.8	8	3.4	15	6.4	13	5.6	45	19.2
10-14	5	2.1	7	3.0	8	3.4	9	3.8	29	12.4
15-19	6	2.6	4	1.7	2	0.9	1	0.4	13	5.6
20-44	31	13.2	26	11.1	8	3.4	8	3.4	73	31.2
>45	23	9.8	20	8.5	5	2.1	5	2.1	53	22.6
Total	76	32.4	67	28.6	43	18.3	48	20.4	234	100.0

Table-4 shows that overall lower limb was the most common site exposed to animal bite 32.4 % followed by upper limb 28.6%. In the younger age group of, <5 years and 5-9 year the most common site was head/face 5.1% and trunk 6.4% respectively.

Table-5
CATEGORY OF ANIMAL BITE IN DIFFERENT AGE GROUPS

Age in Years	Category							
	I		II		III		Total	
	No.	%	No.	%	No.	%	No.	%
<5	0	0.0	3	1.3	18	0.9	21	9.0
5-9	0	0.0	12	5.1	33	3.4	45	19.2
10-14	0	0.0	8	3.4	21	3.0	29	12.4
15-19	0	0.0	4	1.7	9	1.7	13	5.5
20-44	0	0.0	28	12	45	11.1	73	31.2
>45	0	0.0	21	9	32	8.5	53	22.6
Total	0	0.0	76	32.5	158	67.5	234	100.0

Table-5 shows that majority of cases 67.5 % had category III exposure (As per WHO categorisation). Category II exposure was found in 32.5 % cases, whereas no case had category I exposure. In all age groups category III exposure was higher. Both category II and III exposure were highest in the age group 20-44 years i.e. 12 % and 19.2% respectively.

Table 6
IMMUNISATION STATUS AND PLACE OF RESIDENCE

Vaccination Status	Rural		Urban		Total	
	No.	%	No.	%	No.	%
Complete	0	0.0	0	0.0	0	0.0
Incomplete (1 ARV)	10	5.1	10	27.8	20	8.5
Incomplete (2 ARV)	7	3.5	8	22.2	15	6.4
No vaccination	181	91.4	18	50	199	85
Total	198	100	36	100	234	100

Table-6 shows that none of the case had complete post exposure vaccination. Maximum 85 % of cases had not received any post exposure vaccine (91.4 % in rural and 50 % in urban area). Incomplete vaccination was found in about 15 % of the total cases with majority of them 8.5 % having received only one ARV.

Discussion :

Animal bites (mainly dog bites) are a common occurrence in many developing countries across the globe. In the present study majority of cases 94.5 % presented with history of dog bite. Some cases of Jackal bite were reported in districts with forest cover. TR Behera et al⁴ in their study in Berhampur, Orissa had reported that among animal bite cases attending Anti Rabies Clinic, 84.5% were victims of dog bite. Renu Bedi et al⁵ also reported that 90.7% of animal bite were due to dogs. Although animal bite cases were reported throughout the year, a seasonal variation was observed with a high number of cases being reported in winter i.e. November, December and January and summer i.e. April, May and June. The higher incidence in winter (following breeding season) is related to the fact that animals lactate their babies and may attack due to fear of harm to its newborn, whereas higher incidence in summer is related to crop reaping and other pre monsoon repair works increasing degree of human animal contact. This finding are in accordance with that of TR Behera et al⁴ in Berhampur, Orissa. A higher incidence in winter was also reported by Jairaj Singh Hanspal et al⁶. Agarwal et al⁷ reported higher percentage of cases in summer.

The present study had 84.6% and 15.4% cases, from rural and urban areas respectively. TR Behera et al⁴ also reported that majority of cases, 59.8% belonged to rural area. The present study also revealed that incidence of animal bite was higher in males among both rural and urban habitants. This finding was very similar to that of TR Behera et al⁴, Jairaj Singh et al⁶ and Sudarshan et al⁸. In the present study, most of the cases 31.2% were in the age group 20-44 years, whereas when combined together children <15 years of age constituted 40.6% of the cases. This finding corroborates with that of TR Behera et al⁴ in which maximum 46.5% cases were in the age group 15-45 year, whereas 38.9% cases were children <15 year. Other studies by Renu Bedi et al⁵ and Jairaj et al⁶ found more than half of the animal bite cases were in children <10 years of age.

Similar to findings of previous studies, in the present study also category III exposure accounted for 67.5% of the cases. Most common site of bite in the present study was the lower limb i.e.32.4% followed by upper limb 28.6%. Incidence of bite on head/face and trunk was higher in children below 9 years of age. Studies by TR Behera et al⁴, Shetty et al⁹, Agarwal et al⁷, Sampath et al¹⁰, Renu Bedi et al⁵ and Jairaj Singh Hanspal et al⁶ also reported lower extremity as the most common site of bite.

The present revealed that no case had complete post exposure antirabies vaccination. Only about 15% cases had incomplete vaccination, whereas 85% had no prior antirabies vaccination. TR Behera et al⁴ reported only about 1.2 % cases attending Anti Rabies Clinic to have received antirabies vaccination.

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A STUDY OF MATERNAL CARE SERVICES UTILIZATION IN DISTRICT AGRA

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ABSTRACT:

A cross-sectional, community based study was conducted in the year 2008 on 120 rural, 120 urban elite and 120 urban slum areas mothers, who delivered within last three months. The study reported that mothers who received three or more antenatal visits were 52 percent. Regarding in different areas, 80% of the urban area women received antenatal checkups as compared to the 61.7% urban slum and 52.5% rural mothers. In district Agra, it was found in the study that 58.3% mothers received full doses of TT while 40.5% mothers not received any dose of TT. IFA tablets acts as a limiting factor which lowers down the overall ANC utilization. In the present study, more than three-fourth (78.3%) mothers had home deliveries. Maximum deliveries were conducted by the trained or untrained dais (rural-50%, urban-32.5% slum-43.3% and district-44.8%). Postnatal services were utilized by one-fourth (23.8%) mothers.

Introduction :

Maternal deaths are only a tip of iceberg. Many women survive pregnancy, childbirth or abortion, but suffer from serious physical impairment of infections that lead to long term health problems. While half a million women die each year from the complications of pregnancy and childbirth, other ten million suffer from non fatal health problems that may affect their health. According to a survey carried out in five developing countries, seven out of ten women reported health problem related to last pregnancy, delivery, or postpartum period or due to chronic conditions resulting from childbirth. 11 to 17 percent of maternal deaths happen during child-birth itself and 50-71% in the postpartum period. Most of these mortalities and morbidities are due to conditions that are preventable.

The Millennium Development Goals place health at the heart of development. Goal 5 of the Millennium Development Goals is 'Improvement of Maternal Health' and target 6 is to reduce maternal mortality ratio by three quarters before 2015 with reference to MMR in the year 1990.

So it is important to enquire into the factors that are leading to this high mortality and the steps required for containing it. Proper antenatal, natal and postnatal care is a sure way which can substantially reduce maternal mortality. So this study has been taken up to know the status of maternal care services utilization by mothers of Agra district.

Materials and Methods :

A cross-sectional, community based study was conducted in the year 2008. The sample size was drawn by making the use of data on maternal care from National Family Health Survey-III (2005-2006), which reported that mothers who received three or more antenatal visits were 52 percent. The sample size came to be 93 with 20% margin of error, which was increased and rounded off to 120. 120 mothers were taken from each area i.e. rural, urban elite and urban slum areas, so a total of 360 respondents were selected through multi-stage random sampling technique, in district Agra. The respondent's women were who delivered within

last three months in these selected areas. The informed consent was obtained from all the mothers taken in the study. Respondent women were interviewed using pre-designed schedule and data, thus collected, was analyzed using SPSS 16.0 version and valid inferences were drawn. In district Agra, rural population is 57% and urban population is 43%. Urban elite and urban slum populations are almost equal. So according to the distribution of population, U-R population adjusted rate was calculated for the district and depicted as District percentage.

Results and Discussion :

In the present study, it was found that 60% of the respondents have been registered for antenatal check-ups. Regarding in different areas, 80% of the urban area women received antenatal checkups as compared to the 61.7% urban slum and 52.5% rural mothers. NFHS-III data for UP for antenatal coverage is 66% which is comparable to our findings. Other studies^{1,2,3} also reported almost similar findings. 22.3% of women received only single visit while 21.7% of mothers had three or more antenatal visits. More ANC's were observed in urban mothers as compared to the urban slum or rural mothers. However, other studies^{1,4,5,6,7} found much higher rates of antenatal visits as compared to our study which was due to higher educational status of mothers or their husbands in those study areas and also inter-state variations (Table-1).

In district Agra, it was found in the study that 58.3% mothers received full doses of TT while 40.5% mothers not received any dose of TT. In urban elite, full TT coverage was 80% while in urban slum and rural nearly half of the mothers had it while NFHS-3 for India reported that more than three-fourth (76%) mothers received TT which is higher than our results but for UP, this survey reported that two or more TT doses were received by 65% of mothers which is consistent to our findings. About 50% of mothers purchased and consumed some IFA tablets (56.1% and 45.6% respectively). In rural and urban slums, 51.7% and 42.5% mothers received some IFA tablets while in urban elite this percentage was 76.7.

Regarding consumption, about 40% mothers in rural and urban slum (40% and 42.5%) were found consuming IFA tabs, while in urban elite, 63.3% consumed it. All these differences in different areas were found to be statistically significant ($p < 0.0001$). The rate of consumption of 90 or more IFA tabs was found to be very low in all the three areas being 3.3%, 16.7% and 0.8% in rural, urban and urban slum areas respectively. Sharma RK et al (2007)¹⁴ in his study among tribes of MP found that nearly half of the mothers had not taken any IFA tablets. However, other studies^{10,12,13} reported higher vaccination status of respondents and IFA consumption, as the study area was different where respondents were more educated and also the better availability of health services. So it is the need of time to upgrade the maternal health services and increase the level of knowledge in the reproductive age group women, as majority of the women in UP are not even aware of getting services and others are not allowed or permitted by social customs to utilize the services. Other step may be by increasing educational status of females to make them empowered to make decisions for utilizing maternal and other health services.

Full antenatal package i.e. three or more antenatal checkups, two doses/ booster of TT and ≥ 90 days IFA was consumed by only 6.3% mothers. Studies conducted in Kerala⁴ and Kolkata⁵ reported it to be more than 80% which is much higher than our findings while the data of UP for the same provided by the NFHS-3⁸ is consistent with our observation denoting still very high scope of work to be done in this field. In our study we observed that the coverage of other component of ANC package was high but the supply and consumption of IFA tablets are not adequate thus IFA tablets consumption acts as a limiting factor which lowers down the overall ANC utilization. It needs the efforts targeted to increase the awareness level among providers (ANM, etc.) and also to increase the acceptability among the beneficiaries.

In the present study, more than three-fourth (78.3%) mothers had home deliveries. Institutional deliveries were 21.7%, which were 11.7%, 46.7% and 23.3% in rural, urban elite and slum area respectively. Among institutional deliveries, in district Agra, almost similar percentage had delivery at government (11.5%) or private centre (10.1%), in rural more deliveries took place at government centres (8.3%) than private while in urban elite private institutional deliveries (26.7%) outnumbered govt centres and in slum areas equal number of deliveries at government or private centers (11.7%) (table-2). Bhasin SK et al¹¹ (2007) in urban Delhi reported that except three deliveries (0.7%) which were domiciliary deliveries, rest were institutional deliveries. Banerjee B⁵ also reported very high number of institutional deliveries. The reasons for these differences are probably due to differences in literacy levels or presence of better primary health-care facilities in these study areas.

NFHS-III (2005-06)⁸ reported for India that less than forty percent (38.7%) of births in India take place in health facilities. Births in health facilities are almost equally divided

between those take place in private (20.2%) or public (18.0%) institutions. Two-thirds of deliveries in urban areas (67.5%) and 29% of deliveries in rural areas take place in health facilities. Same survey⁸ reported that four out of every five births in UP takes place at home; only one in five births take place in a health facility. However, the percentage of births in a health facility during the last three years have increased from 15% in NFHS-II to 22% in NFHS-III, which is almost identical to our study.

Nandan D et al² in a study in Agra slums found that the majority of deliveries (57.50%) were conducted at home, 10.83% of deliveries at government hospital, and 0.83% at sub center (D-type center) and 30.85% at private hospitals. Institutional deliveries are more in our study due to time lag and study area variations.

Maximum deliveries were conducted by the trained or untrained dais (rural-50%, urban-32.5% slum-43.3% and district-44.8%). The respondents could not differentiate between trained/untrained dais. The second commonest person performing the delivery was family members/relatives in rural and slum area (38.3% and 17.5% respectively) while in urban elite, it was private doctor (26.7%) which was least common in rural and urban slum. Skilled birth attendant (nurse/ ANM and doctors) was seen in 27.4% of home deliveries (i.e. 11.6% in rural, 57.5% in urban and 39.2% in slums) (Table-2). Agarwal P et al (2007)¹⁶ reported that majority had hospital delivery conducted Doctor or nurse/ ANM (68.2%) and by a trained dai in home delivery (66.6%), while in our study delivery by a doctor is only 17.4%, the lower figures in our study are due to over all better availability of services in Delhi and also that all stratas of district are included in our study.

Singh A et al¹⁵, Banerjee B⁵, Sreelatha S⁴ all reported more number of institutional deliveries compare to our study due to high literacy or socio-economic of their study group.

NFHS-III (2005-06)⁸ reported for India that 47% of births were assisted by health personnel, including 35% by a doctor & 10% by ANM, nurse, midwife or LHV. More than one-third of births (37%) were assisted by a traditional birth attendant (TBA) and 16% were assisted by only friends, relatives or other persons. Same survey in UP⁸ reported that only a little over one quarter (27%) of births during the past five years took place with assistance from a health professional and 40% were delivered by a traditional birth attendant. The remaining 33% were delivered by a relative or other untrained person. Nine percent of home births were assisted by health personnel which is almost identical to our observations.

Postnatal services were utilized by one-fourth (23.8%) mothers which were as low as 13.3% in rural areas while it was 50% in urban elite area. Among the women who received postnatal services, mostly were those who delivered at the medical health facilities (21.7%). All the mothers receiving postnatal care from health facilities naturally got it within first two days. However, one third of home delivered mothers received it after two days, the proportion in urban elite being

only one-fourth (2.5% and 0.8%) while one half in rural area (0.8% and 0.8%) (Table-2). Agarwal P et al (2007)¹⁶ in New Delhi reported that PNC was not sought by 84% mothers, and only 16% receiving ANC visited either hospital or PHP for PNC. NFHS-III (2005-06)⁸ reported for India that majority of women (58%) did not receive any postnatal checkup after their most recent birth. Births to be followed by a postnatal check-up are almost twice in urban mothers (66%) than rural mothers (34%). For U.P. in the same survey, only 15% of mothers had received post-natal check-ups and 13.3% were within two days of delivery. These all findings are somewhat adjacent to the figures in our study.

Awasthi S et al (2008)¹ in urban slums of Agra district reported that postnatal services were utilized by 44.16% of mothers (i.e. mothers visited any health facility after delivery within two weeks). Banerjee B (2006)⁵ and Singh A et al (2007)¹⁵ found in study that more mothers had post-partum

visits to any health facility, which are much more than our study due to variations in the study states.

The very low utilization of PNC services as compared to even the antenatal services, needs special attention. Lot of work ought to be done to increase the demand among mothers for PNC visits, which they felt it to be a least important matter. The health workers should be trained to sensitize the lactating mothers for the increment of these low figures.

Effective safe motherhood interventions need to be implemented at all levels of a country's health system. Research shows, however, that in many settings, improving services that already exist, investing in upgrading the skills and competence of health care providers and enhancing referral systems can have significant impact. The most successful health care programs especially maternal services can be enacted as part of a coordinated effort and with commitment at both the community and government levels.

Table 1
UTILIZATION OF ANTENATAL SERVICES

Services		Rural n(%)	Urban elite n (%)	Urban Slum n (%)	District (%)	χ^2 -value
Antenatal Registration		63 (52.5)	96 (80)	74 (61.7)	(60.4)	* χ^2 -20.609;df-2
Antenatal Visits	1 Visit	30 (25)	20 (16.7)	25 (20.8)	(22.3)	** χ^2 -37.287; df-8
	2 Visit	7 (5.8)	20 (16.7)	20 (16.7)	(10.5)	
	≥3 Visits	26 (21.7)	56 (46.6)	29 (24.2)	(27.6)	
Tetanus Vaccination	No TT	57 (47.5)	24 (20.0)	52 (43.3)	(40.5)	** χ^2 (Vac: Not Vac) - 24.187; df-2;
	TT1	1 (0.8)	1 (0.9)	2 (1.7)	(1.2)	
	TT2/B	62 (51.7)	95 (79.2)	66 (55)	(58.3)	
IFA consumed	Nil	72 (60)	44 (36.7)	69 (57.5)	(54.4)	** χ^2 -34.145; df-4
	<90	44 (36.7)	56 (46.7)	50 (41.7)	(39.9)	
	≥90	4 (3.3)	20 (16.7)	1 (0.8)	(5.7)	
Blood for Haemoglobin		6 (9.5)	51 (53.1)	27 (36.5)	(27.9)	** χ^2 -31.379;df-2
Urine Examination		5 (7.9)	45 (46.9)	11 (14.9)	(20.5)	** χ^2 -31.379;df-2
Antenatal Problem Faced		30 (25)	11 (9.2)	18 (15)	(19.4)	χ^2 -11.230;df-2;p=0.0036
Complete ANC Package		4 (3.3)	20 (16.7)	1 (0.8)	(5.7)	** χ^2 -26.909;df-2

*p<0.001; **p<0.0001 Percentages in parenthesis; [% in bracket are drawn out of registered women].

Table 2
UTILIZATION OF NATAL AND POSTNATAL SERVICES

Services		Rural n(%)	Urban elite n (%)	Urban Slum n (%)	District (%)	χ^2 -(df-2)
Place of Delivery	Home	106(88.3)	64(53.3)	92(76.7)	(78.3)	χ^2 -(Home Vs Inst)- 38.473; df-2; p<0.0001; χ^2 -(overall)-77.337; df-10; p<0.0001
	Government Institution	10(8.3)	24(20.0)	14(11.7)	(11.5)	
	Private Clinic/ Nursing home	4(3.3)	32(26.7)	14(11.7)	(10.1)	

Table Contd.

