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EDITORIAL

WORLD HEALTH DAY - 7TH APRIL, 2004

"ROAD SAFETY IS NO ACCIDENT"

In 1948, the First World Health Assembly called for the creation of a "World Health Day". Since 1950, World Health Day has been celebrated on the 7th of April of each year. The objective of World Health Day is to raise global awareness of a specific health theme to highlight a priority area of concern for the World Health Organization (WHO). The Day serves as a launch for a long-term advocacy program for which activities will be undertaken and resources provided well beyond 7th April.

To Celebrate the theme of this year "Road Safety is No accident", on 7th April 2004 around the globe, hundreds of organizations hosted events to help raise awareness about road traffic injuries, their grave consequences and enormous casts to society. They also contributed to spreading the message that such injuries can be prevented.

The accident is defined as unexpected, unplanned event involving injury, disability or death. The accidents occur in almost all countries. The most alarming fact is that accidents kill more young trained adults between 15-24 years of age group of males, mainly among two wheelers. All sorts of accidents kill more than 5 million people a year in whole of world including about 9 lakh deaths from road accidents alone, The road accidents rank fourth in order among the leading causes of death and are responsible for approximately 8 percent of all deaths in the world. For every death, there are as many as 30-40 minor injuries and 10-15 serious injuries requiring long periods of expensive care, nursing and Treatment.

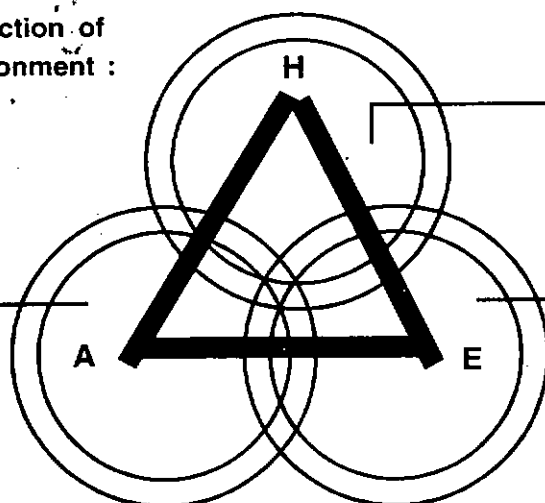
In India, The case fatality due to road accidents is very high being responsible for about 2 Lakh deaths annually contributing 2.5 percent of total deaths.

Since accidents are multifactorial, they call for an intersectoral approach to both prevention and care of the injured. The various measures comprise the following :-

Road accidents-Interaction of host, agent and environment :

Result :

AGENT :
TYPE OF VEHICLE,
MAINTENANCE OF
VEHICLE, DEFECT,
EXCESSIVE SPEED.



HOST :
AGE, SEX, EXPERIENCE,
ALCOHOL, MEDICAL
CONDITIONS, SOCIAL
FACTORS, PSYCHOLOGICAL
FACTORS, ETC.

ENVIROMENT :
ROAD DESIGN AND
CONDITION, ILLUMINATION,
INTER SECTION, BAD
WEATHER, POOR
ADHERENCE TO TRAFFIC
RULES

Multiple Causation

- Development of basic reporting system.
- Development of safety education in public i.g. School, Industries, T.V., Film Show.
- Licence withholding against drugs, alcohol users during driving.
- Trauma care centres establishment in susceptible Zones.
- Road development programmes e.g. 4 Lanes in whole of country.
- Strictly checking of Drivers during the allotment of Driving Licence e.g. - Eye Sight knowledge of Traffic rules
- Legal binding to use seat belts, safety helmets.
- Research in Accidents and New technology in vehicles.

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A STUDY ON CORRELATION BETWEEN FERTILITY AND CONTRACEPTIVE PREVALENCE IN RURAL COMMUNITY

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Abstract:

Objectives:

- (1) To find the contraceptive prevalence in different reproductive age group females.
- (2) What is the correlation between fertility pattern and contraceptive prevalence.

Study Design : Cross sectional descriptive study.

Setting : Community Development block Sarojini Nagar, Lucknow district.

Study universe : Married females in reproductive age group (15-49 Years).

Study variables : Age, fertility, contraceptive prevalence, education and social class.

Statistical analysis : Chi Square test.

Result : Contraceptive prevalence was 29.7%. It was 6.5% for women aged 15-19 year to 45.2% for women aged 35-39 years. The acceptors were analyzed based on the number of living children. 74% of the acceptors had 3 or more children as against 26% with 0 to 2 living children.

Introduction :

Family planning allows couples to decide how many children to have and when to have them. The careful planning of births saves lives.

Family planning can prevent atleast 25% of all maternal deaths by allowing women to delay motherhood, prevent unintended pregnancy and unsafe abortions, protect themselves from sexually transmitted diseases (STDs) including HIV and AIDS and stop childbearing when they have reached their reproductive goals.

By spacing births at least two years apart, family planning can prevent an average of one in four infant deaths in developing countries. Adequate birthspacing also can improve the survival of the next older brother or sister.

Family planning can significantly improve the health and survival of adolescent girls by allowing them to postpone childbearing until the healthiest times for themselves and their children.

Materials and Methods :

The study was carried out in community development block, Sarojini Nagar of Lucknow district which is field practice area of Upgraded Department of Community Medicine, K.G. Medical University, Lucknow. Study population consisted of 2100 married females in the reproductive age group 15-49 years.

Three PHCs covering 10 subcentre and 20 villages were included in the study. From each subcentre 1 subcentre village and 1 village away from subcentre were surveyed, thus total 20 villages were studied. During survey each

village was divided arbitrarily into four quadrants. The interview was started in each quadrant in the house randomly chosen and survey continued till number of sample females was completed.

Results :

TABLE - 1
Contraceptive prevalence according to age

Age (years)	Acceptors		Non-acceptors		Total
	No.	Percentage	No	Percentage	
15-19	7	6.5	101	93.5	108
20-24	59	13.6	375	86.4	434
25-29	136	25.0	408	75.0	544
30-34	167	41.7	233	58.3	400
35-39	136	45.2	165	54.8	301
40-44	74	44.8	91	55.2	165
45-49	45	30.4	103	69.6	148
Total	624	29.7	1476	70.3	2100

$X^2 = 88.4, p < 0.001$

Among the 2100 women, 70.7% were between 15-34 years, which is the crucial period in the reproductive span. Contraceptive prevalence was 6.5% for women aged 15-19 years to 45.2% for women aged 35-39 years.

TABLE - 2
Contraception use according to Number of living children

No. of living children	Method of Contraception					Total
	IUD Pills	Oral	Condom	Sterilization	Non acceptors	
0	0	1	1	0	153	155
1	5	10	24	1	240	280
2	42	14	25	39	303	423
3	22	16	57	104	299	398
4+	21	26	30	186	381	744
Total	90	67	137	330	1476	2100

$X^2 = 132; p < 0.001$

The acceptor of the different family planning methods were analysed based on the number of living children. It was found that 74% of the women with 3 or more children were

among the acceptors as against 26% with 0 to 2 living children. Condom use is highest for women with three living children IUD use is highest for women with two living children.

TABLE - 3

Family planning practices and educational levels of females.

Education	Acceptors		Non acceptors		Total
	No.	Percentage	No.	Percentage	
Illiterate	327	25.3	979	74.7	1306
Primary	135	35.1	246	64.9	381
Secondary	59	31.8	123	68.2	182
High school & above	103	44.1	128	55.9	231
Total	624	29.7	1476	70.3	2100

$X^2 = 45; p < 0.001$

A strong positive relationship exists between education and the level of current use. Difference

in current use by education were most evident between illiterate women (25.3%) and women who are high school and above (44%).