Personnel conducting Delivery	Family/Member/Relatives	46(38.3)	12(10)	21(17.5)	(27.8)	χ^2 -74.694; df-8; p<0.0001
	Trained/Untrained Dai	60(50)	39(32.5)	52(43.3)	(44.8)	
	ANM/LHV/Nurse	9(7.5)	13(10.8)	19(15.8)	(10)	
	Govt. Doctor	1(0.8)	24(20)	14(11.7)	(7.3)	
	Private Doctor	4(3.3)	32(26.7)	14(11.7)	(10.1)	
Postnatal Visits	No	104(86.7)	60(50)	89(74.2)	75.9	χ^2 -(Visit Vs No visit)-39.922 df-2;p<0.0001
	Yes	16(13.3)	60(50)	31(25.8)	23.8	

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ASSESSMENT OF CLIENT SATISFACTION AND CLIENT'S PERSPECTIVE FROM THE RURAL HEALTH SERVICES OF MEERUT

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ABSTRACT:

Objective : To assess the client satisfaction and client's perspective from the rural health services of Meerut.

Study Design : Cross-sectional study.

Study Setting : Department of Community Medicine, L.L.R.M. Medical College, Meerut.

Study Subject : 500 women of reproductive age group taking services from 25 subcentres of Meerut.

Study Period : 1996-97

Study Variables : Client satisfaction about health centre and their opinion.

Results & Observation : Study reveals that presence of health centre in village brings higher level of satisfaction among clients than non subcentre village. The client satisfaction can be improved by improving availability of facilities and workers at the health centre.

Introduction :

Since independence there have been a spectrum of changes dating from antiquity to the most recent development of RCH programme. But any programme however relevant its components are, likely to fail unless it succeeds in improving the knowledge and achieving satisfaction of its clients.

Assessment of client satisfaction has been identified as most important tool for assessing the quality of care in health perspective. It is an indirect indicator of clinical performance of service provider and also represents the compliance to various treatments regimes². In the present study the client satisfaction was assessed from the facilities available at the health centre to the client.

The present study was done with the following objectives:

1. To assess and compare the client satisfaction from the health services in sub centre and non sub centre villages of Meerut.
2. To find out the client's perspective to improve the provision of health care from health centre.

Methodology :

The study was done in 50 villages being 25 randomly selected sub centre villages, which were also catering to the 25 non sub centre villages. From each village 10 clients, women of reproductive age group having child than two years of age were selected on the basis of random house selection. A pretested format was used to assess client satisfaction from the service delivery point. The findings were tabulated and were analyzed by the chi-square test. Apart from client satisfaction, main source of provision of health care service was also assessed client's opinion regarding improvement in the provision of health care from subcentre was also taken.

Results & Observations :

In the present study following findings were seen. It was found that out of total 500 clients (women of reproductive age group having child less than two years of age) total 250 each clients were interviewed from subcentre and non subcentre village.

It was found that in all only 84.0% clients visited subcentre in spite of belonging to subcentre village while in non subcentre village only 35.5% clients visited subcentre from nearly non subcentre village as shown in table I.

The source of health care though ANM was significantly higher in subcentre village than in non subcentre village (as shown in table 2). Which is comparable to findings of Paul et al¹. The reason for high utilization of health workers at subcentre was stated to be higher availability and accessibility to clients. The majority of clients in non subcentre village received their health care from local practitioner of the village, who are easily available to them.

Table 3 shows that in all 500 clients only 294 clients were visited once or more to any government health facility including subcentre, PHC and government hospitals. In fact the utilization of government health facility was significantly higher in sub centre village due to presence of centre in the village. Table 3 shows that among those who visited centre, the level of satisfaction in relation to well equipped centre, presence of health personnel, availability of medicine, cleanliness, maintenance of privacy and proper examination was significantly higher in subcentre village and when it was directly asked from clients to state their level of satisfaction from subcentre, it was found only in subcentre village clients were significantly satisfied from health care than at non subcentre village. In non subcentre village majority of visitors were not satisfied from services of subcentre and suggested

various opinions which were, more regular supply of medicines and regular visit of ANM to the village. ANM & subcentre facility are not easily available to the clients of non subcentre village due to the distance.

Conclusion & Suggestions :

The present study indicated that in rural area the women clients are getting major portion of health care from nearby private health facility. Even in the subcentre village the utilization of health care from subcentre and from local practitioner is almost equal. It is recommended that female health worker should be available at subcentre even for

emergency purpose and should visit non subcentre village regularly. Client satisfaction in rural area can be improved by easy accessibility to subcentre and female health workers. Availability of regular health care from a well functioning and well equipped subcentre along with provisions of medicines, can attract more clients towards subcentre or government health facility. The present study recommends that the service provider in the rural area should be residing in the village only so the government should make an effort to improve the logistic support, infrastructure of subcentre and also proper residential facility for the health worker.

Table 1
RELATIONSHIP OF VISIT OF WOMEN CLIENTS TO ANY GOVERNMENT HEALTH FACILITY
IN SUB CENTRE AND NON SUBCENTRE VILLAGE

Visits to government health facility	Sub Centre village (n=250)	Non Sub centre village (n=250)
Visited	210 (84.0%)	84(33.5%)
Not Visited	40(16.0%)	166(66.5%)

$$\chi^2 = 131.07, df = 1, p < 0.001$$

Table 2
UTILIZATION OF HEALTH CARE SERVICES BY WOMEN LIENTS

Source of Health care Services	Sub Centre (n=250)	Non Sub centre (n=250)	Total (n=500)
ANM/FHW	88(35.2%)	36(14.4%)	124(26.0%)
PHC/Govt. Hospital	67(26.8%)	54(21.6%)	121(23.0%)
Private Health Facility	13(5.2%)	63(25.2%)	76(15.2%)
Local Practitioners	82(32.8%)	97(38.8%)	179(35.8%)

Table 3
CLIENTS OPINION ABOUT THE FACILITY AVAILABLE AT SUB CENTRE
OR NEARBY GOVERNMENT HEALTH FACILITY

	Sub Centre Village	Non Sub Centre Village	Total	P value df = 1	χ^2
Well Equipped	59(23.6%)	21(8.4%)	80(16.0%)	14.69	<.001
Availability of health worker or health personnel	64(25.8%)	18(7.2%)	82(16.0%)	22.59	<.001
Privacy maintained	121(48.4%)	50(20.0%)	171(34.2%)	29.55	<.001
Properly examined	134(53.6%)	12(4.8%)	146(29.2%)	120.79	<.001
Medicines available	35(14.0%)	17(6.8%)	52(10.4%)	3.97	=.05
Satisfied with cleanliness	110(44.0%)	57(22.8%)	167(33.4%)	14.02	<.001
Never visited to sub center	40(16.0%)	166(66.4%)	206(41.2%)	20.76	<.001

Table 4
LEVEL OF CLIENT SATISFACTION OF THOSE WHO VISITED SUBCENTRE

Level of Satisfaction	Sub Centre (N=250)	Non Subcentre (N=250)	Total (N=500)	P value df = 1	χ^2
Highly Satisfied	43(20.4%)	00(0.0%)	43(14.6%)	72.77	<.001
Satisfied	100(47.5%)	11(13.1%)	111(37.8%)		
Not Satisfied	67(31.9%)	73(86.9%)	140(47.6%)		
Total	210	84	294		

Table 5
SUGGESTIONS GIVEN BY WOMEN CLIENTS

Suggestion*	Subcentre Village	Non Subcentre Village
Health worker should visit frequently	74(29.36%)	52(20.8%)
Medicines to be supplied regularly	235(94.0%)	139(55.6%)
HW should visit all house	18(7.8%)	5(2.0%)
Residence of skilled HW in Village	7(2.8%)	11(4.4%)
Emergency Facility - Availability	81(32.4%)	95(38.0%)
Reduce the distance of Subcentre	9(3.6%)	138(55.2%)
Facility for Delivery at subcentre	15(6.0%)	21(8.4%)
Subcentre to Open Everyday	52(28.8%)	0(0.0%)

*Multiple response

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सदा सकारात्मक सोच धारण करें,
अपना सर्वोत्तम करने का प्रयास करें,
सब कुछ स्वतः शानदार होता जायेगा।

DETERMINANTS OF LOW BIRTH WEIGHT: FINDINGS FROM A COMMUNITY BASED STUDY IN A RURAL AREA OF VARANASI

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ABSTRACT:

Background : Low birth weight (LBW) remains an important public health problem and its extent and determinants have not been explored in rural setup of Varanasi in previous decades. With this background this study was contemplated in the rural setup of Varanasi.

Objective : To assess the extent of LBW and maternal factors influencing it.

Study Design : Community-based prospective study.

Methodology : A cohort of 311 pregnant women was followed till their deliveries. 298 subjects with prospective record were included in the study. Information pertaining to mothers was collected by interviewing them and anthropometric measurements were taken by standard technique and Hemoglobin (Hb) estimation was done by Sahli's method.

Statistical analysis : Chi square test, Fisher's exact test and Logistic regression.

Results : The LBW incidence was 27.9%. Maternal age (≥ 30 and < 19 years), nuclear family, illiteracy, lower socio-economic status (SES), maternal height (< 145 cm) & weight (< 45 kg), tobacco addiction, Hb % (< 11.0 gm %), number of antenatal visits (< 3), time of registration (< 16 weeks) and home delivery of newborn were significantly associated with LBW. However Multivariate Logistic regression analysis, identified lower SES, illiteracy, age (≥ 30 years), nuclear family, Hb % (< 11.0 gm %), and home delivery as risk factors for LBW.

Conclusions : Beside the various national plans to raise the maternal and child health status, government should have provision for microfinance to raise the SES and literacy of mother which are the strong determinants of LBW.

Key-words : Low birth weight, Maternal factors, Pregnancy, Logistic Regression.

Introduction:

Low Birth Weight (LBW) is defined by the World Health Organization (WHO) as a birth weight less than 2500 gram¹. WHO estimates that globally about 25 million LBW babies are born each year and nearly 95 per cent of them in developing countries. Almost 8 million LBW infants are born in India each year, an incidence of 30 per cent and nearly 40 per cent of global burden which is the highest of any country².

In spite of several programmes addressing preventable causes of LBW, it still remains an important public health problem. However extent of this problem as well as their determinants has not been explored in rural setup of Varanasi in previous decades. With this background this study was contemplated in the rural setup of Varanasi with the objective of assessing the extent of low birth weight and factors influencing it.

Subjects and Methods:

This Community-based prospective study was undertaken in the three randomly selected villages situated in the C.D. Chiragaon Block, Varanasi District. The study was conducted from 1st June 2006 to 30th May 2007. Study subjects comprised of women with confirmed pregnancy followed up till their deliveries during the study period. Sample size was calculated to be 233 taking the prevalence of LBW as 30 per cent obtained from the pilot study done prior to the study and

maximum permissible error as 20%.

Of 311 registered mothers who gave their consent to be included in the study, 298 pregnant women with prospective records were considered for the study. Those pregnant women were excluded from the study who resulted in abortion (5), stillborn (1), neonatal death without birth weight record (2) and whose baby's weight could not be taken (3). Non co-operative cases were also excluded from the study.

Socio-demographic characteristics and other relevant information related to maternal factors like age, religion, type of family, education, socioeconomic status (SES) and tobacco addiction were obtained from the study subjects by interviewing them with the help of predesigned and pretested interview schedule. They were subjected to anthropometric measurements. Weight of women was measured using a weighing machine having an accuracy of 0.1 kg and their height was measured with a steel anthropometric rod with parallel bar having accuracy of 0.1 cm adopting standard techniques³. Hemoglobin (Hb) estimation of the pregnant women was done by Sahli's method. Hb level in last trimester was considered for analysis. Socio economic status (SES) was assessed by Uday Pareek socio-economic classification⁴. All babies were weighed within one hour after birth in case of institutional delivery and within 48 hours in case of home delivery. WHO definition of LBW (< 2500 gram) was used in this study.

Statistical analysis :

The results were presented in form of frequency and proportion. Chi square test and Fisher's exact tests were used to study the significance of difference between proportions. Logistic regression analysis was carried out to control confounders.

Results :

Incidence of LBW in the study area was 27.9%. The overall mean birth weight of the study subjects was 2660.23 ± 231.67 grams. The mean birth weight of the Normal birth weight (NBW) and LBW of the babies were 2769.07 ± 166.13 and 2378.31 ± 104.23 grams respectively and the difference between two means was significant statistically ($t=24.2$, $df=235$, $p<0.001$).

The incidence of LBW newborns in ≥ 30 years and <19 years age group was 67.3% and 22.7% respectively as compared to 19.2% LBW in 20-29 years age group (Table-1). These differences were statistically significant ($p=0.001$). Incidence of LBW was 27.8% and 28.6% in Hindu and Muslims respectively ($p=1$). More than one third (34.4%) mothers from nuclear family and 27.8% from joint family delivered LBW newborns ($p=0.03$). Compared to 6.1% LBW in subjects with education of high school and above, the incidence of LBW was 12.6% and 45.9% in primary or middle educated and illiterates group respectively and these differences were statistically significant ($p=0.001$). The percentage of LBW was maximum (52.2%) in subjects with lower middle SES groups followed by 13.5% in middle and 8.6% in upper middle SES groups ($p=0.001$). The proportion of the LBW in mothers of height <145 cm was 46.5% in comparison to 25.6% in the subjects of height ≥ 145 cm and was statistically significant ($p=0.01$). More than one third (35.3%) of the mothers less than 45 kg delivered LBW newborns, corresponding value for mothers with weight ≥ 45 kg was 21.6% ($p=0.01$). There was higher incidence of 63.6% LBW in tobacco addicted mothers in comparison to 23.5% in non-addicted ($p=0.01$). There was significant difference in incidence of LBW in anemic (32%) and non-anemic mothers (9.3%).

The proportion of LBW was maximum (32.0%) in mothers who received less than 3 antenatal visits in comparison to 20.6% in those who received ≥ 3 antenatal visits (Table-2) and was statistically significant ($p=0.03$). There existed higher incidence (33.7%) of LBW in mothers with antenatal registration at more than 16 weeks as compared to 14.4% in those who had their registration within 16 weeks of conception ($p=0.001$). Proportion of LBW was higher (34.6%) in home deliveries in comparison to 17.6% in institutional deliveries ($p=0.001$).

The result of multivariate logistic regression (Table-3) shows that the risk of having LBW was about 3 times and 7 times higher in women of nuclear family and illiterate mothers as compared to joint family (OR=2.70; CI=1.31-5.55) and mothers educated up to high secondary and above (OR 7.42; CI=1.79-30.67) respectively. The women of lower SES and Hb level (<11 gm%) had about 8 times and 4 times

higher risk of delivering a LBW newborn as compared to upper middle SES (OR=7.92; CI=1.70-36.88) and Hb % ≥ 11 gm% (OR=4.50; CI=1.17-17.24) respectively. The pregnant mother who were registered after 16 weeks of gestation and delivered babies at home were about 3 times and 2.5 times higher risk of giving low birth compared to women registered before 16 weeks (OR=2.60; CI=1.09-6.21) and institutional delivery (OR=2.46; CI=1.16-5.23) respectively. The risk of LBW was about 7 times higher in mother of 30 years and above as compared to 20-29 years age group (OR=6.80; CI=0.63-17.54). The influence of some factors like height, weight, smoking and number of antenatal visits got eliminated on applying multivariate logistic regression.

Discussion :

While describing population risk of LBW, this study confirms high burden of this problem. LBW is a sensitive indicator of health status of the population. It has its impact on infant and child morbidity and mortality. The mean birth weight observed was similar to the findings of earlier reports^{5,6}. Magnitude of LBW in the present study was higher than that of 22% in India (NFHS-3), but comparable to other study^{7,8}. Among different variables studied maternal age, family type, education, SES, height & weight, tobacco addiction, Hemoglobin percentage, number of antenatal visits, time of registration and place of delivery of newborn were significantly associated with LBW. In the present study the increase incidence of LBW in mothers of age group <19 years and ≥ 30 years and was found which is in accordance with the study conducted by Joshi et al⁹. Higher burden of LBW in upper age group might be due to multiparity, inter-pregnancy interval, pregnancy/fertility planning and intention, and other nutritional factors. However these factors need to be further explored by research. Ghosh et al documented that there was no significant association between birth weight and religion of mothers but mothers who were less than 140 cm in height were more prone to have LBW and our findings are in conformity with their observations¹⁰. A high number of LBW newborns were seen in mothers whose pre delivery weight was less than 45 kg which is in accordance with study reported by Kiran Anand and B.S. Garg¹¹. The association of low SES and anemia with low birth weight observed in this study has also been reported from other studies in developing countries^{12,13,14,15,16}. Joshi et al also reported that 45.45% illiterate mothers delivered LBW babies which are in accordance with our study where 45.9% illiterate mothers delivered LBW babies⁹. These results also corroborated findings from earlier studies^{11,17}. The proportion of LBW babies decreased with increase in SES of the family. These findings are in accordance with other studies^{11,18}. Time of registration of mothers and place of delivery of newborns were two others significant factors associated with LBW. In the present study mothers who registered before 16 weeks had lower magnitude of LBW babies as compared to those who registered at later weeks of gestation. Incidence of LBW newborns were significantly lower in mothers who delivered in an institution and this finding is in accordance with the finding from the study of Biswas et al¹⁹. The above two

factors may be due to proper health education of mothers during subsequent contact of mothers with health care providers. However, the effect of height & weight, tobacco addiction and number of antenatal visits was nullified when multiple logistic regression analysis was done. Significant determinants in multiple logistic regressions were maternal age, type of family, education, SES, Hb%, time of

registration, and place of deliveries.

Conclusion :

To tackle the problem of low birth weight significant parameters mentioned above need to be addressed seriously. Beside the various national plans to raise the maternal and child health status, government should have provision for

Table 1
DISTRIBUTION OF LOW BIRTH WEIGHT (< 2.5KG) AND NORMAL BIRTH WEIGHT (≥ 2.5 KG) NEWBORNS BY SELECTED CATEGORIES OF SOCIO-DEMOGRAPHIC CHARACTERISTICS AND BIOLOGICAL CHARACTERISTICS OF THEIR MOTHERS (N=298)

Characteristics	Total	Birth weight of newborn				Statistical tests
		< 2.5 Kg		≥ 2.5 Kg		
	No.	No.	%	No.	%	
Characteristics						
≤ 19	22	5	22.7	17	77.3	$\chi^2 = 48.9$, df=2 p=0.001
20-29	224	43	19.2	181	80.8	
≥ 30	52	35	67.3	17	32.7	
Religion						
Hindu	291	91	27.8	210	72.2	Fisher's exact test P=1
Muslim	07	02	28.6	05	71.4	
Type of Family						
Join	176	41	23.3	135	76.7	$\chi^2 = 4.4$, df=1 p=0.03
Nuclear	122	42	34.4	80	65.6	
Education						
Illiterate	146	67	45.9	79	54.1	$\chi^2 = 47$, df=2 p=0.001
Primary & middle	103	13	12.6	90	87.4	
Secondary & above	49	03	6.1	46	93.9	
Socio-economic status						
Lower middle	115	60	52.2	55	47.8	$\chi^2 = 55.4$, df=2 p=0.001
Middle	148	20	13.5	128	86.5	
Upper middle	35	03	8.6	32	91.4	
Height in cm						
< 145	32	15	46.9	17	53.1	$\chi^2 = 6.4$, df=1 p=0.01
≥ 145	266	68	25.6	198	74.4	
Weight in kg						
< 45	136	48	35.3	88	64.7	$\chi^2 = 6.9$, df=1 p=0.009
≥ 45	162	35	21.6	127	78.4	
Eemoglobin gm%						
< 11	244	78	32.0	166	68.0	$\chi^2 = 11.3$, df=1 p=0.001
≥ 11	54	05	9.3	49	90.7	
Tobacco addiction						
Yes	11	07	63.6	04	36.4	Fisher's exact test p=0.01
No	287	76	26.5	211	73.5	

Table 2
DISTRIBUTION OF LOW BIRTH WEIGHT (<2.5KG) AND NORMAL BIRTH WEIGHT (≥2.5KG) NEWBORNS
BY SELECTED CATEGORIES OF ANTENATAL RECEIVED BY THEIR MOTHERS (N=298)

Characteristics	Total	Birth weight of newborns				Statistical tests
		< 2.5 Kg		≥ 2.5 Kg		
	No.	No.	%	No.	%	
No. of antenatal checkups						
<3	191	61	31.9	130	68.1	$\chi^2 = 4.4, df=1$ p=0.03
≥3	107	22	20.6	85	79.4	
Time of registration in week						
<16	90	13	14.4	77	85.6	$\chi^2 = 11.5, df=1$ p=0.001
≥16	208	70	33.7	138	66.3	
Place of delivery						
Home	179	62	34.6	117	65.4	$\chi^2 = 10.2, df=1$ p=0.001
Institutional	119	21	17.6	98	82.4	

Table 3
RESULTS OF MULTIVARIATE ANALYSIS USING LOGISTIC REGRESSION MODEL

Covariates	Odds ratio (OR)	p-value	95% confidence interval
Age (years)			
20-29	1	-	-
≤ 19	1.166	0.851	0.235-5.790
≥ 30	6.8	0.000	2.63-17.54
Family type			
Joint	1	-	-
Nuclear	2.7	0.007	1.31-5.55
Education			
Higher Secondary and above	1.0	-	-
Primary and Middle	1.242	0.782	0.267-5.773
Illiterate	7.421	0.006	1.795-30.676
Socio-economic status			
Upper middle	1	-	-
Middle	1.831	0.428	0.410-8.117
Lower Middle	7.925	0.008	1.703-36.885
Height in (cm)			
≥ 145	1	-	-
<145	2.5	0.09	0.84-7.46
Weight in (kg)			
≥ 45	1	-	-
<45	1.34	0.42	0.651-2.77
Tovacco addiction			
No	1	-	-
Yes	1.091	0.936	0.133-8.973
Hemoglobin in gm%			
≥ 11	1	-	-
<11	4.50	0.028	1.17-17.24

Table Contd.

Number of antenatal visits			
≥ 3	1	-	-
< 3	1.93	0.09	0.890-4.20
Time of registration (Weeks)			
< 16	1	-	-
≥ 16	2.60	0.31	1.090-6.210
Place of delivery			
Institutional	1	-	-
Home	2.46	0.018	1.160-5.230
Outcome (low birth weight = 1, normal birth weight = 0)			
Log-likelihood = -2.12.146, chi-square = 140.0, p value < 0.0001 = Reference category			

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AN EPIDEMIOLOGICAL STUDY OF SMOKING ADDICTION & TEA/COFFEE DEPENDENCE AMONG DOCTORS

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ABSTRACT:

Research Question: What is the prevalence of smoking & tea/coffee dependence among doctors?

Objective: To study the prevalence of smoking & tea/coffee dependence among doctors?

Study design: Cross-sectional.

Participants: Different category of doctors of a tertiary care hospital.

Study variables: age, gender, smoking addiction, tea/coffee dependence, factors leading to above dependence and their effort to quit smoking.

Results: Overall, Smoking prevalence was found to be 36% which was 44.6% and 11.53% among males and females respectively. 17 (47.2%) smoking doctors were found to be mildly addicted where as 13 (36.1%) were found to be moderately addicted and 3 (8.3%) doctors were severely addicted while 3 (8.3%) showed no addiction. Most of the doctors indulged in smoking owing to stress. 77% of smoking doctors want to quit smoking as 96% of these were aware of ill effects of smoking. Out of total hundred doctors 92 doctors drink tea/coffee. Based on the scoring system, 16.7% who were males and 15.9 were females. They want to drink tea and coffee either because of taste (56), to avoid stresses (30), to stay awake at night (16).

Introduction:

Tobacco related illnesses are estimated to be a leading cause of death worldwide with about 4 million deaths per year. Globally tobacco is consumed mostly in smoking form¹. It has been observed that the majority of the smokers get into habit of smoking during their adolescence. Stressors of the adolescence combined with professional stress play an important role in initiating and maintaining the smoking behaviour among doctors. Moreover tobacco smoking has been officially recognized as a substance disorder. Moreover tobacco smoking has been officially recognized as a substance use disorder that has epidemiological, etiological, phenomenological, pathophysiological, comorbid, diagnostic and outcome domains². Despite substantial progress including enforced restrictions on smoking in public workplaces, doctors still continue to smoke, inspite of being acquainted with its ill effects. Smoking historically has been a habit of men, but smoking by women, especially in urban areas is rapidly increasing. Research suggests that physicians who smoke cannot effectively convey the message to people about the adverse health effects of smoking³.

It is a common knowledge that tea, coffee and other beverages that contain caffeine are habit forming. A recent medical study confirms that caffeine is strongly addictive, with subjects exhibiting "syndromes of intoxication, withdrawal and dependence"⁴. That study concludes that effect is physiological, not just psychological. It is of interest to ask whether the addictive nature of "the most widely used psychoactive substance in the world" is apparent from data on consumption⁵. The study was carried out to find out the prevalence of smoking and tea/coffee drinking among doctors of a tertiary care hospital of New Delhi.

Methods & Materials:

A cross sectional study was carried out comprising of randomly selected hundred doctors including junior residents, post graduates, senior residents, and consultants of a tertiary care hospital of New Delhi. A pre tested semi structured questionnaire was distributed which included standardized questionnaire⁶ to devise smoking and tea/coffee dependence scoring, cessation behaviour, attitudes towards quitting the habit. Scoring System (based on fogerstorm questionnaire) for smoking addiction is 0: No addiction, 1-4: Mild addiction, 5-7: Moderate addiction, 8-11: Severe addiction; while for tea/coffee dependence, a score of 6 or more was taken as a criterion for tea/coffee dependence⁶. Identity of the person was kept confidential. The data thus obtained was analyzed using SPSS software.

Results:

Smoking prevalence was found to be 36% among doctors (Table 1). Prevalence among males was higher (44.6%) than the female doctors (11.5%). Of the total 36% smokers, 93% were found to be smoke addicted as per the standard criteria⁶. As per this scoring method used 36.3% doctors had moderate addicted while 47.1% had mild addicted and 8.3% showed severe addiction. 8.3% of the smokers were not addicted to smoking. Majority of doctors (57%) started smoking in the age group of 18-25 yrs while 21% started very early in their teens (11-17 yrs). One doctor started smoking during childhood before the age of 10 yrs. Majority of the doctors have been smoking for 4 yrs (39%) followed by 30% for 5-10 yrs, 15% for more than 10 yrs. Majority of the smokers (42%) were in the age group of 25-29 yrs followed by 37.5% in 30-35 yrs, 31.6% in age group less than 24 yrs. Stress was attributed cause of smoking in most of the cases (72%) while 48%

wanted to show off as a style statement. Majority (77%) of smokers had desired to quit smoking. However, 17% of smokers did not want to quit smoking though 96% were aware of the ill effects of smoking.

92% of the doctors were found to drink tea/ coffee. Based on the scoring system⁶ for tea/ coffee dependence, 16.3% of doctors were dependent to these beverages. Above the age of 35 years, all doctors were taking tea/ coffee. However, of the total tea/ coffee addicted (16.3%), majority fall in the age group of 25-29 (69%), followed by 21% in 30-34 yrs age group. Most of the doctors (60%) cited taste as the reason for drinking tea/ coffee followed by 32% who cited stress as cause for drinking tea/ coffee. 17% doctors used these beverages to stay awake at night. Cause of addiction to tea and coffee was again found to be taste, stress and to stay awake at night in that order.

Discussion :

It is seen majority of the smokers are in their young age group (61%) among males. This is because smoking is associated with male identity and passage to manhood for many boys as marked by smoking in these settings. For males becoming a smoker remains the norm. If men do not smoke and drink they risk being described as effeminate⁷. In west, several studies have shown that exposure to tobacco

advertisement by favorite stars changes the adolescent attitude towards smoking⁸⁻¹⁰. Most of them said they smoked because they wanted to show off. Majority of doctors also said that they smoke due to stress which is so common in medical profession. A doctor prefers to smoke in air to beat off his stress. Despite being aware of its effects only 77% wanted to quite the habit. This is a bit distressing especially among doctors. As most of the doctors who smoke fall in the young age group, our intervention should be directed towards that very age group. Tea/ coffee addiction is also very common among doctors. They rely on tea/ coffee mainly to cope with stress owing to long working hours, study stress among students, loneliness due to long periods of study, family problems. They also said that they needed tea/ coffee to stay awake at night to complete their studies. Caffeine is responsible for inducing wake up feeling in doctors.

In conclusion, although doctors know the hazards of smoking they show nicotine dependence patterns and attitude towards quitting similar to other people¹¹. Most smokers begin to smoke by age of 20 years and the prevalence of smoking among people aged 20 to 24 years is best used for surveillance measures of initiation¹². So this is the time, we must take concrete steps to prevent the future deaths related to nicotine consumption. There is a need to develop programs for medical students and physicians to stop smoking.

Table 1

AGE WISE DISTRIBUTION OF SMOKERS AND TEA COFFEE DRINKERS

Age Interval (yrs)	Total no. of doctors	Smokers	Tea/Coffee Drinkers
Less than 24	19	6 (31.6)	16 (84.2)
25-29	47	19 (40.42)	45 (95.7)
30-34	24	9 (37.5)	20 (83.3)
35-39	2	2 (100)	2 (100)
40-44	1	0 (0)	1 (100)
45-49	6	0 (0)	6 (100)
More than 50	2	0 (0)	2 (100)
Total	100	36 (36)	92 (92)

*figures in the bracket denote row percentage

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AWARENESS AND ATTITUDE OF RURAL ADOLESCENT GIRLS REGARDING REPRODUCTIVE HEALTH ISSUES IN NORTHERN INDIA

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ABSTRACT:

Background: Since adolescent girls comprise a major reproductive age group, their role is critical in determining the India's future population goal. This apart, evidence of change in sexual behavior and growing spread of HIV infection, has generated fresh reproductive health concerns, which need to be accounted for by policy makers to develop appropriate family life educational strategies.

Objectives:

1. To assess the level of knowledge of pubertal changes, reproductive tract infections and HIV/AIDS among adolescents.
2. To assess the attitude of adolescent girls regarding age at marriage, age at first birth, small family concept.
3. To identify the preferred source of information by adolescents on reproductive health.

Study design: cross-sectional study

Sampling Technique: thirty cluster methodology

Study setting: Rural areas of Lucknow

Participants: 455 unmarried adolescent girls of (10-19 years) age

Statistical Analysis: Chi square test and Fischer exact test

Result: Three fourth of the girls were aware of at least one pubertal change. In spite of being aware that RTI is a curable disease, only 8.5% of the girls having RTI sought treatment for it. About 80% of adolescent girls had heard of HIV/AIDS. 47.7% of adolescents were unaware that it is incurable. Heterosexual relation was cited by most (73.2%) of the girls as mode of transmission of HIV. Sex with partner only and use of condom as a preventive measure was identified by 52.6% and 39.2% girls respectively. Early marriage and early child bearing (<21 years) was preferred by 10.7% and 33.6% of girls respectively. Family size of two or less was preferred by 69.2% Irrespective of any age group, majority of the girls preferred a family member to get information on reproductive health problems.

Introduction:

Adolescents account for a little more than one fifth of the population (21.4%)¹ and adolescent girls comprise about 22% of women in India. Girls face greater reproductive health challenges than boys following puberty. Foremost among these are early marriage and childbearing. According to NFHS(1998 -99)^{2,3} the mean age of marriage for women in India is 19.7 years, which in case of Uttar Pradesh decrease to 19.0 years (18.3 in rural areas). The age specific fertility rate is 121 per 1000 for the 15 -19 age group for all India and 137 for rural Uttar Pradesh. Fertility among rural adolescents of 15 -19 years accounts for 16% of total fertility in rural areas and 15% overall in the state^{2,3}.

This apart, in recent years, with globalization and liberalization, wide exposure to mass media, and shifting of social and moral norms, there has been a host of changes in adolescent reproductive and sexual behavior. These changes has not confined to urban areas only but has spread to rural areas also. In a study conducted in senior secondary schools in rural Delhi, 23.4% boys and 15.1% girls admitted to have had sex, while 5.7% boys and 9.6% girls did not deny it Almost half of the students had permissible attitude of pre-marital sex⁴. These facts warrant an investigation to identify the

attitude and gaps in the knowledge of adolescent's girls regarding various reproductive health issues so that realistic and most needed health care services, education, and training programs can be planned and organized, with emphasis on areas where inadequate knowledge is a constraint.

Material and Methods:

Sample size of 480 adolescents was calculated by using formula $4P/d^2$, taking $P= 50\%$ (Prevalence of knowledge of adolescents girls on reproductive health), and absolute error $d = 5$, and 20% non response. Only unmarried girls between 10 19 years age, who were present in the house at the time of study were included. Total 479 unmarried adolescents (10 19 years) were found eligible for study. After data editing, 455 interviews were finally included in the data analysis. Girls were interviewed by female interviewer using structured, pre-determined, close - ended schedule after taking due consent from parents or elder family members. To provide more insight on knowledge, attitude, and problems of different age groups during analysis they have been grouped according three phases of development of adolescence, early (10-13 years); middle (14-16 years); late (17-19 years) adolescence⁵. Only those girls who had attained the menarche at the time of interview were asked for RTI symptoms. Data

regarding RTI and HIV/AIDS were not included from 'early adolescence' age group, because for this section non response was very high among them. Secondly, due to sociocultural constraints it was not possible to interview this age group on these issues in some of the villages.

Observations :

Total 455 rural unmarried girls in Luck now district were interviewed regarding their knowledge, attitude towards reproductive health issues. In the study, 40.7%, 35.6%, 23.7% girls were from (10 to 13 yrs), (14 to 16 yrs), and (17 to 19 yrs) age groups respectively. Out of the total girls interviewed 81.0% were Hindus; 30.3% belonged to OBC and 28.1% belonged to general caste. Among 455 girls, 11.4% were illiterate, 38.4% were educated up to primary level, and only 7.9% were educated up to intermediate level.

Awareness of any of the pubertal change (table 1) was very low among early adolescence (10-13 years). Even, in case of respondents knowing about pubertal changes; knowledge was mainly confined to initiation of menstruation and development of breast across all age groups. Family members, especially mothers (52.0%) were the most important source of information for adolescent. With increase in age, friends (18.1%) also served as a source of information. Mean age of menarche is 13.37 ± 1.79 years in the study. Knowledge about menstruation was very low among early adolescents. In spite of 66% adolescents had attained menarche, only 35.6% have knowledge of it. Amongst 293 girls who have reached menarche, 48 girls reported at least one menstruation related health problem. Majority were suffering from dysmenorrhea (58.3%) followed by delayed periods (22.9%) and excessive bleeding (20.8%). But majority (80.0%) of the girls remains without any consultation/treatment.

Knowledge of RTI was significantly higher in elder age group (table 2) but in total awareness was very low, less than half of the adolescents were aware of RTI. Major source of information was television (52.35%) followed by friends/relatives (38.2%). Few elder adolescents (12.9%) also got information from their school teacher. Role of Health worker was almost nil in imparting information. Prevalence of RTI was higher among elder age group (44.4%). But, as far as seeking treatment for RTI is concerned, no significant difference was found between the two age groups, in spite of the fact that more than two third girls (83.5%) opined that RTI is curable.

About 17% of adolescents in the study had never heard of HIV/AIDS (table 3). Sources of information were almost similar for both the age groups. Knowledge of various mode of transmission of HIV/AIDS as well as prevention was significantly higher among late adolescents in comparison to 14-16 age groups. Younger age group was significantly less aware of importance of screening blood prior to transfusion and use of sterilizing needles as preventive measures. Few girls (11%-17%) had misconceptions regarding transmission of HIV. High proportions of them opined HIV/AIDS is curable and no significant difference was found between the

two age groups. Responsible attitude for preferred age of marriage was found universal (table 4). In present study preferred mean age at first child birth is 20 years. Most of the respondents were in favor of small family norm and birth spacing of three years or more however difference is significant between the two age groups.

The study (table 5) revealed that only 60.0% girls perceived need of more information about reproductive health. Need of information was significantly less perceived by early adolescents. Irrespective of age, majority of the girls prefer to have information on reproductive health issues from family members. As an alternative source of information, late adolescence (17-19 years) age group preferred doctor while early and middle age group preferred to seek information through their school teacher. Older age group also showed inclination for getting information on reproductive health issues from youth clubs.

Discussion :

Development and Maturation Changes during Adolescence :

One fourth of the girls were ignorant about the physical changes during adolescence. It is of concern that among 10-13 years age group, in whom pubertal changes have just started or going to start; more than half of the girls were unaware of any of one of the pubertal changes. In spite of having reached the menarche, only few girls of 10-13 age group had the knowledge of menstruation. Amongst older age group also, which has already reached menarche, only 70.7% girls have some knowledge about menstruation, hygiene, and problems. Anne⁶ found that girls wished to be informed early about menstruation so that this does not come to them as a surprise. Lack of awareness is also reflecting in usage of washed and sun dried clean cloth by only 12.2% of the adolescents across all age group. Majority of girls were using old cloth during menses. This might be due to poverty or high cost of sanitary pads. Therefore, it is important; that girls should at least be told to use a properly washed and sun dried cloth.