TABLE - 4

Distribution of Family planning Practices and Social Class

Social Class Total	Acceptors		Non-acceptors		
	No.	Percentage	No.	Percentage	
I	12	37.0	15	63.0	27
II	35	35.5	55	64.7	90
III	188	37.9	302	62.1	490
IV	319	27.2	866	72.8	1185
V	70	23.7	238	76.3	308
Total	624	29.7	1476	70.3	2100

$X^2 = 32; p < 0.001$

The social class distribution was studied in details among acceptors and non acceptors of family planning methods and difference was significant.

Discussion :

Contraceptive prevalence for currently married women in study is 29.7%. (NFHS²-U.P. 28%, Rural 24% and Urban 45%, National average is 48%).

Contraceptive prevalence use increases from 6.5% for women aged 15-19 years to 45.2% for women aged 35-39 Years and slightly decreases for older women. These findings were almost similar to National Family Health Survey (NFHS)². 5.4% acceptor were of 15-19 year age group to 39.2% in women 35-39 years.

Contraceptive use increases sharply from 26% with 0-2 living children to 74% with 3 or more children. (NFHS²-39% for women with 3 living children and then shows a slight decline).

Contraceptive use increases with education from 25.3% among illiterate women to 44% among women who have completed at least high school. Similar finding were from NFHS² 24% among illiterate to 46% among high school and above.

Conclusion :

This study indicates the need to lay emphasis on the fertility related issues. Once the people are taken in the fold of literacy, there is a need to tap on their fertility behaviour, so that they may seek the help of trained health professionals and utilize the services available in peripheral health institution. This can accelerate our efforts in family planning programme.

Reference :

1. Barbara Shane: Family Planning saves life, 3rd edition, Jan. 1977:1
2. Reyonlds J. Primary Health Care Management Advancement Programme: Assessing Community Health needs and coverage Module2, user's guide Appendix G5 Aga Khan Health Services, 1993; 199
3. Mishra P. National Family Health Survey Uttar Pradesh, (NFHS, 1998-1999) Population Research Center, Lucknow University, Lucknow.
4. Gupta & Mahajan's updated Socio Economic Classification, B. K. Mahajan & M.C. Gupta. Test Book of Preventive and Social Medicine Second Ed. 1995:86.

A COMPARATIVE STUDY ON NUTRITIONAL STATUS OF UNDER 6 YEARS CHILDREN IN I.C.D.S. AND NON I.C.D.S. TRIBAL AREAS OF UTTAR PRADESH

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Abstract :

Objectives :

1. To find out the nutritional status of children under six year.
2. To determine the level of difference in nutritional status of Children under six years in I.C.D.S. and Non I.C.D.S. tribal areas.
3. To assess the impact of I.C.D.S. scheme on nutritional status of children below six years.

Study Design : Cross Sectional Study

Participants : Under six years children.

Sample Size : 1536 children of Nighasan block (I.C.D.S. block) and 1471 of Ramia Behar block (Non I.C.D.S. block).

Key Words : Nutritional status, I.C.D.S., height - weight index, Service impact.

Results : All the value for height & weight in both groups were lower as compared to the I.C.M.R. standards. All children in I.C.D.S. group were below the normal weight - height index (i.e. > 0.15) while in Non I.C.D.S. group were below normal wt.-ht. index in all age group except 6 - < 24 months male & 3 - < 9 months female. Overall prevalence of P.E.M. in I.C.D.S. group was 90.36% while it was 86.85% in Non I.C.D.S. group. The difference was significant.

Intoduction :

The world most profound nutrition emergency is not seen on screens and does not provoke public out rage, yet common every day malnutrition is shocking in both scales and severity, a stealthy accomplice of poverty. It stunts the mental and physical growth of one in three children in developing countries, only 1% or 2% of the world's children exhibit visible signs of malnutrition. But an estimated 190 million

children under five years are chronically malnourished, locked early into a pattern of ill health and poor development. The problem is most wide spread in South Asia, home to half the world's malnourished children. I.C.D.S. is an ambitious scheme with sizeable inputs but various comments and observations create doubt in the mind.

The present study was under-taken to assess the nutritional status of under six years children and impact of I.C.D.S. scheme on

nutritional status of children.

Material and Methods :

The present cross sectional study was carried out for a period of one year i.e. 16 December 1996 to 15 December 1997. Community development block Nighasan of district Lakhimpur Kheri of Uttar Pradesh, where I.C.D.S. scheme is running in 127 villages. The Non I.C.D.S. block in which study was carried out for comparison is community development block Ramia Behar. The sampling frame included a total 5% population from each community development block (I.C.D.S. & Non I.C.D.S.), children below six years of age were studied. A two stage stratified random sampling procedure was applied. In first stage two I.C.D.S. and Non I.C.D.S. tribal community blocks of Lakhimpur Kheri district were randomly selected. In second stage, by stratified random sampling, 10 Anganwadi villages from I.C.D.S. block (Nighasan) & 10 villages from Non I.C.D.S. block (Ramia Behar) were selected. I.C.D.S. project area was divided into five geographical sectors of approximately equal population. For each of the 5 geographical areas prepared two lists of Anganwadi with village name, one for Anganwadi located in subcentre head quarter

village and another for rest of Anganwadi located about 5 k.m. away from the subcentre head quarter village. Five anganwadi's were selected from each of 2 lists. The same procedure was applied for selection of the 10 villages of Non I.C.D.S. Ramia Behar block. Atleast 95% under six years children of 5% population of study blocks must be covered by study thus 1536 (99.16%) in I.C.D.S. block Nighason and 1471 (97.93%) children in Non I.C.D.S. block Ramia Behar could be studied inspite of multiple contacts. For doing survey in each Anganwadi I.C.D.S.) and village (Non I.C.D.S.) investigator went to the Anganwadi or village and selected at random, one house hold and started house to house survey and continued till whole village was covered in study. The weight of children was measured with the help of detecto weighing machine. For Children upto 2 years of age, length was measured with the help of Infantometer while older childrens' standing height was recorded with the Anthropometric Rod. After recording Anthropometric measurements every child was subjected to complete general clinical examination to discover any sign of deficiency diseases or malnutrition.

Results :

TABLE - 1
Distribution of Mean Weight of Male Children by their age

Age (Months)	ICDS Group			Non ICDS Group			Z	P	ICMR	
	No.	Mean weight (Kg.)	SD	No.	Mean weight (Kg.)	SD			Mean weight (Kg.)	SD
0- <3	39	3.669	0.839	43	3.7162	0.888	-0.2474	>.05	4.5	1.42
3- <6	50	4.508	1.404	49	5.220	0.864	-3.0454	<.001	6.7	1.14
6- <9	30	5.560	1.090	44	6.330	1.004	-3.0797	<.001	6.9	1.15
9-<12	49	6.120	1.309	48	6.702	1.176	-2.3045	<.05	7.4	1.27
12-<24	163	7.410	1.540	180	7.732	1.551	-1.9273	>.05	10.1	1.80
24-<36	157	9.034	1.450	143	9.443	1.454	-2.4366	<.05	11.8	2.00
36-<48	145	10.308	1.930	162	10.855	1.489	-2.7176	<.01	13.5	2.97
48-<60	65	12.266	2.016	126	11.928	1.492	1.1936	>.05	14.8	2.28
60-<72	107	13.468	1.820	87	12.996	1.941	1.7025	>.05	16.3	2.68

Children in Non I.C.D.S. group had higher weight as compared to I.C.D.S. group except 48-60 months & 60-72 months age group where weight was higher in I.C.D.S. group. The difference was

statistically significant from 3-<6 to 36-<48 months age group except 12-<24 months age group. All the values for weight in both groups were lower as compared to the I.C.M.R. standards (Table-1)

TABLE - 2
Distribution of Mean Weight of Female Children by their age

Age (Months)	ICDS Group			Non ICDS Group			Z	P	ICMR	
	No.	Mean weight (Kg.)	SD	No.	Mean weight (Kg.)	SD			Mean weight (Kg.)	SD
0- <3	28	3.493	0.807	37	3.706	0.786	-1.0656	>.05	4.2	1.17
3- <6	42	4.238	0.936	27	5.168	0.995	-3.8795	<.001	5.6	0.98
6- <9	29	5.389	1.160	34	5.946	1.057	-1.9783	>.05	6.2	0.99
9-<12	50	5.940	1.157	33	6.370	0.988	-1.8114	>.05	6.6	1.13
12-<24	151	7.146	1.639	128	7.319	1.230	-1.0054	>.05	9.6	1.93
24-<36	136	8.774	1.749	111	9.014	1.572	-1.1345	>.05	12.2	1.96
36-<48	150	10.420	1.921	103	10.588	1.750	0.7207	>.05	12.9	2.17
48-<60	47	12.066	2.026	65	11.629	1.790	1.1823	>.05	14.5	2.31
60-<72	100	12.853	1.825	51	13.039	1.569	0.6512	>.05	16.0	2.63

Weight of the female children was higher in the Non I.C.D.S. group in comparison to I.C.D.S. group in all age group except 48-<60 months age group. The difference was not statistically

significant except 3-<9 months age group. All the values for weight in both groups were lower as compared to the I.C.M.R. standards. (Table - 2).