Overall, at least one menstruation related health problem was reported by 48 girls but majority (80.0%) of these girls remains without any treatment in spite of the fact that they were aware about the nearby health facility. This indicates that adolescents not need to be informed only of pubertal changes and problems related to them but also of the proper place/person for treatment of these problems so that they can take responsible decision during their growing years and which will be helpful in changing their health seeking behavior in the long run also. Early adolescence age group needs special attention as we found that in this age group where the menstrual related problems were highest among all age group, none of them sought any treatment for it.

Awareness about RTI and Prevalence of RTI :

In the present study only less than half of the girls have knowledge about reproductive tract infections. Even girls in elder age group were less aware. Community based study in rural West Bengal also reported that only 22.7% women

(15-19) were aware about RTI⁷. 34.8% girl reported one or more symptoms related to RTI. It was surprising that more than two third girls in present study opined that RTI is curable and majority of them were also aware about the nearby available health facility but only few (8.5%) of them sought treatment. This indicates that reproductive health programs that seek to reach adolescents, who are at particular risk of RTIs, must develop special programs to address RTI problem and misconceptions related to it. They should highlight through these programs about the importance of treatment of reproductive tract infection in the adolescents. Information regarding necessity of prompt reporting and early treatment from appropriate health personnel is to be provided to them. With evidence of increasing numbers of sexual active unmarried adolescents, it becomes more important to impart accurate knowledge of RTI/STI to this age.

Awareness about Mode of Transmission and Prevention of HIV/AIDS :

Having heard of HIV/AIDS is a first step in prevention of this disease. Our study found that 82.9% of the rural adolescents (14-19 yrs) have heard of AIDS which is higher than the national level² and state level data⁸. This is indicative of the positive impact of efforts of Family Health Awareness Campaigns and School AIDS Education Programme running by government in the district at community level and in schools respectively. But, despite having heard of HIV/AIDS, knowledge about various mode of transmission of HIV/AIDS was low; only about half of the girls were aware that something can be done to prevent AIDS. The most commonly mentioned way is to have only one sex partner (52.6%). Heterosexual intercourse as mode of transmission was known to about three fourth of the respondents but only 39.2% girls mentioned use of condom during each intercourse as a preventive measure. In the study only less than half of the respondents were aware about the necessity of screening blood prior the transfusion and importance of sterilized syringes/ needles as a preventive measure, especially this knowledge was poor among younger age group. Few were aware about the mother to child transmission. There is need to emphasize information regarding safe blood and safe injections to this group as they are becoming major mode of transmission of HIV/AIDS in our country. It is encouraging to observe that only few girls had misconceptions regarding transmission of HIV/AIDS. This may be the positive impact of various educational campaigns made by government/non government agencies for making the populace aware of the facts associated with AIDS transmission. Our endeavor should be to ensure that this continues to be the special focus of family health awareness campaigns in the community or school workshops on AIDS etc. This will also be helpful in guiding the behavior/attitude of future generation towards people living with AIDS.

Age at Marriage, First Birth, Birth Spacing, and Family Size :

(NFHS 1998-99)² in India revealed that 50 percent of women aged 20-24 are married before 18 years and 25%

before age 15, with the rural percentage of 58.6 being a sharp contrast to urban percentage of 27.9. NFHS-3 (UP)⁸ reported 61.1% of rural women age 20-24 married by age 18. In such scenario, it was encouraging to find that 89.2% of the girls in the present study were in favor of marriage after 18 years of age; and less than one third of the adolescents favored for more than two children, however 10.7% of the girls still preferred early marriage and about one third of the girls preferred less than 21 years as right age at first birth and only one third preferred more than three years gap between two children. This shows that intensive IEC efforts are needed to mould the attitude of the adolescents. Since they comprise a major reproductive age, what happens in the future depends to a large extent, on the decisions taken by adolescents as they enter their reproductive years. It is needed to raise awareness among rural girls regarding ill consequences of early marriage, early child bearing, and too many children at an early age.

Preferred Source of Information :

The present study indicated that, perceived need of more information on reproductive health issues is low across all age groups especially among early adolescent group. As for source of information, Irrespective of age, majority of adolescents preferred to have information on reproductive health issues from their family members. In other studies⁹ also girls preferred to consult parents for help at times of having reproductive health problems. However in comparison to elder age group more early and middle adolescents preferred school for such information. This shows parents and teachers can play a crucial role in giving information. This makes it imperative that parents and teachers should be included in the interventional program from the very beginning; particularly due to socio-economic milieu of rural area. Another reason may be unawareness of mother or they also simply do not perceive a need of treatment for reproductive health problems. This can be corroborated with the findings of NFHS-2 (UP) and NFHS-3(UP) that in spite of having reproductive health problems most of the women did not seek any treatment. In such situation, it is needed to make family members, especially mothers of adolescent girls also aware of the reproductive health problems and necessity of treatment. Mothers and elder women of the area are made a part of such health education programs. Teachers training Programmes e.g., B.Ed etc should have reproductive health education as one of its components.

Conclusion :

There is an increase in knowledge about various reproductive health issues among adolescents showing the effect of efforts made by RCH, ICDS, FHAC, and NACO programmes. But still adolescent girls across all age group need more accurate health education about pubertal changes, gynecological morbidities, HIV/AIDS. As knowledge is low among the early and middle age groups especially, information impartation must begin at an early stage before reproductive health has already been compromised. Mass media is playing an important role in transmitting knowledge

of HIV/ AIDS and RTI but family members, relatives; school teachers can prove to be more effective source for dissemination of information about reproductive health as they are preferred by most of the adolescents. It is important to note in the study, that in spite of knowing of curable nature

of RTI and nearby health facility, adolescents are not seeking treatment for it. Further research is needed to understand in-depth the reasons for not seeking the health care for RTI by unmarried adolescents, so that necessary changes may be made in health care policy and delivery system in the state.

Table 1
KNOWLEDGE PERTAINING TO PUBERTAL CHANGES AMONG RURAL ADOLESCENTS GIRLS

	10 to 13 Yrs N=185	14 to 16 Yrs N=162	17 to 19 Yrs N=108	Total N=455	P Value
Knowledge of about at least one change in body in adolescence#	80 (43.2)	139 (85.8)	106 (98.1)	325 (71.4)	0.000
Appearance of pimples/oily skin	20 (18.7)	23 (13.6)	29 (21.6)	37 (11.3)	0.1
Breast development	36 (45.0)	87 (62.5)	83 (78.3)	206 (63.3)	0.0000*
Weight gain	10 (12.5)	20 (14.3)	22 (20.7)	52 (16.0)	0.2
Initiation of menstruation	57 (71.5)	129 (92.8)	98 (92.4)	284 (87.4)	0.000*
Growth of pubic/under arm hair	14 (17.5)	34 (24.4)	28 (26.4)	76 (23.3)	0.3
Source of information					
School teacher	6 (7.5)	11 (7.9)	2 (1.8)	19 (5.8)	0.10
Mother	46 (57.5)	61 (43.8)	57 (53.7)	169 (52.0)	0.1
Sister / Sister in law	11 (13.7)	19 (13.6)	13 (12.2)	43 (13.2)	0.9
Friends	7 (8.7)	29 (20.8)	23 (21.6)	59 (18.1)	0.04*
Health worker	0 (0.0)	2 (1.4)	0 (0.0)	2 (0.6)	0.2
Books / Magazine/ Films	1 (1.2)	1 (0.7)	3 (0.9)	5 (0.9)	0.9
Others (Mausi, Bua, etc.)	8 (10.0)	16 (11.5)	8 (7.5)	32 (9.8)	0.5
Have Knowledge about menstruation	66 (35.6)	149 (91.9)	108 (100.0)	323 (70.7)	0.000*
Menstruation started	44 (66.6)	141 (87.0)	108 (100.0)	293 (64.3)	
Material used during menstruation					
Sanitary pad	2 (4.5)	10 (7.0)	15 (13.8)	27 (9.2)	0.09
Clean cloth washed & dried	4 (9.0)	21 (14.8)	11 (10.1)	36 (12.2)	0.4
Old cloth	38 (86.3)	106 (75.1)	79 (73.1)	223 (76.1)	0.20
Home made cotton pads	0 (0.0)	4 (2.8)	3 (2.7)	7 (2.3)	0.5
Had menstruation related problems in last 3 months	9 (20.4)	19 (13.5)	20 (18.5)	48 (16.4)	0.4
South Treatment for menstural problems	0 (0.0)	4 (21.0)	6 (30.0)	10 (20.8)	0.1

#Multiple response, *P<.05

Table 2
PREVALENCE OF RTI AND TREATMENT SEEKING PATTERN AMONG RURAL ADELESCENTS

	14 to 16 Yrs N = 162	17 to 19 Yrs N = 108	Total N=270	P Value
Heardof RTI Source of Information#	66(40.07)	62(57.4)	128(47.4)	0.01*

Table Contd.

Radio	23(34.8)	24(38.7)	47(36.7)	0.78
TV	32(48.4)	35(56.4)	67(52.3)	0.46
Newspaper/Magazine	0(0.0)	5(8.0)	5(3.9)	0.02*
Wall writing/ Hoardings	0(0.0)	1(1.6)	1(0.7)	0.4
Friends/Relatives	31(46.9)	18(29.0)	49(38.2)	0.05
Doctor	0(0.0)	3(4.8)	3(2.3)	0.1
Health worker	3(4.5)	5(8.0)	8(6.2)	0.4
School teacher	2(3.0)	8(12.9)	10(7.8)	0.04*
Having RTI symptoms in last 3 months	46(28.3)	48(44.4)	94(34.8)	0.3
RTI symptoms*				
Foul smelling vaginal discharge	15(32.6)	10(20.8)	25(26.5)	0.4
Urethral discharge	1(2.1)	3(6.2)	4(4.2)	0.6
Genital ulcer	1(2.1)	1(2.0)	2(2.1)	0.9
Pain in lower abdomen	31(67.4)	41(85.4)	72(76.5)	0.1
Low backache	28(60.8)	35(72.9)	63(67.0)	0.5
Pain/Burning micturition	8(17.4)	8(16.6)	16(17.0)	0.9
Sought Treatment for RTI	2(4.3)	4(8.3)	8(8.5)	0.7

#Multiple answers, *Multiple responses, *p<0.05

Table 3

**KNOWLEDGE ABOUT MODE OF TRANSMISSION, PREVENTION, AND SOURCE OF INFORMATION
FOR HIV/AIDS AMONG RURAL ADOLESCENTS**

	14 to 16 Yrs N=162	17 to 19 Yrs N=108	Total N=270	P Value
Heard about HIV/AIDS Source of information#	127(78.3)	97(89.8)	224(82.9)	0.01*
Radio	77(60.6)	64(65.9)	141(62.9)	0.4
TV	110(86.6)	86(88.6)	196(87.5)	0.7
Newspaper/Magazine	11(8.6)	17(17.5)	28(12.5)	0.07
Wall writing/Hoardings	3(2.3)	8(8.2)	11(4.9)	0.06
Friends/Relatives	15(11.8)	13(13.4)	28(12.5)	0.8
Doctor	2(1.6)	1(1.0)	3(1.3)	1.0
Health worker	8(6.2)	4(4.1)	12(5.3)	0.6
School teacher	12(9.4)	12(12.3)	24(10.7)	0.6
Knowledge about mode of transmission of HIV/AIDS#				
Homosexual intercourse	2(1.5)	4(4.1)	6(2.6)	0.5
Heterosexual intercourse	80(62.9)	84(86.5)	164(73.2)	0.00*
Needles/Blades/Skin punctures	68(53.5)	70(72.1)	138(61.6)	0.00*
Mother to child	18(14.1)	33(34.0)	51(22.7)	0.00*
Transfusion of infected blood	59(46.4)	62(63.9)	121(54.0)	0.00*

Table Contd.

Misconception regarding transmission of HIV/AIDS#				
Shaking Hand	19(14.9)	7(7.2)	26(11.6)	0.1
Hugging	18(14.2)	8(8.2)	26(11.6)	0.2
Kissing	22(17.3)	8(8.2)	30(13.3)	0.07
Sharing clothes	20(15.7)	7(7.2)	27(12.0)	0.08
Sharing eating utensils	21(16.5)	7(7.2)	28(12.5)	0.05
Stepping on urine/stool	23(18.1)	7(7.2)	30(13.3)	0.02*
Mosquito, flea, bites	28(22.0)	11(11.3)	39(17.4)	0.04*
Knowledge of prevention of HIV/AIDS#				
Sex only with partner	61(48.0)	57(58.7)	118(52.6)	0.1
Using condom during each sexual intercourse	43(33.8)	45(46.4)	88(39.2)	0.05
Screening blood prior to transfusion	43(33.8)	52(53.6)	95(42.4)	0.00*
Sterilizing needles for injections	46(36.2)	52(53.6)	98(43.7)	0.00*
Avoiding pregnancy when having HIV/AIDS	12(9.4)	14(14.4)	26(11.6)	0.2
HIV AIDS is curable				
Yes	63(49.6)	44(45.3)	107(47.7)	0.5
No	46(36.2)	43(44.3)	89(39.7)	
DK	18(14.1)	10(10.3)	28(12.5)	

*p<0.05

Table 4

**PERCEPTIONS ABOUT IDEAL AGE AT MARRIAGE, AGE AT FIRST CHILD BIRTH,
BIRTH SPACING & FAMILY SIZE**

	14 to 16 Yrs N=162	17 to 19 Yrs N=108	Total N=270	P Value
Preferred age of marriage				
<18 yrs	19(11.7)	10(9.25)	29(10.7)	0.6
18-20 yrs	122(75.3)	85(78.7)	207(76.6)	
>20 yrs	21(12.9)	13(12.0)	34(12.5)	
Preferred age at first child birth				
<21 yrs	66(40.7)	25(23.0)	91(33.6)	0.00*
21-25 yrs	85(52.4)	76(70.3)	161(59.6)	
>25 yrs	11(6.7)	7(6.4)	18(6.6)	
Ideal number of children				
1	6(6.37)	4(3.7)	10(3.7)	0.01*
2	97(59.8)	80(74.0)	177(65.5)	
>2	59(36.4)	24(22.2)	83(30.7)	

Table Contd.

Ideal gap between two children				
1	8(4.9)	2(1.8)	10(3.7)	0.00*
2	57(35.1)	19(17.5)	76(28.1)	
3	46(28.3)	47(43.5)	93(34.4)	
>3	51(31.4)	40(37.0)	91(33.7)	

*p<0.05

Table 5

PREFERRED SOURCE FOR INFORMATION ON REPRODUCTIVE HEALTH ISSUES

	10 to 13 Yrs N=185	14 to 16 Yrs N=162	17 to 19 Yrs N=108	Total N=455	P Value
Awareness of nearby health facility					
Yes	121(65.4)	120(74.0)	83(76.8)	324(71.2)	0.06
No	51(27.5)	32(19.7)	23(21.2)	112(24.6)	
DK	13(7.0)	10(6.2)	2(1.8)	25(5.4)	
Want more information on reproductive health	83(44.9)	115(70.9)	75(69.4)	273(60.0)	0.000*
Preferred source for information					
School	33(17.8)	29(17.9)	7(6.4)	69(15.1)	0.01*
General practitioner	20(10.8)	24(14.8)	17(15.7)	61(13.4)	0.3
Special youth clinic	2(1.1)	6(3.7)	3(2.7)	11(2.4)	0.2
Youth clubs	9(4.8)	10(6.1)	13(12.0)	32(7.0)	0.05
Member of family	118(72.8)	91(56.1)	67(62.0)	276(60.6)	0.3
Others	3(1.6)	2(1.2)	1(0.9)	6(1.3)	0.8

*p<0.05

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WATER SUPPLY AND ITS RELATION TO DIARRHOEAL DISEASES

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ABSTRACT:

Background: As per WHO estimates, 80% of all the diseases in developing countries including India are related to unsafe drinking water and poor sanitation. Water pollution is invariably high in community wells. As such, incidence of diarrhoeal diseases is more in the rural set up and can be partly attributed to this. About 40% of the population does not have access to safe drinking water.

Objective: To establish a relationship between water supply and incidence of diarrhoeal diseases.

Methods: A cross-sectional study was conducted in Sawli village, District Samudrapur (Maharashtra). The study group comprised of 75 under five children, selected by simple random sampling. Data was collected on a pre-designed questionnaire by interviewing the mothers and was analyzed using an appropriate statistical package.

Results: Prevalence of diarrhoea was found out to be 71%. only 8% of the children who were exclusively breast-fed had any episode of diarrhea. Incidence of diarrhea was high in cases that were drawing water from open wells i.e. 65.3%. Only 28.5% cases reported diarrhea and were drawing water from sanitary wells as against 80.32% who took water from insanitary wells. About 45.33% mothers had wrong beliefs about the causes of diarrhea. ORS was used in only 30.66% of the cases as a treatment modality.

Conclusions: Diarrhoeal incidence was significantly high in children below 3 years of age, prevalence was least in exclusively breast fed

Introduction :

Diarrhoea is a major cause of illness and death amongst children in developing countries. Globally it is estimated that 1.3 billion episodes of diarrhoea and 4 million diarrhoea attributable deaths occur each year in children under the age of five years⁽¹⁾.

Diarrhoea is also indirectly responsible for the deaths of many more children because it is one of the major underlying causes of malnutrition. Worldwide, it is reported that children under the age of 5 years experience an average of 3.3 episodes of diarrhoea annually. In some areas of the world, this average can exceed 9 episodes per year. This can have a significant effect on the nutritional status of a child⁽¹⁾.

Diarrhoea can result from a variety of causes like poor environmental condition, poor personal hygiene and various infections; however a common cause is the consumption of contaminated food and water. It is estimated that up to 70% of diarrhoeal episodes are caused by food and water borne pathogens⁽²⁾. Therefore, ensuring the safety of food and water consumed could prevent most of diarrhoeal morbidity and mortality.