TABLE - 3

Distribution of Mean Height of Male Children by their age

Age (Months)	ICDS Group			Non ICDS Group			Z	P	ICMR	
	No.	Mean Height (Cm.)	SD	No.	Mean Height (Cm.)	SD			Mean Height (Cm.)	SD
0- <3	39	54.59	4.944	43	53.56	4.430	0.95008	>.05	56.2	5.90
3- <6	50	59.97	4.978	49	59.276	4.128	0.75680	>.05	62.7	4.01
6- <9	30	64.68	4.139	44	64.657	3.467	0.02503	>.05	64.9	8.10
9-<12	49	66.82	4.836	48	66.620	4.892	0.20246	>.05	69.5	4.50
12-<24	163	73.23	6.541	180	71.45	6.015	2.61450	>.01	81.6	5.32
24-<36	157	80.66	6.992	143	80.23	5.980	0.57390	>.05	88.8	6.57
36-<48	145	87.657	7.521	162	86.72	6.336	1.17316	>.05	96.0	6.72
48-60	65	93.042	8.968	126	91.74	6.1761	0.83011	>.05	102.1	8.08

Heights of male children were higher in I.C.D.S. group as compared to Non I.C.D.S. group. The differences were not statistically significant except

12-<24 & 60-<72 months age group. All the values for height in both groups were lesser as compared to the I.C.M.R. standards. Table- 3).

TABLE - 4

Distribution of Mean Height of Female Children by their age

Age (Months)	ICDS Group			Non ICDS Group			Z	P	ICMR	
	No.	Mean Height (Cm.)	SD	No.	Mean Height (Cm.)	SD			Mean Height (Cm.)	SD
0- <3	28	54.232	6.843	37	54.040	3.659	0.1346	>.05	55.00	5.41
3- <6	42	57.770	5.417	27	58.630	3.188	-0.8294	>.05	60.90	3.55
6- <9	29	62.520	3.743	34	62.706	3.202	-0.2099	>.05	64.40	3.63
9-<12	50	67.500	5.394	33	66.900	4.057	0.5772	>.05	66.70	3.85
12-<24	151	73.852	7.697	128	70.131	5.033	4.8433	<.001	80.10	5.79
24-<36	136	81.546	7.589	111	78.690	4.976	3.5768	<.001	87.20	6.34
36-<48	150	88.263	7.275	103	86.407	8.359	1.8277	>.05	94.50	6.35
48-<60	47	98.985	6.0918	65	92.596	6.625	5.2789	<.001	101.40	7.35
60-<72	100	100.00	14.994	51	96.630	7.138	1.8701	>.05	107.84	US

Heights of female children were higher in I.C.D.S. group as compared to Non I.C.D.S. group. The differences were statistically significant in 9-<12,

12-<24 & 48-<60 months age group. All the values for height in both groups were lesser as compared to the I.C.M.R. standards. Table- 4).

TABLE-5
Distribution of Mean Weight Height Index of Children

Age (Months)	ICDS Group		Non ICDS Group	
	Male	Female	Male	Female
0- <3	.1213	.1188	.1295	.1269
3- <6	.1253	.1269	.1486	.1504
6- <9	.1329	.1379	.1515	.1512
9- 12	.1369	.1304	.1510	.1423
12-<24	.1382	.1310	.1515	.1488
24-<36	.1389	.1319	.1467	.1456
36-<48	.1342	.1338	.1443	.1418
48-<60	.1417	.1231	.1417	.1356
60-<72	.1295	.1285	.1296	.1396

Height- weight index value < 0.15 was considered as below normal. All children in I.C.D.S. group were below the normal while children in Non I.C.D.S. group were below normal

index in all age groups except 6-<24 months male and 3-<9 months female who showed >0.15 weight height index. (Table - 5).

TABLE-6
Prevalence of Malnutrition

Malnutrition	ICDS Group N=1536		Non ICDS Group N=1471		Z	P
	Number	Ratio/100	Number	Ratio/100		
Grade-1	336	21.880	438	29.78	- 4.96	< .000 1
Grade-II	556	36.202	544	36.98	-0.44	>.0500
Grade-III	321	20.890	257	17.47	+2.39	>.01-<.02
Grade-IV	175	11.393	40	2.72	+ 9.40	C.001
Total	1388	90.365	1279	86.95	2.9475	.032

Overall prevalence of P.E.M. in I.C.D.S. group was 90.36 per 100 children while it was 86.95 per 100 in Non. I.C.D.S. group. The difference was significant (Z= 2.9475, P = .032 means <.05). The prevalence of severe grade of P.E.M. (Grade III & IV) was 32.48 per 100 in I.C.D.S.

group where it was 20.19 per 100 in Non I.C.D.S. group of children (Z = 7.618, P =<.001). Prevalence of P.E.M. in I.C.D.S. was more than Non I.C.D.S. group except grade 1, grade II where prevalence was higher in Non I.C.D.S. group. (Table - 6).

TABLE - 7
Distribution of Children according to supplementary Nutrition

Type of supplementary Nutrition	ICDS Group		Non ICDS Group		z	P
	Number (Out of 1536)	%	Number (Out of 1471)	%		
Vitamin-A	15	0.977	67	4.555	- 5.98	<.0001
Iron-Folic Acid	0	-	0	0	-	-
supplementary Nutrition	121	7.88	0	0	-	-

Coverage for Vitamin A was lower in I.C.D.S. groups .99%) as compared to Non I.C.D.S. group (4.55%). IFA was not received by any child only 7.88% children received supplementary nutrition out of which only 4% children received supplementary nutrition regularly. Table-7).

Conclusion :

Weight of the children of I.C.D.S. group was lower as compared to Non I.C.D.S. group. The height of I.C.D.S. group was higher as compared to Non I.C.D.S. group. The overall prevalence of Protein Energy Malnutrition in I.C.D.S. group was 90.36% while it was 86.95 percent in Non I.C.D.S. group. The difference was significant. Prevalence of P.E.M. in I.C.D.S. group was more than in Non I.C.D.S. group except grade I & II where prevalence was higher in Non I.C.D.S. group. Coverage for Vitamin A was lower in I.C.D.S. (99.6%) as compared to Non I.C.D.S. group (4.55%).

Suggestions and Recommendation :

1. Supplementary food should be given regularly to beneficiaries and people should be educated about its necessity even if it is not available at Anganwadi Centre.
2. The supplementary foods can be purchased from the local village committee & people.
3. Programme for adult education particularly of women need to be further strengthened so as to achieve functional literacy

necessary for inculcation of healthful habits and practices in the family specially children.