As per WHO estimates, 80% of all diseases in developing countries like India are related to unsafe drinking water and poor sanitation. Incidence of diarrhoeal diseases is more common in rural set-up, partly attributed to above reason⁽³⁾. The methods of extracting water, its storage and method of taking out water from the storage vessels play very important role in the perpetuation of diarrhoeal diseases. The present

study had been undertaken with a view to establish relationship between type of water supply and incidence of diarrhoeal diseases and KAP of safe water utilization and management of diarrhoeal disease in the study group.

Material and Methods :

A house to house KAP survey for safe water utilization and management of diarrhoeal diseases were conducted for a period of four months in Sawli village of District Samudrapur (Maharashtra). The children were selected by simple random sampling method and thus a total of 75 children less than 5 years of age constituted the study population. Mothers of those children were interviewed and the data was recorded on a pre-designed and pre-tested questionnaire for the purpose of the study. Proper training was given to the interviewers prior to the start of the study. The results were statistically tested by using SPSS statistical package.

Working Definitions :

Diarrhoea :

Passage of loose, liquid or watery stools > 3 times a day.

Exclusive Breast Feeding :

Breast feed infants exclusively for six months.

Results :

Table 1

Out of the total 75 children (< 5 years of age) who were randomly surveyed, 71% had diarrhoea, amongst them 54.75% were male and 45.3% were female.

Table 2

The prevalence of diarrhoea was maximum in the age group of 7-12 months followed by the age group of 25-36 months.

Table 3

The diarrhoea cases were maximum in those who had not breast fed at all and minimum in those had been exclusively breast fed for a duration of six months.

Table 4

Maximum number of children had an episode of diarrhoea at around four months of age.

Table 5

It was observed that a total of 49 (80.32%) out of 61 children using water from insanitary well had diarrhoea.

Table 6

About 62.66% of the mothers of the study population were aware about the importance of chlorination but nobody was aware about whether the chlorination of well was done or not and whether required or not.

Table 7

It was found that 100% of the study population using earthen pots had diarrhoea.

Table 8

Maximum diarrhoea cases were treated with medication (36%) followed by ORS (30.66%).

Discussion :

The present study revealed that the over all prevalence of diarrhoea was significantly higher amongst children before 3 years of age (Table 2). These findings are similar to those of Black et al who studied the prevalence of diarrhoea amongst 0-5 years children in five developing countries including India and found that the highest incidence of diarrhoea was in the first and second years of life⁽⁴⁾. The findings of Lal et al have also reported higher prevalence of diarrhoea during the first two years of life⁽⁵⁾. Thus it is evident from these findings that mothers with children below 3 years of age should be given priority during the health education activities.

As per our study, diarrhoeal cases are more in males which is also supported by the finding of Huilan et al⁽⁶⁾. However all these studies including the present one observed diarrhea to be more in males but the difference was insignificant. This shows that the risk of diarrhea in all children irrespective of sex is practically the same.

Most of the diarrhoeal cases are reported to be attributable to the consumption of contaminated food and water⁽⁷⁾. In our study 92.45% of the diarrhoeal cases were drawing water from insanitary well (Table 5), contributing to the high prevalence of diarrhoea amongst these children.

It has been proved that the quantity of water has a greater impact on health than water supply (pipd water) not only increases the quantity of water used, but also

remove the need for water storage and therefore contamination. This may in turn reduce contamination and proliferation of diseases bearing vectors such as mosquitoes and flies⁽⁸⁾. Whereas on the contrary in our study area, no body has had piped water supply (Table 5).

According to the Planning, Research and Action Institute UP, the prevalence diarrhoea is much higher in children using water from open well as compared to those using private and public (community) taps⁽⁹⁾. We also had the similar findings in our study but on the contrary Sudarshan et al⁽¹⁰⁾ and Chakraborty et al⁽¹¹⁾ observed that the source of drinking water per se did not influence the prevalence of diarrhea. This emphasizes that while providing the source of water supply the topophysiography of the area should also be taken into consideration.

Chlorination cuts the diarrhoeal disease prevalence by 35 percent⁽⁸⁾. About 2/3rd of the mothers in our study were aware of the importance of chlorination (Table 6), still the diarrhoeal cases were very high i.e. 71% (Table 1), the reason being lack of practicing their proper knowledge. Many studies have been conducted to understand the relationship between water supply and diarrhoea. The cost effective analysis indicates that some water supply and sanitation (WSS) interventions are highly cost effective for the control of diarrhea among under five year olds, on a par with oral rehydration therapy. These are relatively inexpensive "software related" interventions such as hygiene education, social marketing of good hygiene practices, regulation of drinking water, and monitoring of water quality. Such interventions are needed to ensure that the potentially positive health impacts of WSS infrastructure are fully realized in practice⁽¹²⁾. However in our study only 30.66% of the cases were treated with ORS (Table 8).

The choice of specific diarrhoeal control strategies depends on local factors such as diarrhoea aetiologies, the existing infrastructure, awareness level and government priorities. The effective implementation of preventive strategies requires the involvement of a range of sectors (e.g. health, agriculture, water supply and sanitation) working together for the same⁽¹³⁾, and all these require strong political commitment and generous community participation.

Many politicians and decision makers do not strongly realize the importance of sanitation and that it is inexpensive and will halve the death toll in those who do not currently enjoy this fundamental entry point for poverty alleviation and hence health.

Conclusion :

1. Diarrhoeal disease prevalence was significantly high in children before 3 years of age.
2. Prevalence was least in exclusively breast fed children.
3. Knowledge regarding safe water utilization and management of cases was found to be inadequate.

Thus it is obvious that Health Education was lacking in the community as a whole and was given for the same after the completion of the study.

Table 1
SEX-WISE DISTRIBUTION OF DIARRHOEAL CASES AMONG THE STUDY SUBJECTS

Diarrhoea	Male	Female	Total	
	(No.)	(No.)	(No.)	%
Present	28	25	53	(71.00)
Absent	09	13	22	(29.00)
Total	37	38	75	(100.00)

($p > 0.05$, Insignificant)

Table 2
AGE GROUP-WISE DISTRIBUTION OF DIARRHOEAL CASES AMONG THE STUDY SUBJECTS

Diarrhoea	Age Group in Months						Total	
	0-6	7-12	13-24	25-36	37-48	49-60	(No.)	%
Present	5	15	9	12	8	4	53	(71.00)
Absent	6	4	3	2	4	3	22	(29.00)
Total	11	19	12	14	12	7	75	(100.00)

Table 3
DISTRIBUTION OF DIARRHOEAL CASES AMONG THE STUDY SUBJECTS
ACCORDING TO THEIR BREAST FEEDING PRACTICES

Breast Feeding	Diarrhoea		
Practices	Present	Absent	Total
Breast Fed :			
-Exclusively Breast Fed	06	07	13
-Partially Breast Fed	17	06	23
Not Breast Fed	30	09	39
Total	53	22	75

($P < 0.05$, Significant)

Table 4
DISTRIBUTION OF DIARRHOEAL CASES AMONG THE STUDY SUBJECTS
ACCORDING TO THEIR NUMBER OF DIARRHOEAL EPISODES

No. Of diarrhoeal	Diarrhoea Cases	
episodes	(Number)	(Percentage)
1	24	45.23
2	14	26.41
3	09	16.98
>3	06	11.32
Total	53	100

Table 5

**DISTRIBUTION OF DIARRHOEAL CASES AMONG THE STUDY SUBJECTS
ACCORDING TO THEIR SOURCE OF WATER CONSUMPTION**

Diarrhoea	Sanitary*		Insanitary**		Total	
	(No.)	%	(No.)	%	(No.)	%
Present	4	(28.57)	49	(80.32)	53	(71.00)
Absent	10	(71.43)	12	(19.68)	22	(29.00)
Total	14	(100.00)	61	(100.00)	75	(100.00)

(p 0.001, Highly significant), [*Bore wells and hand pumps, **Open wells]

Table 6

**DISTRIBUTION OF THE MOTHERS OF THE STUDY SUBJECTS ACCORDING TO THEIR KNOWLEDGE
ABOUT THE IMPORTANCE OF WATER CHLORINATION**

Knowledge Of Importance Of Water Chlorination	Mothers Of The Study Subject	
	(Number)	(Percentage)
Present	47	62.66
Absent	28	37.33
Total	75	100.00

Table 7

DISTRIBUTION OF DIARRHOEAL CASES ACCORDING TO THE PRACTICE OF WATER STORAGE

Knowledge Of Importance Of Water Chlorination	Water Storage Vessel			Total
	Earthen	Metal	Both	
Present	4	28	21	53
Absent	0	15	07	22
Total	4	43	28	75

(p>0.05, Insignificant)

Table 8

DISTRIBUTION OF DIARRHOEAL CASES ACCORDING TO THEIR TREATMENT MODALITY

Treatment Modalities	Diarrhoea Cases	
	(Number)	(Percentage)
ORS	23	30.66
SSS	10	13.33
Medication	27	36.00
Home Remedies	15	20.00
Total	75	100.00

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*Good People Without Discipline
Are
Worth Nothing.*

A STUDY TO ASSESS THE ATTITUDE REGARDING HIV/AIDS AMONG COLLEGE GOING ADOLESCENTS OF DISTT. AGRA OF UTTAR PRADESH

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ABSTRACT:

Objective : To assess the attitude regarding HIV/AIDS among college going adolescents.

Method : 500 adolescents from two intermediate college were selected randomly. The information was collected by interviewing the students one by one in privacy through a pre-tested interview schedule.

Result : Attitude of the students towards HIV victims was sympathetic but in many aspects, negative attitude towards PLHA was also observed. About 50% students were not in the favour of working with PLHA. 54.5% females did not like to share shaving blade while 63.4% females liked to share clothes with HIV Positives as compared to 49% males.

Conclusion : Fear and intolerant attitude towards PLHA were prevalent in adolescents. HIV/AIDS education designed in a way to raise the knowledge and change the attitudes making them respectful to community values, is urgently needed from media, schools/colleges and health professionals.

Introduction :

There is no vaccine to prevent HIV infection and there is no cure for AIDS. The only way to prevent AIDS is through education and counselling which can result in attitude changes that prevent the transmission of HIV. The acquisition of knowledge is not only required for medical and paramedical personnel, but also to some extent, to majority of population particularly high risk. In present circumstances, AIDS prevention largely depends on health education and behavioral changes based on HIV/AIDS awareness particularly among adolescents who are prone to risky behavior. Due to lack of knowledge any person can be infected and can adopt discriminative and stigmatized behavior towards HIV/AIDS and also can get negative attitude. The impact of HIV/AIDS related stigma and discrimination does not end here. It also affects the capacity of societies to respond constructively to the devastation caused by the epidemic.

Objective of the study :

To study the attitude towards HIV/AIDS among adolescents of Distt. Agra.

Material and Methods :

The study was conducted on 500 adolescent students studying in class 9th to 12th, aged 13-19th years of the two Intermediate college (One Urban & One Rural) of Agra District. For the study 250 adolescents from each college were

selected randomly comprising of 298 male & 202 females. The information was collected by interviewing the students one by one in privacy by author himself through a pre-tested interview schedule which was prepared in the tune with the objectives of the study for the purpose of data collection.

The collected information was analyzed & tested statistically and the results are presented below.

Observation :

The study population comprised of 298 male & 202 female students (59.6% & 40.4%) in age group of 13-19 years.

Attitude Regarding Communicability of HIV⁺ persons :

Majority of students had sympathetic attitude towards HIV victims. It was observed that 50% or more boys and girls were not having any hesitation in having casual contacts with HIV⁺ persons as they told that they will like to shake hands with them. (94.6 & 90.1%). While only 12 (4.03%) & 11 (5.45%) male & female students denied to shake hands with these person as shown in (Table 1). Majority of male students responded that they will like sharing the clothes, will continue to work with them, will allow them to work with as before while only 43% girls were ready to continue to work with them. 46% girls will allow them to work with but 54.5% girls will not like to share shaving blades while 63.4% girls will like to share clothes as compared to 49% boys.

Table 1
ATTITUDE REGARDING COMMUNICABILITY OF HIV+ve PERSONS

Response	Male = 298			Female = 202			Test of Significance	
	Y	N	NR	Y	N	NR	χ^2	p
With PLHA :								
*Will like to share shaving blade	147	77	74	60	110	32		
%	49.33	25.84	24.83	29.70	54.46	15.84		
*Will do casual contact/shake hand	282	12	4	182	11	9		
%	94.63	4.03	1.34	90.10	5.45	4.45	42.17,	<0.05
*Will like to share clothes	146	41	111	128	42	32		
%	48.99	13.76	37.25	63.37	20.79	15.84	5.288,	>0.05
*Will continue to work with	147	44	107	87	54	61		
%	49.33	14.76	35.91	43.07	26.73	30.20	27414,	<0.05
*Will allow to work with you	149	43	106	92	58	52		
%	50.00	14.43	35.57	45.55	28.71	25.74	16.339	>0.05

Belief Regarding Communicability of HIV :

Regarding the belief on communicability of HIV persons, mostly students were not in favour of sharing syringe & needles, having homosexual relationship, also that HIV+ve should not procreate or give birth to a child and breast feeding. Response on breast feeding to a child was of lesser girls (81.7%). (Table 2).

Table 2
BELIEF REGARDING COMMUNICABILITY OF HIV

Response	Male = 298			Female = 202			Test of Significance	
	Y	N	NR	Y	N	NR	χ^2	p
Are you in favour of								
*Share needle/syringe with HIV+ve	-	297	1	-	201	1		
%	-	99.66	0.34	-	99.50	0.50		
*HIV+ve women should give birth to a child	7	289	2	2	184	16		
%	2.35	96.98	0.67	0.99	91.09	7.92		
*HIV+ve mother should Breast-feed the baby	7	278	13	20	165	17		
%	2.35	93.29	4.36	9.90	81.68	8.42	17.836,	<0.05
*Having homosexual relationship	2	296	-	1	200	1		
%	0.67	99.33	-	0.50	99.00	0.50		

Attitude Regarding prevention and treatment :

The table-3 reveals about safe sex that 295 (98.99%) male & 201 (99.50%) female students denied to multi-sex partner while about 99% male & female students were in the favour of use of condom during sexual contact. Majority i.e. About 92% adolescents informed that to give early treatment of STDs is necessary for prevention of HIV infection. (91.3 M & 93.1 F).

Table 3
ATTITUDE REGARDING PREVENTION AND TREATMENT

	Male = 298			Female = 202		
Response Regarding Preventive aspect of HIV	Y	N	NR	Y	N	NR
*Multi-Sex Partnership acceptable	-	295	3	-	201	1
%	-	98.99	1.01	-	99.50	0.50
*Will like Use of condom	295	-	3	199	3	-
%	98.99	-	1.01	98.51	1.49	-
*Early Treatment of STDs is necessary	272	-	26	188	9	5
%	91.28	-	8.72	93.07	4.46	2.47

Conclusion :

The students should be educated not merely about 'sex', but educate them about value systems and healthy behavior. UNICEF has recognized the Uganda Education Ministry Model's countrywide syllabus on sex-education and self-esteem development for school going adolescents.

All medical and Para-medical professionals should receive training and education with great stress on HIV-related topics, so that they will ensure that Universal Safety Health Precautions are followed in the best interests of the patients and health-care provider. AIDS attracts intense public attention. Incorrect statements by professional can be construed as factual by the lay public. Fear and intolerant attitudes toward PLHA were prevalent HIV/AIDS education designed to raise knowledge and change attitudes and respectful of community values, is urgently needed from media schools/ Collage and health professionals. The following steps can be recommended in this regard :

Recommendation :

1. Implementation of HIV/AIDS awareness programmes in schools, colleges and community.
2. Inclusion of sex education and family life education in school/college curriculum to get 100% level of knowledge.
3. Inclusion of HIV/AIDS in detail in curriculum of other types of medical faculties like Ayurveda, Unani,

Homeopathy etc and involvement of these doctors in AIDS awareness programme.

4. Mass education using television, radio, newspapers etc for propagating safe sex and dispelling the myths and propagating against drug abuse should be included in these programmes.

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PREVALENCE OF ANAEMIA IN ADOLESCENT GIRLS IN AN URBAN AREA OF MEERUT

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ABSTRACT:

Research Question: What is the prevalence of anaemia in an urban area of Meerut.

Objective: To find out the prevalence of anaemia in adolescent girls.

Study Design: Cross sectional Study.

Setting: The study was conducted in an urban area of Meerut

Statistical Analysis: Chi-square test

Results: The overall prevalence of anaemia in adolescent girls was found to be 36.5%. Majority of anaemic girls were having mild anaemia (53.2%) and in only 5.9% anaemia was severe in nature. Rest 40.9% were moderately anaemic.

Introduction:

Adolescence is a period of dramatic growth and development. As a child evolves into an adult, a complex myriad of psychologic alterations take place. WHO defines adolescence as the period between 10 to 19 years of age¹. Adolescence in India has been defined to be a period between 10 to 18 years².

Adolescence is a period where significant growth changes occur necessitating optimum nutritional requirement. During adolescence, 20% of the adult height is attained and 50% of the adult bone mass gained. The main nutritional problems affecting adolescent population include under nutrition and iron deficiency beside others. Limited data available worldwide shows poor nutritional status which has serious implication for adolescent girls both in terms of their own health and poor pregnancy outcomes for their infants such as low birth weight and neonatal mortality³. It is well known that women of reproductive age have poor iron status (an estimated prevalence of 47% across developing countries), and that it worsens during pregnancy (59%). Adolescence is an ideal time to study pre-pregnancy iron status because many girls around the world will have had their first child by age of 19 years⁴.

It is important to define the exact etiology of nutritional anaemia in a population for its effective control by

supplementation programmes. Since very few studies so far have been conducted in Western part of U.P., the present study was proposed to find out the prevalence of anaemia in adolescent girls in an urban area of Meerut.

Material And Methods:

The present cross-sectional study was carried out in urban population of Meerut City registered at Urban health training centre, Deptt. of Community Medicine, L.L.R.M. Medical College, Meerut. Out of 1530 families covered through house to house visit during the survey, 556 adolescent girls aged 10-18 years were studied taking an optimum sample size for study by an estimated anaemia prevalence of 40% in adolescent girls with relative precision of 10% at 95% confidence interval.

In order to have an effective completion of study a house to house survey was done from locality to locality till the desired study sample was covered. During home visit members of the family were listed and eligible persons i.e. adolescent girls aged 10-18 years were interviewed and examined. A detailed information was collected on a predesigned and pretested proforma about sociodemographic and other contributory factors for anaemia by oral questionnaire method supplemented by physical examination and Haemoglobin estimation by Sahli's Haemoglobinometer. Anaemia was assessed by WHO criteria of anaemia.