4. Monitoring and supervision of scheme should be activated.

References :

1. Chandra et. al. 1970 : Health and nutrition status Preschool children in Rural Tamil Nadu. Ind. Paed. Vol. 15 : 6, 499 - 504.
2. Das 1996 : Annual I.C.D.S. survey 1995 - 96, 17.
3. Deb et. al. 1982 : Research on I.C.D.S. an overview, Vol. - 1, 1995-85.
4. Kushwaha et. al. 1981 : Delivery of better MCH services through continuous monitoring of Grade III, IV malnourished children in I.C.D.S. scheme Research on I.C.D.S. an overview Vol. 1, 1975 - 85, 69.
5. Sen et. al. 1980 : Nutritional status of under five children in an urban slum community of Calcutta. Ind. Jour. Pub. Hlth. Vol. XXXVII - No. - 3.
6. Shrivastava et. al. 1980 : Nutritional Anthropometry of Preschool children in Rural Population of Jhansi District, Ind. Jour. of Paed. 3, 86 103.
7. Swami 1994 : I.C.D.S. Annual Survey Abstract 1993 - 94), 27.

8. **Taluja 1996** : A study of immunization and nutritional status of Rural Preschool children, Survey Evaluation Research Abstract - 1996, 15.
9. **Tondon et. al. 1981** : I.C.D.S. services in India, evaluation of the delivery of nutritional and health services and the effect on the nutritional status of the children, Ind. Jour. Paed. Res. 73, 385 - 394.
10. **Tomer et. al. 1982** : Health subcentres and child Health (Part-1) Ind. Paed. 19, 499 - 509 & Part 11, 509 - 514.
11. **UNICEF Report 1996** : The Progress of Nations.
12. **Verma et. al. 1980** : Nutritional profile of children in rural community-Finding of two survey Ind. Jour. of Pub. Hlth. 24,3,140 - 49.

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MORBIDITY PATTERN AMONG ELDERLY POPULATION IN A RURAL AREA OF DEHRADUN IN UTTARANCHAL

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Abstract :

Research Question : *What is the morbidity pattern among elderly people in rural area of Dehradun?*

Objectives :

- (1) *To assess the morbidity pattern among elderly population.*
- (2) *To assess the psycho-social problems among elderly people.*
- (3) *To assess the relationship between addiction and hypertension among them.*

Study design : *Cross-Sectional.*

Setting : *Attuiwala - a rural area of district Dehradun in Uttaranchal.*

Participants : *332 elderly people aged 60 years and above.*

Statistical Analysis : *Proportions, Chi-Square test.*

Results : *It was observed that 78.3% elderly had ophthalmic problem, 69.3% elderly had psycho-social problems followed by hypertension (49.1%), Chronic bronchitis (22%) and asthma (12%). A significant relation was found between hypertension and addiction i. e. smoking and / or alcohol ($p < .001$). Respiratory diseases were found in 47.3% elderly persons. Depression was highly dominating problem among elderly (59.6%).*

Key words : *Morbidity, Refractory error, Hypertension, Addiction*

Introduction :

According to the United Nations (UN)¹, population projection, the expectation of life at birth for males and females in India would be 67 years and 69 years respectively by 2011-2016. The projection beyond 2016 has indicated that 21% of the population in India will be elderly i. e. 60 years and above by the year 2050.

The problems associated with the ageing in the population are : the lack of medical facilities (as they are neglected by the family members) and of social and economic support. Due to the fast changing

cultural and moral values and shortage of accomodation with higher rents in urban areas, the migrants prefer to leave behind their elderly parents at their native places. The changing social affinity towards elderly has also created a new concept of nuclear family in the society. Keeping this view point, the information regarding morbidity profile of elderly persons in the population is necessary so that a proper planning and assistance can be suggested to the concerned authorities for the upliftment of the aged population.

Material and Methods :

The present study is based on a survey

which was conducted in Atturwala village under Doiwala block of district Dehradun, Uttaranchal between Oct. 2000 and March 2001.² There were 332 (5.9%) persons aged 60 years and above, out of which 148 (44.6%) and 184 (55.4%) were males and females respectively. Each individual in the study was subjected to personal interview and clinical examination i. e. Anthropometric, B. P. measurements, vision testing etc. The information was recorded on a pre-designed and pre-tested proforma.

A detailed history was taken regarding

past and present illness. The WHO (1978)³ criteria for assessment of hypertension among elderly persons was adopted [i. e. Normotensive systolic BP < 40 mm of Hg. and Diastolic BP < 90 mm of Hg. and Hypertensives - Systolic B.P. > 160 mm of Hg. and Diastolic BP > 95 mm of Hg.] The informations regarding alcohol addiction and smoking (cigarette/Bidi) were also collected which were correlated with chronic diseases. The purpose of the study was explained and confidentiality of the study subjects was maintained throughout the study period.

Results :

TABLE - 1
Distribution of elderly according to various diseases

Type of Disease	Male (148) No. (%)	Female (184) No. (%)	Total (332) No. (%)
Ophthalmic	114 (77.0)	146 (79.3)	260 (78.3)
Psychosocial	97 (65.5)	133 (72.3)	230 (69.3)
Hypertension	67 (45.3)	96 (52.2)	163 (49.1)
Respiratory	89 (60.1)	68 (37.0)	157 (47.3)
Orthopedic	44 (29.7)	58 (31.5)	102 (30.7)
ENT	12 (8.1)	8 (4.3)	20 (6.0)
GIT	8 (5.4)	7 (3.8)	15 (4.5)
Endocrine	6 (4.1)	2 (1.1)	8 (2.4)
Skin	2 (1.3)	3 (1.6)	5 (1.5)
Genito Urinary	4 (2.7)	3 (1.6)	7 (2.1)
Hernia	3 (2.0)	-----	3 (0.9)

Table - 2
Distribution of elderly according to Ophthalmic problems.

Ophthalmic Problem	Male (148) No. (%)	Female (184) No. (%)	Total (332) No. (%)
Cataract	90 (60.8)	134 (72.8)	224 (67.5)
Refractory error	21 (14.2)	10 (5.4)	31 (9.3)
Glaucoma	1 (0.7)	2 (1.1)	3(0.9)
Conjunctivitis	2 (1.3)	-----	2(0.6)
Total	114 (77.0)	146 (79.3)	260 (78.3)

Table - 3
Distribution of elderly according to psycho-social problems.

Psycho-social Problem	Male (148) No. (%)	Female (184) No. (%)	Total (332) No. (%)
Loneliness	10 (6.7)	4 (2.2)	14 (4.2)
Feeling neglected	5 (3.4)	3(1.6)	8 (2.4)
Anxiety	3 (2.0)	3(1.6)	6(1.8)
Dementia	2 (1.4)	2 91.1)	4 (1.2)
Depression	77 (52.0)	121 (65.8)	198 (59.6)
Total	997 (65.5)	133 (72.3)	230 (69.3)

Table - 4
Relation of hypertension with addiction among elderly.

Addiction	Hypertensive No. (%)	Normotensive No. (%)	Total No. (%)
Smoking (Beedi/Cigarette/Hukka)	36 (22.0)	20 (11.18)	56(16.9)
Alcohol users (Kacchi/Desi/English wine)	12(7.4)	16 (9.5)	28 (8.4)
Both (Smoking + Alcohol)	32 (19.6)	10 (6.0)	42 (12.7)
Non Addictors (No smoking & liquor)	83 (51.0)	123 (72.7)	206 (62.0)
Total	163 (49.1)	169 (50.9)	332 (100.0)

$X^2 = 16.6$; d. f. = 1, $p < .001$

TABLE - 5

Distribution of elderly according to Respiratory diseases.