Observations:

Table 1
DISTRIBUTION OF ANAEMIA IN ADOLESCENT GIRLS ACCORDING TO ITS SEVERITY

No. of Adolescent Girls				
Severity	Hb (gm%)	No.	%	Prevalence (%)
Mild	10-cut off	108	53.2	19.4
Moderate	7 - < 10	83	40.9	14.9
Severe	< 7	12	5.9	2.2
	TOTAL	203	100.0	36.5

Among 556 adolescent girls covered in the study 203 were found to be anaemic with a prevalence of 36.5%. The prevalence of mild, moderate and severe anaemia was 19.4%, 14.9% and 2.2% respectively.

Table 2
CASTEWISE DISTRIBUTION OF ANAEMIA IN ADOLESCENT GIRLS

Caste Group	No. of Adolescent Girls	Anaemia Cases	Prevalence (%)
Savarna Hindu	312	98	31.4
Scheduled Caste	124	61	49.2
Other Backward Class	120	44	36.7
TOTAL	556	203	36.5

$$\chi^2=8.94, df=2, p<0.02$$

Table 2 shows that prevalence of anaemia was significantly higher (49.2%) among the scheduled castes as compared to 36.7% and 31.4% among the other backward class and savarna Hindus respectively ($p<0.02$).

Table 3
PREVALENCE OF ANAEMIA IN ADOLESCENT GIRLS ACCORDING TO SOCIO-ECONOMIC STATUS

SES	PCI (Rs)	No. of Adolescent Girls	Anaemia Cases	Prevalence (%)
I Upper	> 1600	55	16	29.1
II Upper Middle	1000-1599	110	32	29.1
III Lower Middle	500-999	175	59	33.7
IV Upper Lower	200-499	151	65	43.0
V Lower	<200	65	31	47.6
TOTAL		556	203	36.5

$$\chi^2=10.4, df=4, p<0.05$$

Table 3 shows that the prevalence of anaemia was maximum in class V (47.6%) and significantly decreased ($p<0.05$) with the rise in socioeconomic status, the prevalence being minimum in class I and II (29.1% each).

Table 4
PREVALENCE OF ANAEMIA IN ADOLESCENT GIRLS ACCORDING TO CLEANLINESS INSIDE THE HOUSE

Cleanliness	No. of Adolescent Girls	%	Anaemia Cases	Prevalence (%)
Poor	156	28.0	95	60.9
Fair	257	46.3	72	28.0
Good	143	25.7	36	25.2
TOTAL	556	100.0	203	36.5

$$\chi^2=56.1, df=2, p<0.001$$

Table 4 shows that the prevalence of anaemia was significantly higher (60.9%) in adolescent girls who had poor cleanliness inside the house than fair and good cleanliness inside houses, prevalence being 28.0% and 25.2% respectively ($p<0.001$).

Table 5
PREVALENCE OF ANAEMIA IN ADOLESCENT GIRLS ACCORDING TO AWARENESS REGARDING ANAEMIA

Awareness regarding Anaemia (as illness)	No. of Adolescent Girls	Anaemia Cases	Prevalence (%)
Yes	175	51	29.1
No	381	152	39.8
TOTAL	556	203	36.5

$$\chi^2=6.09, df=1, p<0.02$$

Table 5 shows that the prevalence of anaemia was found to be significantly higher (39.8%) in those adolescent girls who were not aware about anaemia than 29.1% in those who were aware regarding anaemia ($p < 0.02$).

Discussion :

Anaemia ranks as one of the most common maladies affecting mankind all over the world. Overall prevalence of anaemia was 36.5% in adolescent girls which is in approximation with 34.5% reported by Rawat et al (2000)⁵ but lower than 73.7% reported by Mishra et al (1995)⁶ and multicentric study completed in three regions of India (Mumbai, Gujrat and Delhi)⁷ which showed anaemia prevalence as 62-65%, 57-65% and 48-50% respectively in adolescent girls was 19.4%, 14.9% and 2.2% respectively as compared to 19.0%, 14.1% and 1.4% respectively in rural Meerut⁵.

The causes of high prevalence of anaemia in scheduled caste community could be due to lack of money, either due to poverty or more number of children in the family and lack of knowledge about childcare practices. Reverse association was seen between SES and prevalence in adolescent girls as lower the socio-economic status higher was the prevalence of anaemia being maximum (47.6%) in class V and minimum 29.1% in class I and II. In Vasanthi et al (1994)⁸ study the mean Hb showed a rising trend with improved socio economic status and most of the children belonging to lower socio-economic status and most of the children belonging to lower socio-economic status were anaemic. This may be because of better availability of high quality food with better socio-economic status. Rawat et al. (2000)⁵ also observed a high (50.0%) prevalence of anaemia in class V.

Poor cleanliness is also associated with infections and intestinal infestation which in turn lead to nutritional deficiencies. Rawat et al (2000)⁵ observed 39.1% prevalence of anaemia in adolescent girls with poor cleanliness inside the house.

Recommendation :

The present study has shown that the problem of anaemia is widely prevalent. Extensive basic health and nutrition education should be included in school curriculum and all nutrition programmes. Nutrition education messages to the people via mass media like newspapers, TV, cinema halls etc.

on the following should be given- Inclusion of regular and adequate amount of iron rich foods or foods fortified with iron in the household diet, improvement of socio-economic status and proper implementation of family planning programmes. There should be strategy for anaemia prophylaxis programme for adolescent girls with intersectoral coordination.

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PRIMARY IMMUNIZATION STATUS IN RURAL BLOCK OF KANPUR DISTRICT

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ABSTRACT:

Research question: What is the status of primary immunization of children in the age group of 12-23 month

Objective: To assess the status of Primary immunization in age group of 12 to 23 month Children,

To compare the primary immunization in intensive and twilight villages,

To study the influence of social factors affecting immunization &

To find out reasons for immunization default

Study design: cross sectional study

Setting and participants: rural block of Kanpur District and mothers of children in age group of 12-23 months.

Study period: July to December 2005

Sample size: 280 mothers of study group children.

Study variable: Immunization status, social factors, vaccine, reasons for immunization default

Results: 32.85% of children were fully immunized. Highest (92.85%) covered antigen were found as OPV-1 and lowest (41.78%) covered antigen as DPT-3. Literacy and joint family had positive impact on immunization status. The main reasons were observed for immunization default as ignorance (about need/place/person/time) and distance factor.

Conclusion: Quantity wise coverage was quite satisfactory. High dropout rate due to ignorance and distance factors should be taken into

Introduction:

Vaccine preventable diseases are wide spread and are major causes of childhood morbidity, mortality and life long physical and mental disabilities. To combat these diseases, immunization, proper sanitation and provision of safe drinking water are the best option. Immunization is one of the cost affective weapons for disease prevention. Expanded programme on immunization (EPI) was launched in 1974 by WHO, against six, most common, preventable childhood diseases viz diphtheria, pertusis, tetanus, polio tuberculosis and measles. Government of India launched EPI in 1978. Universal Programme of Immunization (UIP) was started in 1985⁽¹⁾. UIP aims of completing the primary immunization (one dose each of BCG and measles, and three doses of DPT and OPV) for all children in the country by the time they become one year old⁽²⁾. Although an old and dedicated programme, immunization coverage achieved so far are not at all encouraging. The situation in Uttar Pradesh (UP) is particularly worse. According to district level household survey 2 (DLHS-2), the primary immunization coverage level of UP was as fully immunized 26.4%, non immunized 23.4% and the measles coverage rate 35.4% as compared to the value for India i.e. 46%, 20% and 56% respectively⁽³⁾. To view the current situation in rural area of Kanpur District in UP, this study was designed with following

objectives:-

- ❖ To assess the status of primary immunization in age group of 12 to 23 month children.
- ❖ To compare the primary immunization in intensive and twilight villages.
- ❖ To study the influence of social factors affecting immunization & to find out reasons for immunization default.

Materials and Methods:

A cross sectional study was done. Pre-designed and pre-tested semi structured schedules were used for obtaining information. First author himself filled the schedules. The mothers, who had live 12-23 month year old children, were considered as a respondent unit. Multistage random sampling technique was adopted to reach the respondent unit. Study was conducted in rural block of Kanpur district of Uttar Pradesh. In first stage one PHC (Primary Health Center) i.e. Bithoor PHC of Kalyanpur block was selected randomly. Selected PHC caters about 38,000 populations through five sub centers and the population was spread over 50 villages. All sub centre villages of Bithoor PHC were considered as intensive area villages and rest of the villages were considered as twilight area villages. In second stage, each intensive village was divided into four quadrants and for each of them

four twilight villages were randomly selected. Thus there were 5 intensive service area villages and 20 twilight area villages. Purposively, from each quadrant of intensive area village and from each selected twilight area village, seven respondent units were interviewed. Thus making sample size to a total of 280 of which 140 respondents were from intensive and 140 respondents were from twilight area villages. In third

stage one lane of the twilight village or quadrant of intensive village was selected randomly by using currency note last digit number. From selected lane house-to-house visit were done in each selected village or quadrant, till the required seven respondent units were interviewed.

Results :

Table 1
IMMUNIZATION STATUS OF CHILDREN (12 - 23 MONTH)

Status	Intensive		Twilight		Total	
	No.	%	No.	%	No.	%
Fully Immunized	52	37.7	40	28.5	92	32.85
Partially Immunized	84	60	91	55	175	62.5
Non Immunized	4	2.85	9	6.47	13	4.64
Total	140	100	140	100	280	100

$$\chi^2 = 3.18, df=2, p \leq .05$$

Out of total 280 children of age group 12-23 months, 32.85 % Children were fully immunized where as 62.50 % were partially immunized. Fully immunized children were more in intensive area villages (37.14%) while non-immunized children were more in twilight area villages (6.47%) and the difference was not statistically significant.

Table 2
ANTIGEN COVERAGE STATUS AMONG STUDY GROUP CHILDREN

Status	Intensive (140)		Twilight (140)		Total (280)	
	No.	%	No.	%	No.	%
BCG	124	88.50	109	77.85	233	83.21
OPV1	133	95.00	127	90.71	260	92.85
OPV2	127	90.71	114	81.42	241	86.07
OPV3	123	87.85	98	70.00	221	78.92
DPT1	133	95.00	99	70.71	232	82.85
DPT2	102	72.85	91	65.00	193	68.92
DPT3	70	50.00	47	33.57	117	41.78
Measles	84	60	67	47.85	151	53.92
Vit A first dose	39	27.85	10	7.14	49	17.50

Highest converge of vaccine was observed for OPV1 (92.85%) followed by OPV2 (86.07%), BCG (83.21%), DPT1 (82.85%). Poor coverage was observed for Vit-A first dose (17.50%), DPT3 (41.78%) and for measles (53.92%). The higher coverage was seen in intensive area in comparison to twilight area village.

Table 3
EDUCATION OF MOTHER AND IMMUNIZATION STATUS OF CHILDREN

Immunization status	Education of mother			
	Illiterate	Primary	Middle	Secondary & above
Fully-Immunized	29 (31.52)	28 (30.43)	25 (27.17)	10 (10.86)
Partially-Immunized	91 (52.00)	51 (29.14)	28 (16.00)	5 (2.85)
Non-Immunized	10 (76.92)	3 (23.07)	0 (0.0)	0 (0.0)

(Figures in parenthesis show the percentage) $\chi^2=27.36$, $df=6$, $p \leq .05$

Partial immunization (52.00%) and non-immunization (76.92%) was found to be more in children of illiterate mothers while fully immunized children were from the literate mother (68.48%). Thus the table depicts the influence relationship between education status of mother and immunization status of their children and the difference was found statistically significant.

Table 4
TYPE OF FAMILY AND IMMUNIZATION STATUS OF CHILDREN

Type of family	Status			Total
	Fully-Immunized	Partially-Immunized	Non-Immunized	
Nuclear	25 (21.01)	84 (70.58)	10 (8.40)	119 (100)
Joint	64 (43.24)	82 (55.40)	2 (1.35)	148 (100)
Extended	3 (23.07)	9 (69.23)	1 (7.69)	13 (100)

(Figures in parenthesis show the percentage)

Pattern of immunization among different types of families showed that complete immunization was achieved maximum (43.24%) in children belonging to joint families where as minimum (21.01%) in nuclear families. Maximum number of children, who were either partially immunized or non immunized, belonged to nuclear type of families.

Table 5
REASONS FOR IMMUNIZATION DEFAULT

Status	Intensive	Twilight	Total
Long distance/too far	18 (20.45)	27 (27%)	45 (23.93)
Ignorance (about need/place/person/time)	59 (67.04)	66 (66%)	125 (66.48)
Fear of adverse effect	7 (7.95)	6 (6)	13 (6.91)
Child illness	4 (4.54)	1 (1)	5 (2.65)
Total	88 (100)	100 (100)	188 (100)

(Figures in parenthesis show the percentage)

The reasons for immunization default were grouped under four categories as long distance, ignorance, fear of adverse effects and child illness. Over all commonest reason cited for immunization default was ignorance (66.48%) followed by long distance (23.93%), fear of adverse effect (6.9%) and children with illness (2.65%). This trend of reasons was almost similar to both intensive and twilight area villages.

Discussion :

Study was conducted during the year -2005. Bithoor PHC situated just 1Km from the right bank of river Ganga. Most of the villages, catered by PHC, were lacking Basic

facilities, like electricity, public transport etc and are difficult to access. Majority of population belonged to Schedule Caste & Other Backward Caste category and labors or Agricultural by occupation. As the observation of study depicts that only

one-third-study group children had completed their primary immunization and rest of the children either partially immunized (62.5%) or had not received any vaccine (4.14%). DLHS-2⁽³⁾ data of Kanpur District revealed 44.2% as the full immunization coverage, slightly higher than our observation (32.85%), which could be due to rural-urban variation. Mathew et al⁽⁴⁾ (2001) in their study found that only 25 % of study group children had received complete primary immunization. Jain et al⁽⁵⁾ (2006) in Rajasthan had reported the almost similar pattern of immunization status to the present study. In our study the highest covered antigen was OPV1 (92.85%) and the lowest covered antigen were DPT3 (41.78%) and measles (53.92%). Manjunathan and Pareek⁽⁶⁾ (2003) also found high level of initial vaccination rates and low level of DPT3 (62.7%) and measles (51.8%). Bhatia et al⁽⁷⁾ (2004) observed that overall coverage of antigen was good as high as 93.09 % for BCG & OPV1/ DPT1 and as low as 76% for measles vaccination. So this tendency to incomplete immunization needs to be addressed. As various studies^(11,12,13) has been done and showed that the education has positive effect on utilization of health facilities. Our study highlighted the influence of maternal education on accepting the immunization services. Our study revealed that immunization status of children, which were fully immunized, belonged to educated mother and as the literacy level decreased, the number of children partly immunized or non-immunized also increased. Singh and Yadav⁽⁸⁾ (2001), Partha & Bhattacharya⁽⁹⁾ (2002) in their study also highlighted the influence of literacy on vaccine coverage level of child. They found that the coverage level was lower for children of illiterate mothers and in small, inaccessible villages. Socio-cultural factors also influenced the utilization of services. As In our study those children living in joint families showed better immunization coverage as compared to other types of families this was because of in rural area there are strong bondage among the family members. As in our study only 32.85% of children received full coverage of primary immunization rest were either not immunized or left incomplete. When the reasons for low coverage were interrogated, the main reasons were appeared to be ignorance about schedule of vaccine, necessity, place, person, and long distance to travel for vaccination, fear of adverse effect & child illness. Khar et al⁽¹⁰⁾ (2001), Mathew et al⁽⁴⁾ (2002), Manjunathan & Pareek⁽⁶⁾ (2003), Jain et al⁽⁵⁾ (2006) had also cited almost similar observations for immunization default.

Conclusions :

Quantity wise individual vaccination coverage was good but quality wise only 1/3rd immunized children received the full package. Joint families and higher level of education had

positive impact on acceptance of immunization. Identified reasons for immunization default was ignorance, distance factor and fear of adverse effect of vaccination. Health education & awareness increasing programme should be conceived and implemented to create demand for the services.

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CARDIOVASCULAR MORBIDITY PROFILE OF POPULATION AGED 60 YEARS AND ABOVE IN RURAL AND URBAN AREAS OF KANPUR

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ABSTRACT:

Background: Cardiovascular morbidity is a major contributor towards old age health problems which requires specialized care and if left unattended can deteriorate the quality of life and also lead to mortality. Therefore a study was planned to find out the prevalence of cardiovascular morbidity among geriatric population living in rural and urban areas of Kanpur.

Objective: To find out the prevalence of cardiovascular morbidity in geriatric population in rural and urban area of Kanpur and also to study the pattern of cardiovascular morbidity in two areas.

Material and methods: a cross sectional study was carried out in a randomly selected rural and urban area of Kanpur. 443 geriatrics in rural and 401 in urban area were interviewed and physically examined.

Results: Geriatrics constituted 8.2% and 7.7% of total population in rural and urban area respectively. Majority of population in both areas belonged to 60-70 years age group i.e. 78.8% and 75.8% respectively. 12.2% of rural geriatric and 12.5% of urban geriatric were suffering from some or other kind of cardiovascular morbidity. In rural area 39.1% of geriatric population is hypertensive while in urban area hypertension is prevalent in 41.6% of geriatric population. 98.1% of morbid in rural and 86.0% in urban area were not doing any kind of exercise. A majority of population suffering from cardiovascular morbidity were not smoking currently. Majority i.e. 72.2% of geriatric population suffering from cardiovascular morbidity in rural area were having BMI between 18.5-24.99 while in urban area 57.4% of them were having BMI >= 25. Hypertensives constituted 57.4% in rural and 66.0% in urban area towards those who are suffering from cardiovascular morbidity.

Introduction:

The UN defines a country as aging where the proportion of people over 60 years reaches 7%. In 2000 India had 7.7% aged and proportion is expected to reach 12.6% in 2025. The Indian geriatric population is currently the largest in world. The population of geriatrics in India has grown from 5.4% in 1951 to 6.4% in 1981 & to 7.7% in 2001. Population aging is the most significant result of the process known as demographic transition and nations are gradually aging. This means need to expand health services to inculcate geriatric medicine. Geriatric population apart from risk to suffer from common diseases are prone to develop age related problems, like musculoskeletal problems, diminished vision, coronary heart diseases, psychiatric problems, benign prostatic hyperplasia, reduced nutrition and neglect from younger section of community.