Disease	Male (148) No.(%)	Female (184) No.(%)	Total (332) No.(%)
Tuberculosis	2 (1.4)	2 (1.1)	4 (1.2)
Chronic Bronchitis	42 (28.4)	31 (16.8)	73 (22.0)
Asthma	22 (14.8)	18 (9.8)	40 (12.0)
URI	5 (3.4)	9 (5.0)	14 (4.2)
Coryza	18 (12.2)	8 (4.3)	26 (7.8)
Total	89 (60.2)	68 (37.0)	157 (47.3)

Out of 332 elderly persons aged 60 years and above, 78.3 % had ophthalmic problems. 69.3% had psycho-social problems. The most dominating was depression (59.6%), whereas 49.1% was suffering from hypertension. 60% males and 37% females had respiratory diseases followed by orthopedic disabilities among 30.7% elderly population (Table 1). Table - 2 reveals that majority (67.5%) of elderly had cataract whereas only 1% had glaucoma as the cause of diminishing or loss of vision. Table - 3 shows that 72.3% of females and 65.5% males were suffering from psychosocial problems. It was also observed that females were found to be more prone to depression (65.8%). It can be seen from Table-4 that 163 (49.1%) of elderly were hypertensive out of which 83 (51%) were non-addictors i. e. without smoking and alcoholism. A significant relation was found between hypertension and addiction among the elderly population ($X^2 = 16.6$; d.f. = 1, $p < .001$). Table - 5 reveals that 47.3% elderly persons were suffering from respiratory diseases. Chronic bronchitis (22%) was the leading respiratory disease among them followed by asthma (12%), Coryza (7.8%),

URI (4.2%) and tuberculosis (1.2%). Other medical problems related to elderly were orthopedic disabilities with the highest prevalence of osteoporosis (18%) which was followed by spondylitis (9.3%).

Discussion :

The study reveals that 78.3% elderly were suffering from various ophthalmic problems and the leading cause of diminished vision was cataract (67.5%). The prevalence of cataract was higher among females (72.8%) while it was 60.8% among males. Similar findings have also been reported by Grover et al (2004)⁴, Sindal et al (1979)⁵, Mc Donnel et al (1979)⁶, Srivastava et al (1979)⁷ and Prakash et al (2004)⁸. It was observed that 69.3% of elderly had psycho-social problems with a leading cause of depression (59.6%). Subramaniam et al (1999)⁹ had also reported the similar finding. In the present study it was seen that 49% elderly persons were hypertensive with and without addiction i. e. smoking and / or alcoholism. The relationship between hypertension and addiction was found highly significant ($p < .001$). Studies conducted by Chadha et al (1990)¹⁰ and Grappelli

et al (1992)¹¹ had shown the significant relation between hypertension and smoking as one of the addictions. Prakash et al (2004)⁵ reported in their study that 48% of elderly were hypertensive and they also found a significant relation between smoking and hypertension. 47.3% elderly were found to have respiratory diseases followed by orthopedic disabilities (30.7%) with a high prevalence of osteoporosis (18.1%) and the rest were living with ENT, GIT, Endocrine and Genito-urinary problems. As far as the addiction among elderly is concerned, smoking was highly prevalent and caused chronic bronchitis (22%) with higher prevalence among males (28.4%) and asthma (12%). Similar finding was also reported by Grover et al (2000)⁶.

Looking upon the various health related problems among elderly it is essential for Govt., policy makers, NGOs and voluntary organizations to provide & promote health services with proper care to elderly at their door step with affordable reach.

References :

1. United Nations (UN). the sex and age distribution of population, 1990.
2. Negi KS, Kandpal SD and Rawat CMS. An overview of medical and psycho-social ailments of geriatric persons in a rural community of district Dehradun. Ind. J. Pre. Sec. Med. 2002; vol 33: 125-130.
3. WHO. Arterial hypertension. Tech Rep series, 628, 1978.
4. Grover V, Agarwal O P, Tiwari R S, Markandey N. Prevalence of health problems among the elderly in rural areas of Delhi. Ind. J. Pre. Soc. Med. 2000; Vol.,31:47-51.
5. Sindal, Bhat DK and Shiligram R B. Incidence of Blindness around Miraj Ind. J. Ophthal 1979; 27 (3); 16-19.
6. Mc Donnel H, Long AF, Harrison J and Oldman C. A study of persons aged 65 and over in Leeds metropolitan District. J Epid Comm. Health, 1979; 33: 203-207.
7. Srivastava RN and Verma BL. An epidemiological study of Blindness in an Indian Rural community. J. Epid comm Health, 1979; 32: 131-135.
8. Prakash R. Choudhary S. K. and singh US.A study of morbidity pattern among geriatric population in an urban area of Udaipur, Rajasthan. Ind. Journal of Com. Med. 2004; Vol XXIX No. 1; 35-40.
9. Subramanian T, Venkata Rao T. Ramkrishnan R, Suresh S. K. And Gupta M. D. A study on psychosocial aspects of geriatric people in a rural area. Ind J. Prev Soc. Med. 1999; 30:66-73.
10. Chadha SL, Radhakrishna S. Epidemiological study of coronary heart diseases in urban population of Delhi, Ind. J. Med Reserach 1990, 92:424-430.
11. Groppelli A, Giorgi DMA, Ombonis et al. Persistent blood pressure increase induced by heavy smoking J. Hypertension 1992;10:495-499.

PULMONARY FUNCTION TESTS IN YOUNG HEALTHY SUBJECTS OF NORTH INDIA

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Abstract :

Study Objectives : The diagnosis of disease done by skiagram can be substantiated by pulmonary function tests. Substantial data of Indians on PFTs is not available. The present study therefore has been planned on young healthy north Indians.

Setting : 119 males and 49 female medical students of North India.

Measurements : PFT's, T.V. FEV1, FVC, FER and PEFR were measured. $P < 0.05$ was considered as significant.

Results : In North Indian males, mean T. V was 437.56 ± 65.83 ml, FEV1 3.26 ± 0.41 L, FVC 3.82 ± 0.48 L, FER $85.09 \pm 2.42\%$ and PEFR was 495.42 ± 101.82 L / min. In North Indian females, average T. V was 386.12 ± 37.90 ml, FEV1 2.39 ± 0.38 L, FVC 2.79 ± 0.43 L, FER $85.38 \pm 257\%$ and PEFR was 307.12 ± 75.74 L / min.

Conclusions: Males in comparison to females had more value of PFTs. All the PFTs showed positive correlation with Height, Weight and Surface area except Tidal Volume and FER.

Key Words : Pulmonary Function Test (PFT), Height, Chest Circumference, Body Mass Index (BMI), Surface Area.

Abbreviations : T.V. Tidal volume, FEV1 - Forced expiratory volume in first second, FVC - Forced vital capacity, FER - Forced expiratory ratio, PEFR - Peak expiratory flow rate.

Introduction :

The present study has been undertaken as substantial data on pulmonary function tests are not available in the North Indian subjects, so this study would enable the future workers to have a back ground study for comparison in North Indian Subjects.

Mean vital capacity values were higher in western reports than the Indian studies. Maximum values seem to have been attained by 19 years and after that they stay nearly constant up to the age of 40 (4). Women had much lower values than men (7).

American Thoracic Society published in its statements (1, 2, 3) in 1979, 1987 and 1991 for standardization of Spirometry and provided various guidelines for the instruments which were used for lung function tests.

The pulmonary function among Indians of both sexes showed the expected norms for the forced vital capacity, maximal breathing capacity and expiratory peak flow for Indians of various age groups (8). In addition to age, sex and height, other factors such as ethnic origin, physical activity, environmental condition and tobacco smoking can affect normal values of ventilatory function (5) There were wide

variations in pulmonary function values from one individual to another depending upon age and height of the subjects (5).

The recordings of pulmonary function tests (spirometry and maximal expiratory flow rates showed that the correlations of FVC and FEV1 were, in general, highest with height followed by weight and age (9). A study of the changes in lung function in men of different age groups concluded that remarkable significant changes take place in lung function after the age of forty years (8). The difference between British and the Indian data was not due to change in thoracic size but it was genetic rather than environmental factors which are responsible for the ethnic difference in various comparative studies. It was also noted that the indices representing airway caliber do not differ between the ethnic groups (6).