Cardiovascular morbidity is a group of disorders which includes IHD, hypertension, stroke, congestive heart failure etc. cardiovascular morbidity reflects age related degenerative phenomenon as well as consequence of previous exposure to risk factors such as inappropriate nutrition, physical inactivity, tobacco and alcohol consumption. Cardiovascular morbidity seriously impairs quality of life and requires specialized health services. About 18.0% of persons aged above 60 years suffer from some or other kind of

cardiovascular morbidity. VAHI (1997), report of the independent commission on health in India, chapter 14, health problems of specialized groups.

Material and Methods:

Study Population and study design in the present study persons aged 60 years and above were taken as study population from rural and urban area of Kanpur, **Sample Size** minimum sample size for the present study, taking expected prevalence of morbidity in geriatric population as 52% ('NSSO 1998, ² CENSUS 2001) was calculated as $n=383.54$ rounded off to 400 each in rural and urban area, **Sampling technique** multistage simple random sampling technique was applied to selected 400 cases each from rural and urban areas, **Study Design** cross sectional, **study tool** the information collected from participants was recorded on a predesigned and proportions, **Inclusion criteria** the person who was diagnosed by a medical practitioner as suffering from cardiovascular morbidity (medical records with the patient were used for this purpose) and is currently on treatment or in last one year. The patient was physical examined along with proper history and blood pressure examination. Since hypertension is an independent risk factor for cardiovascular morbidity it was not included in cardiovascular morbidity.

Results :

Table 1

AGE AND SEX WISE DISTRIBUTION OF STUDY POPULATION

Age(yrs)	Rural		Total	Urban		Total
	Male	Female		Male	Female	
60-70	174(49.9)	175(50.1)	349(78.8)	178(58.6)	126(41.4)	304(75.8)
70-80	(50.0)	30(50.0)	60(13.5)	27(47.4)	30(52.6)	57(14.2)
80-90	11(34.4)	21(65.6)	32(7.2)	22(56.4)	17(43.6)	39(9.7)
>90	2(100.0)	0(0)	2(0.4)	1(100.0)	0(0)	1(0.3)
Total	217(48.9)	226(51.1)	443(100)	228(56.9)	172(43.1)	401(100)

Geriatrics constituted 8.2% and 7.7% of total population in rural and urban area respectively. In rural area males constituted 48.9%, which females constituted 51.1% of total geriatric population. The respective figures for urban area are 56.9% and 43.1%. Majority of population in both areas belonged to 60-70 years age group i.e. 78.8% and 75.8% respectively.

Table 2

DISTRIBUTION OF CARDIOVASCULAR MORBIDITY IN RURAL AND URBAN AREA

Cardiovascular morbidity	Rural	Urban
Present	54(12.2)	50(12.5)
Absent	389(87.8)	351(87.5)
Total	443(100)	401(100)

12.2% of rural geriatric and 12.5% of urban geriatric were suffering from some or other kind of cardiovascular morbidity.

Table 3

CARDIOVASCULAR MORBIDITY PROFILE IN RURAL AND URBAN AREA

Cardiovascular morbidity*	Rural (n=54)	Urban (n=50)
Coronary artery disease	24(44.4)	30(60.0)
Congestive heart failure	20(37.0)	17(34.0)
Previous MI	11(20.4)	21(42.0)
Stroke	6(11.1)	6(12.0)
Others#	9(16.7)	8(16.0)

*Based on multiple responses, #includes aneurysms, gangrene, intestinal ischemia etc

Coronary artery disease contributed 44.4% and 60.0% towards cardiovascular morbidity in rural and urban area respectively. In urban area previous episode of MI contributed 42.0% towards cardiovascular morbidity.

Table 4

BLOOD PRESSURE DISTRIBUTION IN RURAL AND URBAN AREA

Blood Pressure*	Rural	Urban
Normal	91(20.5)	46(11.5)
Prehypertension	179(40.4)	188(46.9)
Stage I	130(29.4)	108(26.9)
Stage II	43(9.7)	59(14.7)
Total	443(100)	401(100)

*Joint national committee criteria VII

In rural area 39.1% of geriatric population is hypertensive (stage I + Stage II) while in urban area hypertension is prevalent in 41.6% (Table 4) of geriatric population.

Table 5
DISTRIBUTION OF CARDIOVASCULAR MORBIDITY IN RELATION TO SOME RISK FACTORS
IN RURAL AREA

Risk Factor	Status	Cardiovascular morbidity		Total (N=443)
		Present (n=54)	Absent (389)	
Exercise	No	53(98.2)	381(97.9)	434(97.9)
	Yes	1(1.8)	8(2.19)	9(2.1)
Smoking	No	35(64.8)	249(64.0)	284(64.1)
	Yes	19(35.2)	40(36.0)	159(35.9)
Alcohol	No	50(92.6)	354(91.0)	404(91.2)
	Yes	4(7.4)	35(9.0)	39(8.8)
BMI	<18.5	14(25.9)	66(17.0)	80(18.1)
	18.5-24.99	39(72.2)	305(78.4)	344(77.7)
	>25	1(1.9)	18(4.6)	19(4.3)
Hypertension	Normal	10(18.5)	81(20.8)	91(20.5)
	Prehypertension	13(24.1)	166(42.7)	179(40.4)
	Stage I	16(29.6)	114(29.3)	130(29.3)
	Stage II	15(27.8)	28(7.2)	43(9.7)

Only 2.1% of rural population was involved in any form of exercise. About 36% of population is smoking and among those who were having cardiovascular morbidity 35.2% were smoking. 57.8% of morbid population was either stage I and stage II hypertensive.

Table 6
DISTRIBUTION OF CARDIOVASCULAR MORBIDITY IN RELATION TO SOME RISK FACTORS
IN URBAN AREA

Risk Factor	Status	Cardiovascular morbidity		Total (N=401)
		Present (n=54)	Absent (351)	
Exercise	No	43(86.0)	267(76.1)	310(77.3)
	Yes	7(14.0)	84(23.9)	91(22.7)
Smoking	No	37(74.0)	258(73.5)	295(73.6)
	Yes	13(26.0)	93(26.5)	106(26.4)
Alcohol	No	45(90.0)	313(89.2)	358(89.3)
	Yes	5(10.0)	38(10.8)	43(10.7)
BMI	<18.5	0(0.0)	4(1.1)	4(0.1)
	18.5-24.99	21(42.0)	219(62.4)	240(59.9)
	>25	29(58.0)	128(36.5)	157(39.2)
Hypertension	Normal	6(12.0)	40(11.4)	46(11.5)
	Prehypertension	11(22.09)	177(50.4)	188(46.9)
	Stage I	11(22.0)	97(27.6)	108(26.9)
	Stage II	22(44.0)	37(10.5)	59(14.7)

22.7% of urban geriatric population was involved in regular physical exercise. Among those who were morbid 86.0% were non exercisers. In urban area 26.4% of geriatric population was smoking and among those who were morbid 26.0% were currently smoking. 66.0% of those who were having cardiovascular morbidity was either stage I or stage II hypertensives.

Discussion :

According to N.F.H.S. III geriatrics constitute 7.8% of total population. In our study we also found almost similar proportion of geriatric population. Prevalence of cardiovascular morbidity was almost equal in rural and urban area i.e. about 12.0% Elango et al (1998) reported that 7% of geriatrics suffers from cardiovascular morbidity. Majority of cardiovascular morbidity in rural and urban area is constituted by coronary artery disease i.e. 44.4% and 60.0% respectively; ⁴Prakash R (2004) also reported similar findings. 39.1% of rural geriatric and 41.6% or urban geriatric were hypertensives. ⁴Prakash R (2004) reported 40.0% prevalence of hypertension in geriatric population of an urban area of Rajasthan. In urban area higher percentage of geriatric population was involved in regular physical exercise. There were more current smokers in rural area as compared to urban area. There were more preobese in urban area as compared to rural area.

Conclusions :

cardiovascular morbidity constitutes a sizeable proportion of total morbidity and keeping in view the increasing number of geriatrics it is bound to increase.

Therefore policy makers should also give emphasis on providing specialized care to geriatric through primary health care. Since cardiovascular deteriorates quality of life it is also necessary to provide rehabilitative services to those who are affected. There should be program for regular screening of geriatric population for hypertension so that early treatment can be started and complications prevented.

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***NO ONE CAN MAKE YOU
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A COMPARATIVE STUDY OF NUTRITIONAL STATUS OF LATE ADOLESCENTS (16-19 YEARS) IN RFTC SERVED AND NON - RFTC SERVED RURAL AREAS OF KANPUR

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ABSTRACT:

Objective : (1) To determine nutritional status among late adolescents in RFTC served and Non-RFTC served areas.

(2) To compare nutritional status among late adolescents in RFTC served and Non-RFTC served areas.

Study design : Cross sectional study.

Setting : RFTC served and Non-RFTC served rural areas of Kanpur.

Participants : 410 adolescents in each areas in the age group of 16-19 years.

Statistical analysis: Percentage, chi-square test

Results: Overall prevalence of anaemia was more (62.7%) in Non-RFTC served area as compared to that (40.2%) in RFTC served area ($p < 0.05$). The regular consumption of green vegetables was more in RFTC served area (59.5%) than that in Non-RFTC served area (45.7%). 59.3% adolescents were found to be underweight in Non-RFTC served areas as compared to 49.3% in RFTC served areas.

Conclusion : The nutritional status of adolescents of RFTC served areas was found better than adolescents living in Non-RFTC served areas and this was due to better dietary habits, better knowledge and involvement of RFTC services to that areas.

Introduction :

Adolescence is considered as a period of transition from "childhood to adulthood". Adolescence are divided into three phases each with specific characteristics; early adolescence (9-13 years), mid adolescence (14-15 years), late adolescence (16-19 years). Late adolescents have fully developed physical characteristics (similar to adults) and have formed a distinct identity and have well formed opinions and ideas. They suffer from many nutritional problems - underweight, overweight, nutritional anaemia, micronutrient deficiency etc. Undernourished adolescents may suffer from impaired growth, anemia, iodine deficiency, etc. It is also estimated that half of them suffer from nutritional anemia and about, 29% boys and 37% girls are stunted¹. Adolescence is the last chance to correct the growth lag and malnutrition. Against this background, the present study was undertaken.

Material And Methods :

It was a community based comparative study. The two study groups namely;

(1) RFTC served rural area :

RFTC is Field practice area of Deptt. of Community Medicine, G.S.V.M. Medical College, Kanpur. All the four villages served by Rural Field Training centre, Kalyanpur i.e. Bairy 1, Bairy 2, Naubasta and Khera were included in the present study. To find out the late adolescents (16-19 years) in all the four villages, complete enumeration was done through house to house visit. Following this, a total of 410 late adolescents were identified in RFTC served rural areas.

(2) Non-RFTC served rural areas :

As it was a comparative study, to find out the same number of late adolescents, four Non- RFTC served villages were selected using Simple Random Sampling without Replacement Technique from the same Kalyanpur rural block. The villages so selected were Hindupur, Hirdaipur, Naurangabad and Hora Banger. The study was terminated when 410 late adolescents were identified in other outreach areas. Study was carried out from July 2007 to June 2008. A predesigned and pretested questionnaire was used to collect all the relevant information with informed consent of respondents with their complete physical examination, BMI calculation (percentile chart) and haemoglobin estimation. (Sahli's haemoglobinometer). Statistical analysis was done by using percentage and χ^2 test.

Observation and results :

The present study reveals that there were 58.05% were males and 41.95% were females in RFTC served areas, while 59.51% males and 40.49% females in Non-RFTC served areas. Most of the adolescents i.e. 89.8% & 97.8% respectively were Hindu in both study areas. Majority of adolescents in RFTC served areas as well as Non-RFTC served areas were students (69.8% & 57.3% respectively). Majority of the adolescents (48.0% & 29.6%) in RFTC served areas while 32.4% & 62.7% in Non-RFTC served areas belonged to social class IV and V respectively. (According to modified BG Prasad Social Classification as per AICPI March, 2007).

The literacy status of adolescents in RFTC served areas

was better than that of Non-RFTC served areas. Among the literates in RFTC served areas, most of them were educated

upto high school or above (83.3%), while the corresponding figure in Non-RFTC served areas was 70.8%.

Table 1
DIETARY HABIT AMONG ADOLESCENTS

Dietary habit	RFTC served areas			Non-RFTC served areas		
	Male N=238	Female N=172	Total N=410	Male N=244	Female N=166	Total N=410
(A) Type of diet						
Vegetarian	93 (39.1)	142 (82.6)	235 (57.3)	126 (51.6)	139 (83.7)	265 (64.6)
Non Vegetarian	145 (60.9)	30 (17.4)	175 (42.7)	118 (48.4)	27 (16.3)	145 (35.4)
(B) Frequency of meals						
2 Times a Day	79 (33.2)	92 (53.5)	171 (41.7)	34 (13.9)	29 (17.5)	63 (15.4)
3 Times a Day	150 (63.0)	74 (43.0)	224 (54.6)	197 (80.7)	125 (75.3)	322 (78.5)
≥ 3 Times a Day	9 (3.8)	6 (3.5)	15 (3.7)	13 (5.4)	12 (7.2)	25 (6.1)

This table shows that the males had mostly three meals per day (63.0% and 80.7% respectively) in both study area while females mostly had two meals per day (53.5%) in RFTC served area and three meals per day (75.3%) in Non-RFTC served area.

Table 2
CONSUMPTION PATTERN OF GREEN LEAFY VEGETABLES, MILK AND FAST FOOD

Food items	Consumption Pattern	RFTC served areas			Non-RFTC served areas		
		Male N=238	Female N=172	Total N=410	Male N=244	Female N=166	Total N=410
Green leafy vegetables	Regular	138 (58.0)	106 (61.6)	244 (59.5)	117 (48.0)	70 (42.2)	187 (45.7)
	Occasional	94 (39.5)	55 (32.0)	149 (36.3)	113 (46.3)	84 (50.6)	197 (48.0)
	Never	6 (2.5)	11 (6.4)	17 (4.2)	14 (5.7)	12 (7.2)	26 (6.3)
Milk	Regular	76 (31.9)	39 (22.6)	115 (28.1)	89 (36.5)	45 (27.1)	134 (32.6)
	Occasional	129 (54.2)	78 (45.4)	207 (50.5)	127 (52.0)	92 (55.4)	219 (53.4)
	Never	33 (13.9)	55 (32.0)	88 (21.4)	28 (11.5)	29 (17.5)	57 (14.0)
Fast food	Regular	24 (10.0)	15 (8.7)	39 (9.5)	8 (3.3)	2 (1.2)	10 (2.4)
	Occasional	201 (84.5)	142 (82.6)	343 (83.7)	203 (83.2)	145 (87.4)	348 (84.9)
	Never	13 (5.5)	15 (8.7)	28 (6.8)	33 (13.5)	19 (11.4)	52 (12.7)

$\chi^2=15.18, df=1, p<0.05$ (green vegetables), $\chi^2=2.08, df=1, p>0.05$ (milk)

$\chi^2=18.25, df=1, p<0.05$ (fast food)-regular Vs irregular in RFTC/Non RFTC served area

Table shows that the regular consumption of green vegetables was more in RFTC served area (59.5%) than that in Non-RFTC served area (45.7%) and this difference was found to be statistically significant. ($p<0.05$).

Table 3
PREVALENCE OF ANAEMIA AMONG ADOLESCENTS

Grades of Anaemia	RFTC served areas			Non-RFTC served areas		
	Male N(%)	Female N(%)	Total N(%)	Male N(%)	Female N(%)	Total N(%)
Normal (>12 gm/dl)	156 (65.5)	89 (51.7)	245 (59.8)	122 (50.0)	3 (18.7)	153 (37.3)
Mild (11.9-10. gm/dl)	77 (32.4)	70 (40.7)	147 (35.8)	120 (49.2)	118 (71.1)	238 (58.1)
Moderate (9.9-7.0 gm/dl)	5 (2.1)	13 (7.6)	18 (4.4)	2 (0.8)	17 (10.2)	19 (4.6)
Severe (<7.0 gm/dl)	0	0	0	0	0	0
Total	238 (100)	172 (100)	410 (100)	244 (100)	166 (100)	410 (100)

$\chi^2=41.81$, $df=1$, $p<0.05$ (RFTC/NON-RFTC Vs Anaemia), $\chi^2=39.19$, $df=1$, $p<0.05$ (anaemia in male Vs female)

This table reveals that Overall prevalence of anaemia was more (62.7%) in Non-RFTC served area as compared to that (40.2%) in RFTC served area ($p<0.05$). Prevalence of anemia was more in females (48.3% & 81.3% respectively) as compared to males (34.5% & 50.0% respectively) in both the study areas. ($p<0.05$).

Table 4
PATTERN OF BODY MASS INDEX AMONG ADOLESCENT

BMI for age (Percentile)	RFTC served areas			Non-RFTC served areas		
	Male	Female	Total	Male	Female	Total
Underweight	111 (46.6)	91 (52.9)	202 (49.3)	140 (57.4)	103 (62.1)	243 (59.3)
Normal	127 (53.4)	80 (46.5)	207 (50.5)	104 (42.6)	62 (37.3)	166 (40.5)
Overweight	0	1 (0.6)	1 (0.2)	0	1 (0.6)	1 (0.2)
Total	238 (100)	172 (100)	410 (100)	244 (100)	166 (100)	410 (100)

$\chi^2=15.18$, $df=1$, $p<0.05$ (normal Vs underweight in both areas)

Table shows that 59.3% adolescents were found to be underweight in Non-RFTC served areas as compared to 49.3% in RFTC served areas and this difference was found statistically significant. ($p<0.05$).

Discussion :

The higher prevalence of anaemia (62.7%) in Non-RFTC served area as compared to that (40.2%) in RFTC served area could be due to ignorance about anaemia and easily and locally iron rich substance and other food substances. Prevalence of anemia was more in females (48.3% & 81.3%) as compared to males (34.5% & 50.0% respectively) in both the study areas. ($p<0.05$) could attributed to inadequate knowledge about iron rich easily and locally available food substances and prevailing food prejudices in the females in

the both areas. Similar finding suggested by Verma et al (2004)², in which Prevalence of anaemia (Hb <12 gm/dl) on school going girls was to be 81.8%. Kaur S et al (2006)¹ also observed the prevalence of anemia in late adolescents to be 64% in 630 subjects.