The study of healthy, nonsmoking Caucasian, Chinese and Indian subjects suggested that Indians had lower total Lung Capacity and Vital Capacity than the two other groups. This was related to longer chests in the other two groups but it was also opined that longer chest was not the sole factor as such responsible for higher values. It may be due to increased number of alveoli in other two groups due to ethnic variation (6).

Material and Methods :

The present study was conducted on 168 medical students of G.S. V. M. Medical College, Kanpur, U. P. India comprising of 119 male & 49 female students of age group ranging from 18-27 yrs. and 18-23 yrs. respectively. All the students were residents of north India.

Prior to the study, the health status of the students was determined and those who were without any signs and symptoms of respiratory disorder as determined by the history and clinical examination, were included in the study.

The purpose of the test and methods to be used were explained to the subjects and the test was then performed, in sitting posture.

The parameters recorded were TV by Benedict Roth spirometer, FEV1, FVC, FER and PEFR by digital microspirometer.

The measurements recorded in all students were classified according to Height, Chest Circumference, Body mass Index and Surface Area. Then both male and female students were divided in 3 groups as H_1 , H_2 and H_3 . Male H_1 - 150-160 cms, H_2 -161 -170 cms, H_3 -> 171 cms. Female H_1 -140-150 cms, H_2 -151-160 cms, and H_3 - >161 cms.

The male and female students were divided into C1, C2 and C3 groups according to their chest circumference as C1-<80 cms, C2- 81-90 cms and C3->91 cms.

The body mass index (BMI) of male and female students was determined by Quetelet's index. On the basis of reference tables for BMI by FAO/WHO/UNO Report (9) the students were classified into three groups. Males : B1-22 , B2- 20.1-15 (<20 & 25-29) and B3-Obese -30 or > 30 and Females B1- Desirable Average - 20.8, B2- Desirable Range- 18.7-23.8 (<18->23.8-27) and B3- Obese- 28.5 or >28.5.

The surface area of male and female subjects were measured by using DUBOIS

BODY SURFACE CHART and were divided in to 3 groups- S_1 , S_2 & S_3 Male S_1 -1.40-1.60 m^2 S_2 - 1.61-1.80 m^2 and S_3 ->1.81 m^2 and Female as S_1 -1.20-1.40 m^2 , S_2 -1.41-1.60 m^2 and S_3 -> 1.61 m^2 .

Statistical Analysis : By Student's 't' test and $p < 0.05$ was considered as significant.

Results :

The age of male medical students ranged between 18- 27 years with an average of 20.74 $\pm$ 1.83 years. The various average physical parameters were as follows: Height 171.01 $\pm$ 6.09 cms; Chest circumference 83.62 $\pm$ 6.40 cms; Surface area 1. 68 $\pm$ 0.12 m^2 and Body mass index 20. 13 $\pm$ 2.93.

The female subjects were between 18- 23 years of age with an average of 19.15 $\pm$ 1.35 years. The various mean physical parameters of this group were as follows: Height 158.28 $\pm$ 4.88 cms; Chest circumference 82.

55 $\pm$ 7.16 cms; Surface area 1.50 $\pm$ 0.1 m^2 and Body mass index 20.39 $\pm$ 3.21.

The variations in T.V., FEV_1 , and FVC were found between male and female subjects. The average T.V. in male subjects was 437.56 $\pm$ 65.83 ml as compared to 386.12 $\pm$ 37.90ml in female. The FEV_1 averaged to 3.26 $\pm$ 0.41 L in males whereas it was 2.39 $\pm$ 0.381 in females. The average FVC was 3.82 $\pm$ 0.48 L in males and showed relatively lower value of 2.79 $\pm$ 0.43 L in females. Therefore T. V., FEV_1 and FVC was found to be significantly lower in females ($p < 0.05$).

Since FER% is a ratio, it did not alter in males and females and remain to an average of 85.09 $\pm$ 2.42% and 85.38 $\pm$ 2.57% in males and female subjects respectively.

The PEFR showed the significant difference between the two sexes ($p < 0.05$) and was to an average of 495.42 $\pm$ 101.82 L/min. in males and 307.12 $\pm$ 75.74 L/min. in females.

TABLE-1

Mean Height and Mean Respiratory Parameters in Male Subjects.

HEIGHT GROUPS	MEAN HEIGHT (cms)	MEAN T.V.(ml)	MEAN FEV_1 (L)	MEAN FVC(L)	MEAN FER(%)	MEAN PEFR (L/min)
H1 (n=8) (150-160 cms.)	158.25 $\pm$ 1.909	437.5 5 $\pm$ 144.32	3.051 $\pm$ 0.614	3.559 $\pm$ 0.727	85.375 $\pm$ 12.446	504.5 $\pm$ 38.09
RANGE	156-160	400-500	2.12-3.86	2.57-4.53	82-89	445-657
H2 (n=44) (161- 70cms)	166.75 $\pm$ 2.92	438.86 $\pm$ 66.41	3.11 $\pm$ 0.31	3.66 $\pm$ 0.38	85 $\pm$ 2.33	473.66 $\pm$ 97.56
RANGE	161-170	250-550	2.50-3.54	2.61-4.61	80-89	230-666
113 (n=67) (>171 cms)	175.34 $\pm$ 3.08	436.71 $\pm$ 68.29	3.37 $\pm$ 0.41	3.95 $\pm$ 0.48	85.11 $\pm$ 2.3 1	508.64 $\pm$ 108.07
RANGE	171-184	250-600	2.29-4.36	2.76-5.03	79-90	297-706

TABLE-2

Mean Height and Mean Respiratory Parameters in Female Subjects.

HEIGHT GROUPS	MEAN HEIGHT (cms)	MEAN T.V.(ml)	MEAN FEV1(L)	MEAN FVC(L)	MEAN FER(%)	MEAN PEFR (L/min)
H1 (n=4)	149.5	375	2.02	2.418	81.25	260.25
(140-150 cms.)	± 1.00	± 50.00	± 0.282	± 0.371	± 1.893	± 81.332
RANGE	148-150	300-400	1.72-2.27	1.98-2.27	82-86	180-344
H2 (n=44)	156.66	387.33	2.38	2.81	85.56	296.36
(151-160cms.)	± 2.68	± 40.93	± 0.38	± 0.45	± 2.83	± 71.43
RANGE	152-160	350-500	1.51-3.02	1.85-3.45	79-89	126-438
H3 (n=67)	163.86	386.66	2.50	2.91	85.6	334.46
(> 161 cms.)	± 2.36	± 29.68	± 0.35	± 0.43	± 1.95	± 76.78
RANGE	161-167	350-450	1.87-2.97	2.16-3.50	82-89	210-449

TABLE - 3

Mean Chest Circumference (C.C.) and Respiratory Parameters in Male Subjects.

CHEST CIRCUMFER ENCE GROUPS	MEAN C.C. (cms)	MEAN T.V.(ml)	MEAN FEV1(L)	MEAN FVC(L)	MEAN FER(%)	MEAN PEFR (L/min)
C1 (n=43)	77.06	425.81	3.21	3.75	85.09	484.72
(< 80 cms.)	± 2.32	± 66.80	± 0.40	± 0.49	± 2.46	± 100.10
RANGE	72-80	250-600	2.22-4.09	2.66-5.03	79-89	308-670
C2 (n=64)	85.68	441.87	3.30	3.84	85.23	500.82
(81-90cms.)	± 2.69	± 66.01	± 0.43	± 0.49	± 2.37	± 101.71
RANGE	81-90	250-600	2.12-4.36	2.57-4.90	81-90	230-670
C3 (n=12)	96.08	440.00	3.30	3.89	84.33	488.66
(>91 cms.)	± 3.98	± 58.15	± 0.33	± 0.45	± 2.60	± 128.75
RANGE	91-102	300-500	2.63-3.83	2.99-4.59	81-89	296-406

TABLE-4

Mean Chest Circumference (C.C.) and Respiratory Parameters in Female Subjects.