Regarding nutritional status through measuring BMI, 59.3% adolescents were found to be underweight in Non-RFTC served areas as compared to 49.3% in RFTC served areas findings were supported by Chaudhary S et al (2003)⁴

who studied on 270 adolescents girls in rural area of Varanasi and found that 68.52% were undernourished (BMI<18.5). Perera et al (2007)⁵ also found that the majority 64% of the males and 63% of the females were underweight in 15-19 years.

Thus overall status of adolescents of RFTC served area were found satisfactory than non-RFTC served area, this could be because of health promotional activities of health functionaries of RFTC kalyanpur and their active participation in that areas.

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(25-07-1934 to 11-03-2009)

OBITUARY

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Dr. Shambhu Dayal Gaur was the first professor & Head of Department of PSM, Institute of Medical Sciences BHU. The efforts of Dr. Gaur in the progress and over all development of the Department in the formative years was unmatched and appreciable.

Dr. Gaur was highly interested in the field of Epidemiology and his research in various public Health Problems was outstanding. He published over hundred scientific papers in National and International Journals and presented and chaired various conferences and seminars. He was honoured by National and State level academic association by conferring their fellowships and inviting him to deliver orations.

In his passing away, the discipline has lost an excellent teacher, good human being and a research scholar. We all members of IJCH and Faculty of Department of Community Medicine of all Medical Colleges of UP, mourn his death and pray to Almighty, may his soul rest in peace.

PREVALENCE OF DISABILITY IN INDIA-AN UPDATE

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ABSTRACT:

Background : In recent years, there is growing realization among developing countries about the need to evolve suitable policies & programs for the welfare of the disabled. But the paucity of data on the size of population of the handicapped belonging to different categories, needed for understanding the magnitude of the welfare services for their rehabilitation, is a major impediment for evolving a realistic approach to their problems.

Objectives : The objective is to present the prevalence of different disabilities with a focus on rural and urban differential in distribution, their age of onset, etiology, and social status of disabled in the country. **Methods:** NSSO survey methodology. Mental retardation & mental illness was included first time in NSSO survey.

Results : NSSO Survey indicates, India is having 18.49 million PWD forming about 1.8% of the total population. For every 100,000 people there are 1755 PWD either mentally or physically disabled. About 10.63% PWD were having more than one type of disabilities. In rural & urban area about 8.4% & 6.1% of total estimated house holds respectively reported to have at least one PWD. The prevalence of locomotor disability is highest among all types of disabilities. About 55% PWD were illiterate and only 26% PWD were employed. Survey showed that 5% live with their spouse and 47% were never married.

Conclusions : India has a large population of disabled who are in need of education, employment, and rehabilitative services. Special focus is needed for rural areas.

Introduction :

In India Persons with disabilities (PWD) has been receiving attention during last five decades since independence. Prevalence and incidence of disability has been changing over the years with changing causes of disability. Approach to rehabilitation has also seen a change in view of changing disability scenario. Rehabilitation is a difficult & challenging task which requires overall combined efforts of government, community, voluntary organizations, & individuals. Earlier rehabilitation of the persons with disability meant taking care of them & placing in special institution where their needs in terms of food and shelter were cared for. Over the years, the concept of rehabilitation has undergone a sea change in its approach; the care and management of PWD; today means not only educating and training the PWD, but also empowering PWD to be included with normal mainstream in their own community (Grover, 2005)¹.

In the recent past there has been however a growing realization all over the world especially among developing countries about the need to evolve suitable policies & programs for the welfare of the disabled. But the paucity of data on the size of population of the handicapped belonging to different categories, needed for understanding the magnitude of the welfare services for their rehabilitation, is a major impediment for evolving a realistic approach to their problems.

In order to evolve a successful programme for their

comprehensive rehabilitation including social integration, detailed information relating to prevalence, types of disability, incidence of their age, sex, etiology etc is very essential. Present article, based on the findings of the Government of India publication, "Disabled Persons In India" Report No. 485, NSS 58th Round July-Dec 2002 (published in Dec-2003)² will be of immense help to policy makers/ planners and administrators, rehabilitation professionals and medical, paramedical persons who are actively involved in strengthening of disability prevention and rehabilitation services for the disabled persons. The objective of this article is to present the prevalence of disabilities in India in different geographical and cultural regions, pattern of age of onset, etiology and to describe the social status of the PWD in the country.

Methodology :

The National Sample survey organization (NSSO) had conducted thrice the detailed survey of PWD to provide information on their magnitude & other relevant features of PWD. The first survey was conducted during July- Dec 1981 (NSS 36th Round) followed by second survey during July-Dec 1991 (NSS 47th Round) The third & recent survey of PWD was held during July- Dec 2002 (NSS 58th Round) wherein for the first time the information on mental retardation & mental illness was also included.

In this NSSO survey, 45571 households from 4637 villages and 24731 households from 3354 urban block were

surveyed from the whole country. The 49300 PWD were observed in rural area whereas in urban area 26679 PWD were enumerated. NSSO categorised, mentally disabled in two groups i.e. Mental retardation (MR) & mentally ill (MI). Categorization was done through three probing questions and based on the information so obtained the persons were grouped in to MR & MI. The visually disabled persons were categorized in two groups i.e. Blindness and Low Vision. Inability to hear properly was considered as Hearing Disability (HD) and Inability to speak properly was considered speech disability (SD). Locomotor Disability (LD) included (a) paralysis of limb or body, (b) deformity of limb (c) loss of limb (d) dysfunction of the joints of the limbs (e) deformity of body other than in the limb.

Observations (Important Findings):

The NSSO survey revealed that for every 100,000 people in India, there were 1755 PWD who were either mentally or physically disabled (Table I). Among rural & urban residents, the prevalence of disability was 1.85% & 1.50% respectively. Further between the two sexes, prevalence of disability is marginally higher in males (2.12% and 1.67%) while among female is (1.5% and 1.31 %) in both rural & urban areas respectively. Prevalence of locomotor disability is highest followed by hearing disability and visual disability. About 48% could not speak at all and 19% could speak only single words. The speech of about 33% was not understandable. The distribution by sex follows a similar pattern except that the proportion of disabled female was higher in category of blindness. The results show more than one type of disabilities was present in 10.63% PWD.

Prevalence Of Disabilities In Major States :

Across the country, the prevalence rate per 100,000 was highest in Orissa followed by Kerala & Punjab. The lowest rate was observed in Assam followed by Jharkhand & Rajasthan. The prevalence rate of speech disability was maximum in Kerala (335), followed by Himanchal Pradesh (281), Andhra Pradesh (259) & Tamilnadu (353)

Locomotor disability was highest in rural areas of Punjab (1484) & in urban areas of Kerala. The lowest prevalence rate for LD was observed in both rural and urban areas of Assam (406 & 471) respectively.

Rural And Urban Distribution :

The aggregated estimates of the disability in rural and urban India are given in (Table II) separately for each sex and type of disability. These estimates are obtained by using survey proportions on the projected populations. According to study estimates, the number of PWD in our country was 18.49 million during July to Dec. 2002 & they formed about 1.8% of the total estimated population. The survey estimated prevalence of loco motor disability is highest in our country i.e. 1046 in the rural and 901 in the urban per 100,000 persons. The second highest is hearing disability i.e. for every 100,000 persons living in rural areas 310 were having hearing disability where as number is 236 in Urban Sector. This is followed by speech disability (210 rural & 187 urban) and

visual disability i.e. Blind (210 rural) and 171 (urban) (Figure-1).

Etiology and Age Of Onset Of Disabilities :

Mental Disability (MR & MI)

Causes of MR- In majority of MR cases, cause was "illness during childhood" (42%) followed by 'Head Trauma in childhood' (10%) and 'pregnancy & birth related problem' (3%). Only 2% reported, hereditary as caused of MR. The remaining 23% of the respondents were not aware of probable cause of MR.

Causes of Mental Illness- About 9% cases of MI reported, 'illness during childhood' as cause of their disability. Large number (36%) was not aware of the cause. 46% respondents reported, pregnancy & birth related illness, childhood illness, head injury & hereditary) as a cause of their disability which were not included in the list of causes.

Age at the on set of MR/MI- Unlike other disabilities, MR was reported since birth or at very early age. About 87% of mentally disabled had the problem since their birth and about 8% had the onset at age of 0-4 years. Among females about 90% had the MR since their birth. The other important point observed among MR is that the manifestation of disability is completed within the teen age. The problem of MI is more of an old age and the possibility of onset of MI increases as one gradually become old.

Visual Disability (VD) :

Causes of VD- About 24% reported, 'old age' as the cause for their blindness followed by 'cataract' (21%) and 'other eye diseases', caused blindness in about 17%. The 57% PWD with low vision reported this problem due to 'old age' or 'cataract' followed by 'other eye diseases' (12%). Probable cause of Low vision was not known to 10% PWD.

Age at the onset of VD- About 68% to 72% acquired VD at the age of 60 years & above. 1% to 2% cases visually disabled by birth.

Hearing Disability (HD) :

At all India level about 32% had profound and 39% had severe hearing disability (table III).

Probable Cause of HD- 'Old age' was reported as a probable cause of HD by 25% and 30% for rural & urban PWD respectively followed by 'other illnesses' and 'ear discharge'.

Age at onset of HD- NSSO estimated that about 7% of PWD with HD were born with it. Onset of HD at age of 60 years and above in the rural & urban area was reported in 56% and 62% PWD respectively.

Speech Disability (SD) :

Causes of SD- Among the reported causes, 'paralysis' and 'other illnesses' were the major ones. i.e. 46 and 49% reported paralysis or other illness as the cause of speech disability in the rural & urban sectors respectively. 'MR/MI' accounts for 9% SD and 8% due to 'voice disorders'. Only 1% reported 'old age' as the cause of SD in contrast to visual & learning disabilities.

Age at onset of SD- At all India level, about 35% & 43% in rural & urban areas respectively reported that they were affected by SD at the age of 60 or more. About 38% (Rural) & 31% (Urban) PWDs had congenital speech defects.

Loco motor Disability (LD):

The 'deformity of limbs' is the maximum among different type of LD both in rural (458) and urban (442) followed by 'dysfunction of joints' of limbs in rural (222) & urban (250) and 'paralysis of limbs' in rural (144) & urban (146). The 'loss of limb' constitutes only about 7 to 8%. NSSO Survey also revealed that 4% of LD reported to have either multiple LD or 2 or more other disabilities in both rural and urban sectors (Table IV).

Probable cause of LD- At all India level, 'Polio' was the major cause of LD in 30% & 27% of PWD with LD in rural & urban area respectively, followed by 'injury other than burns' accounting for 26%-27% cases of LD. Contrary to visual & hearing disability, percentage of PWD with acquired LD due to 'old age' was as low as 3% or 4% at all India level. Leprosy (cured & not cured) reported as the cause of LD by 3% of PWD.

Discussion:

NSSO-2002³ reveals shocking figures, a total of 18.53 million disabled, constituting about 1.8% of the total population. The disability rate (number of disabled per 100,000 populations) for whole country works out to 1755. Frustrating enough, more than 10% of the disabled population is suffering from multiple disabilities. Census 2001³ also reported high disability rate of 2130 for the country. Rehabilitation Council of India⁴ estimated that there would be 8.94 million loco motor disabled, 3.24 million hearing disabled, 1.96 million speech disabled, 9 million mental disabled, and 4.01 million visual disabled & 3 million CP in the age group 5-14 years in India (estimated total 30.15 million). According to Krishnaswamy⁵ the total disabled population in India amounted to 14.27 million based on NSS prevalence rates of disabilities & 1981 census report of India; whereas NSS reported nearly 12 millions total disabled number wide 36th Report 1981. J. Narayan⁶ also observed that reports on disabilities in India reveal different statistics.

In comparison to previous two NSS Rounds, prevalence & incidence rate seems to have declined during two decades in each sector & sex (1981, 1991 & 2002)^{2,7,8}. Incidence of LD per 100,000 persons obtained from 1981 and 1991 showed an increase, it remained steady during 1991 to 2002 in the rural

but showed a very marginal dip in urban sector.

However rural-urban differential is of great concern. The prevalence of disability is more in rural areas, and difference in the proportions of the disabled by sex is marginally higher in males. Similarly census 2001³ also revealed more number of disabled in rural areas but also shows that there is no appreciable difference in the proportions of the disabled by sex in rural and urban areas. Use of appliances/ aids is minimal in the survey population especially in the rural areas similar to this Tripathi Anand et al¹⁰ also found in rural Lucknow that only 4.08% PWD were using any appliance or aids. The biased distribution of health infrastructure/ rehabilitative services in favor of urban area is a visible truth in our country. With the dearth of both private and government health facilities in the rural areas, a great responsibility has to be shared by the NGOs especially in the field of rehabilitative services. Services provision by community based mode will be the best answer in rural areas.

When the respondents were explored further for their literacy, education, and marital status, NSSO observed that 47% of the PWDs were never married and only 5% were living with their spouses. This survey found that only 45% PWDs were literate. Very few PWD were able to complete any vocational courses and only 26% were employed. Jayanti Narayan (2005)⁶ estimated that there are over 3500 special schools for PWD. It is estimated that there are only 900 schools for HD, 900 schools for VD, 1000 schools for MR, and 700 schools for LD in the whole country.

To conclude this, continuous and sustained efforts are needed for to educate and uplift the economic status of the disabled so that they can live self independent life. With medical services/ facilities, extensive efforts are also needed to educate families of PWDs, community for complete and full social acceptance of the disabled and to ensure rights of disabled. The family and the community can also play a significant role in prevention and early detection of the disability if given the right information, motivation, and modicum of material assistance. Voluntary organizations engaged in area of disability can also do a lot; they should be encouraged with suitable financial and technical support to expand education and training programs for disabled especially in rural areas. For this continuous networking activities are needed within the different service sectors and with the NGOs. More research and infrastructure is needed in field of rehabilitation and special education.

Table 1
NUMBER OF DISABLED PERSONS (FOR 1,00,000 PERSONS) BY SEX & SECTOR (ALL-INDIA)

Disabled Person Per 1,00,000									
Type of Disability	Rural			Urban			Rural+Urban		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
Mental Retardation	113	69	92	118	81	100	115	72	94

Table Contd.

Mental Illness	128	91	110	105	71	89	122	86	105
Blindness	191	230	210	116	166	140	171	214	192
Low Vision	76	95	86	46	62	54	68	87	77
Hearing Disability	319	301	310	234	238	236	296	285	291
Speech Disability	242	176	210	221	151	187	237	169	204
Locomotor Disability	1274	804	1046	1058	730	901	1217	785	1008
Any Disability	2118	1556	1846	1670	1311	1499	2000	1493	1755

Table 2

ESTIMATED* NUMBER (In '00) OF PWD BY TYPE OF DISABILITY AND SECTOR

Type of Disability	Rural			Urban		
	Male	Female	Persons	Male	Female	Persons
Any disability**	83102	57748	140850	25811	18249	44060
Mental disability						
mental retardation	4434	2561	6995	1824	1128	2951
mental illness	5022	3377	8399	1623	988	2611
Physical disability						
visual disability						
blindness	7494	8536	16030	1793	2311	4104
low vision	2982	3563	6545	711	877	1588
hearing disability	12516	11171	23687	3617	3313	6930
speech disability	9495	6532	16027	3416	2102	5518
locomotor disability	49987	29839	79826	16352	10162	26514
estd (00) total persons	3923611	3711319	7634930	1545555	1391996	2937551

*Estimates are obtained by using survey proportions on the projected population.

** at least of mental, visual hearing, speech and locomotors disability.

Table 3

NUMBER OF PERSONS WITH HEARING DISABILITY (10,000 PERSONS) BY DEGREE OF DISABILITY FOR EACH SEX AND SECTOR (ALL INDIA)

Hearing Disabled Persons Per 1,00,000 Persons									
Degree of Disability	Rural			Urban			Rural+Urban		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
Profound	102	90	96	81	82	81	96	88	92
Severe	123	124	123	85	85	85	113	114	113
Moderate	93	86	90	68	70	69	86	82	84
All	318	300	309	234	238	236	296	285	291

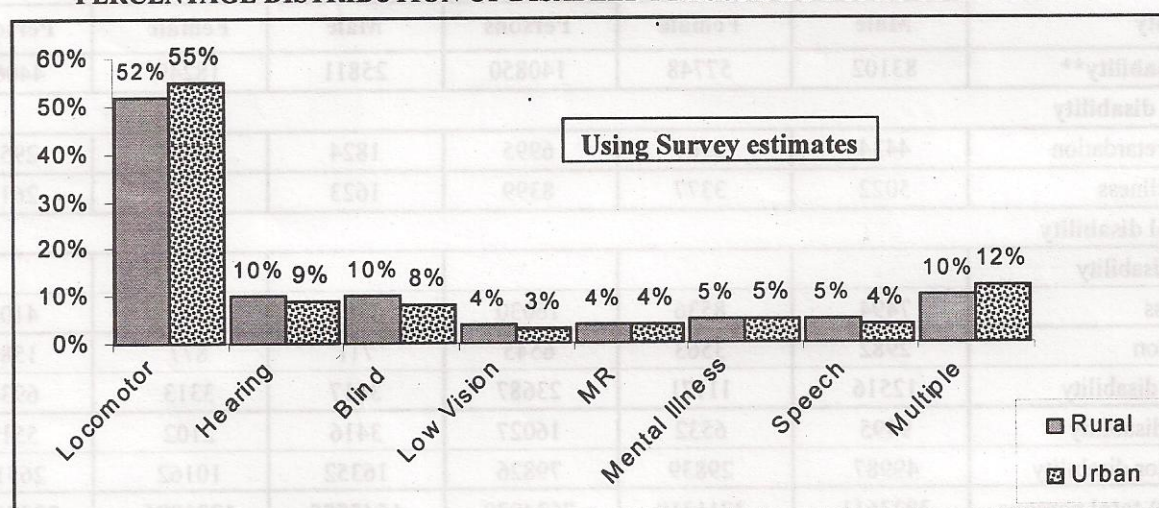
Table 4

DISTRIBUTION OF PWD WITH LD (PER 1000) BY TYPE OF DISABILITY

Type of LD	Rural			Urban			Rural+Urban		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
Paralysis	143	146	144	142	154	146	142	148	145
Deformity of Limb	463	448	458	448	433	442	460	444	454
Loss of Limb	92	51	77	95	46	76	93	50	77
Dysfunction of Joint	203	253	222	233	277	250	210	259	228
Deformity of Body	98	99	98	81	89	84	94	97	95
All	1000	1000	1000	1000	1000	1000	1000	1000	1000

Fig 1

PERCENTAGE DISTRIBUTION OF DISABLED PERSONS BY TYPES OF DISABILITY



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