CHEST CIRCUMFERENCE GROUPS	MEAN C.C. (cms)	MEAN T.V.(ml)	MEAN FEV1(L)	MEAN FVC(L)	MEAN FER(%)	MEAN PEFR (L/min)
C1 (n=23) (< 80 cms.)	77.26 ± 2.61	391.30 ± 38.88	2.43 ± 0.35	2.82 ± 0.139	85.65 ± 2.56	321.17 ± 75.27
RANGE	72-80	350-450	1.87-2.97	1.98-3.50	79-89	202-449
C2 (n=21) (81-90cms.)	84.76 ± 2.79	379.52 ± 40.05	2.41 ± 0.43	2.81 ± 0.50	85.42 ± 2.69	289.57 ± 78.25
RANGE	81-90	300-500	1.51-3.02	1.85-3.45	81-89	126-411
C3 (n=5) (>91 cms.)	98.00 ± 7.34	390.00 ± 22.36	2.15 ± 0.20	2.55 ± 0.22	84.00 ± 2.0	316.2 ± 64.92
RANGE	92-107	350-400	1.96-2.40	2.31-2.81	81-86	213-374

The careful statistical evaluation shows that these lung functions were not showing appreciable difference between the three

subgroups and hence the chest circumference does not seem to have detectable influence on lung function ($p>0.05$ between all data).

TABLE - 5

Mean Surface area and Mean Respiratory Parameters in Male Subjects.

SURFACE AREA GROUPS	MEAN SURFACE AREA (M ²)	MEAN T.V.(ml)	MEAN FEV1(L)	MEAN FVC(L)	MEAN FER(%)	MEAN PEFR (L/min)
S1 (n=41) (1.40-1.60m ²)	1.35 ± 0.05	396.25 ± 10.60	2.23 ± 0.4	2.57 ± 0.42	85.87 ± 2.74	300. 12 ± 83.61
RANGE	1.26-1.40	370-400	1.51-2.59	1.85-3.01	81-89	160-390
S2 (n=57) (1.61-1.80m ²)	1.49 ± 0.05	382.81 ± 45.09	2.42 ± 0.40	2.82 ± 0.45	85.40 ± 2.69	304.31 ± 76.86
RANGE	1.42-1.60	350-500	1.67-3.02	1.99-350	81-89	126-449
S3 (n=21) (>1.81 m ²)	1.67 ± 0.04	388.88 ± 22.04	2.42 ± 0.28	2.86 ± 0.133	84.88 ± 2.08	323.44 ± 70.97
RANGE	1.62-1.76	350-400	1.96-2.79	2.31-3.30	82-89	213-374

TABLE-6

Mean Surface Area and Mean Respiratory Parameters in Female Subjects.

SURFACE AREA GROUPS	MEAN SURFACE AREA (M ²)	MEAN T.V.(ml)	MEAN FEV ₁ (L)	MEAN FVC(L)	MEAN FER(%)	MEAN PEFR (L/min)
S1 (n=8) (1.20-1.40m ²)	1.55 ± 0.05	433.17 ± 63.93	3.10 ± 0.36	3.62 ± 0.42	85.29 ± 2.32	463.87 ± 105.62
RANGE	1.40-1.60	250-550	2.29-3.88	2.76-4.53	81-89	230-652
S2 (n=32) (1.41-1.60m ²)	1.71 ± 0.05	438.77 ± 74.81	3.28 ± 0.43	33.83 ± 0.51	85.22 ± 2.46	491.21 ± 94.66
RANGE	1.62-1.80	250-600	2.12-4.11	2.54-5.03	81-90	247-670
S3 (n=21) (≥1.61m ²)	1.88 ± 0.06	442.85 ± 40.61	3.54 ± 0.32	4.15 ± 0.34	84.80 ± 2.35	556.71 ± 88.76
RANGE	1.82-2.06	350-500	2.80-4.11	3.31-4.67	81-89	423-706

TABLE - 7

Mean Body Mass Index and Mean Respiratory Parameters in Male Subjects.

BODY MASS INDEX GROUPS	MEAN BMI	MEAN T.V.(ml)	MEAN FEV ₁ (L)	MEAN FVC(L)	MEAN FER(%)	MEAN PEFR (L/min)
B1 (n=13) (22.0)	22.15 ± 0.28	446.92 ± 72.15	3.33 ± 0.46	3.89 ± 0.54	85.07 ± 2.49	477.46 ± 124.89
RANGE	22.0-22.8	250-500	2.61-4.11	2.92-4.67	82-89	297-673
B2 (n=105)(20.1-25)/ <20.1-25.0-30.0)	19.75 ± 270	416.76 ± 65.50	3.25 ± 0.41	33.79 ± 0.47	85.20 ± 2.39	496.97 ± 99.36
RANGE	15.7-27.5	250-600	2.12-4.11	2.57-5.03	81-90	230-706
B3 (n=1) (>30.0)	33.7	400	3.48	4.10	84	567
RANGE	-	-	-	-	-	-

TABLE - 8

Mean Body Mass Index (BMI) and Mean Respiratory Parameters in Female Subjects.

BODY MASS INDEX GROUPS	MEAN BMI	MEAN T.V.(ml)	MEAN FEV ₁ (L)	MEAN FVC(L)	MEAN FER(%)	MEAN PEFR (L/min)
B1 (n=10) (20.8)	20.2 ± 0.27	360 ± 31.62	2.33 ± 0.45	2.75 ± 0.49	84.8 ± 3.15	289.7 ± 76.18
RANGE	19.8-20.6	350-400	1.67-2.91	1.99-3.44	79-89	126-377
B2(n=37)18.7-23.8) <18.7->23.8-28.5)	19.91 ± 2.81	392.43 ± 37.74	2.41 ± 0.37	2.81 ± 0.42	85.62 ± 2.45	317.29 ± 75.19
RANGE	15.6-26.0	300-500	1.51-3.02	1.85-3.50	81-89	160-449
B3 (n=2) (>28.5)	30.25 ± 2.47	400 ± 0.00	2.22 ± 0.17	2.63 ± 0.24	85 ± 0.00	256 ± 60.81
RANGE	28.50-32.00	400	2.10-2.34	2.46-2.81	85	213-299

Discussion :

In the present work, we observed the significant difference in the T.V. recorded in male and female subjects. The lower values were observed in female subjects. It was also observed that T.V. neither had any correlation with height and surface area nor with Chest circumference and BMI in either sex. Thus, it seems that the sex difference is the only variable influencing the T.V. The observations in T.V. therefore, could not be compared with other findings due to paucity in literature.

The weight did not correlate highly with any of the subdivisions of lung volumes and showed a significant positive correlation only with FVC in both sexes. Furthermore, the exploration of the results suggested that the BMI and Chest circumference did not have positive correlation with the lung functions.

The most important factors showing

positive influence on the lung functions in the present study in different subgroups have been found to be height and surface area. Numerous authors have endeavored to show the similar relationship with FEV₁ and FVC.

No difference in FVC and PEFR between males and females is reported(5). In contrast to this finding, we have found significant difference in these data between male and female subjects. We have also found the linear relationship between PEFR and surface area in different subgroups whereas some authors have shown the linear relationship between height, weight, age and chest circumference and PEFR. In our study, we have eliminated the influence of age by selecting the subjects within a narrow range of age group. Our result in Various subgroups suggests that the relationship of surface area with PEFR includes both the components of height and weight and hence the results seem to be in close with those of other authors.

In our Study, no relationship of BMI could be established with different lung functions in males and females and results could not be compared as only scarce reports are available. Further work in this regards is required to establish any such relationship.

Conclusions :

The following conclusions have been derived :

1. The mean T.V., FEV₁, FVC, FER and PEFR were 437.56 ± 65.83 ml, 3.26 ± 0.41 L 3.82 ± 0.48 L, $85.09 \pm 2.42\%$ and 495.42 ± 101.82 L/min respectively in North Indian male subjects, between mean age of 18-27 years.
2. The average T.V., FEV₁, FVC, FER and PEFR were 386.12 ± 37.90 ml, 13910.38 L, 2.79 ± 0.43 L, $85.38 \pm 2.57\%$ and 307.12 ± 75.74 L/min. respectively in North Indian females between mean age of 19-23 years.
3. A significant difference ($p < 0.05$) has been found between male and female subjects in aforementioned respiratory data.
4. The FEV₁, FVC and PEFR shows positive correlation with height, weight and surface area except T.V. and F.E.R.
5. The Chest circumference and Body mass index do not seem to have significant influence on the pulmonary function tests.

References :

1. American Thoracic Society : Snowbird Workshop on standardization of spirometry Am. Rev. Respir. Dis., 1979, 199: 881-82.
2. American Thoracic Society : Standardization of Spirometry - 1987. Am. Rev. Respir. Dis, 1987, 116 : 1285-85.
3. American Thoracic Society : Lung function testing. selection of reference value and interpretative strategies. Am. Rev. Respir. Dis., 1991, 144. 1202-1215.
4. Jain SK and Ramaih TJ. Normal Standards Of Pulmonary function tests for healthy Indian men 15-40 years old; comparison of regression equation (Prediction formula). Ind. J. Medi. Res, Vol. 1969, 57: 1453.
5. Patrick J.ME and Patel A: Ethnic differences in the growth of lung function in children. A cross sectional Study in the inner city. Nottingham, Annals of Human Biology. 1986, 13 : 307-15.
6. Singh HD and Peri S : Peak expiratory flow rate in South Indian adults. Ind. J. Physiol. Pharmacol. 1979. 28(4) : 315-20.
7. Verma SS, Sharma YK and Arora SA : multivariate Study of some lung function tests at different age groups in healthy Indian males. Ind. J. Chest Dis. Allied Sci. 2002, 44(22): 85-90.
8. Vijayan VK, Reetha AM, Kuppurao KV, Venkatesan 11 and Thilakavathy S : Pulmonary function in normal south Indian children aged 7-19 yrs. Ind. J. Chest Dis. Allied Sci. 2000. 42(3) : 147-56.

A STUDY REGARDING ATTITUDES OF YOUNG SLUM DWELLING FEMALES TOWARDS THEIR HUSBAND/SEX PARTNER PRESUMING THEM HIV INFECTED

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Abstract :

Research Question : *What is the attitude of young females towards their husband or sex partners presuming them infected with HIV?*

Objectives : *Attitude of young slum dwelling females towards husband or sex partner presuming them HIV infected*

1. *according to age of respondents*
2. *according to marital status of respondents*
3. *according to occupation of respondents*
4. *according to literacy status of respondents*

Study Design : *Cross sectional study*

Study Area : *10% of the Slums of Kanpur City having population less than 3000.*

Participants : *13 to 25 years aged females of selected slums.*

Study variables : *Age, marital status, occupation, literacy status.*

Statistical Analysis : *Percentage*

Results : *12.3% expressed about non disclosure of disease. 25.7% were indecisive, 65.2% to pursue for treatment, 32.7% to continue sex relationship and 31.2% to continue social relationship. Respondents employed as teachers showed greater degree of concern for more care (45.5%) and also for continuation of social and sexual relationship. Continuation on social & sexual relationship along with pursuation for treatment and more care of victim (husband/sex partner) was observed among highest percentage in graduate and above level with gradual decrease in the prevalence with decrease in the level of education.*

Introduction :

AIDS, the acronym for the Acquired Immune Deficiency Syndrome evolves a response of familiarity everywhere today. Since the epidemic began, more than 60 million people have been infected with the virus¹. AIDS attacks not just the human body but it thrives on human ignorance and fear and threatens the social fabric of the society. The HIV/AIDS picture in

South Asia remains dominated by epidemic in India. Till September 2003 total of AIDS cases in India were 55,764 of whom 14,486 were women. Young women (13 to 25 years) are several times (2-4) more likely than young man to be infected with HIV². Young women residing in slums are particularly vulnerable because of low level of living and education, violation of various social control mechanisms and low level of morals compounded with poverty. In addition their sex

partners make them more vulnerable by involving themselves into high risk behaviour,

Material & Methods:

In this community based study, the sample was selected according to the feasibility and hence 10% of all the slums of Kanpur City having population less than 3000 were selected for the study. The list of the slums in Kanpur City with population was procured from Kanpur Development Authority. 160 slums were identified having population less than 3000. 10% of the slums out of these 160 slums were selected by systematic random sampling where sampling interval was found to be 10 by the following formula

$$S.I \text{ or } K = \frac{\text{Total No. of slums } < 3000 \text{ population}}{\text{Sample size desired (10\% of slums } < 3000 \text{ pop.)}}$$

Out of the 160 slums first slum was selected by simple random sampling technique (6th slums) and subsequently every 10 slum was selected i.e. total 16 slums from different areas of Kanpur. In each slum selected all available females of 13 to 25 years age were interviewed by house to house survey using predesigned and pretested questionnaire. Total 1284 females of 13 to 25 year age group could be interviewed. Anonymity was assumed and was also maintained to Insure their seasoned participation and frank responses without any inhibition.

Observation & Discussion :

TABLE - 1

Attitude towards HIV Infected Husband/Sex Partner According to Age of the Respondents

(Multiple Responses)

S.No. Responses	13-18 Yrs. (n=722)	19-25 Yrs. (n=562)	Total (n=1284)
1. Will continue social relationship	199 (27.6)	201 (35.8)	400 (31.2)
2. Will continue sexual relationship with condom	14 (1.9)	95 (16.9)	109 (8.5)
3. Will not continue sexual relationship	229 (31.7)	191 (34.0)	420 (32.7)
4. Persue to take treatment	399 (55.2)	438 (77.9)	837 (65.2)
5. Will not disclose the matter to other	72 (10.0)	86 (15.3)	158 (12.3)
6. Will, look after him with	More care 46 (6.4)	36 (6.4)	82 (6.4)
	As usual 7 (1.0)	1 (0.2)	8 (0.6)
	Neglect 9 (1.2)	62 (11.0)	71 (5.5)
7. Does not know what to do	162 (22.4)	168 (29.9)	330 (25.7)

Percentage in parenthesis

Table No. 1 - Varying degree of responses were expressed by respondents about their attitude towards HIV infected husband/sex partner. 12.3% expressed about non disclosure of disease. 25.7% were indecisive 65.2% to pursue for treatment, 32.7% to continue sex relationship and 31.2% to continue social relationship. No much age group wise difference was observed about these areas

of attitude. Neglecting attitude was expressed in high age group (11%) in comparison to 1.2% in 13-18 years age group. Similar findings were observed by Sehgal P.N. that HIV/AIDS infected persons should not be welcomed at home³. This difference in attitude is striking and may be generated because of tender emotion of younger age group respondents.

TABLE - 2

Attitude towards HIV Infected Husband/Sex Partner According to Marital Status of the Respondents
(Multiple Responses)

S.No. Responses	Unmarried n=607	Married n=524	Wido n=49	Separated n=104	Total n=1284
1. Will continue social relationship	104 (17.1)	173 (33.0)	0 (0.0)	23 (22.1)	400 (31.2)
2. Will continue sexual relationship with condom	13 (2.1)	92 (17.6)	2 (4.1)	2 (1.9)	109 (8.5)
3. Will not continue sex relationship	184 (30.2)	187 (35.7)	16 (32.7)	33 (31.7)	420 (32.7)
4. Pursue to take treatment	389 (63.9)	357 (68.1)	34 (69.4)	57 (54.8)	837 (65.2)
5. Will not disclose the matter to other	76 (12.5)	67 (12.8)	10 (20.4)	5 (4.8)	158 (12.3)
6. Will took after him with	More care 47 (7.7)	35 (6.7)	0 (0.0)	0 (0.0)	82 (6.4)
	As usual	8 (1.3)	0 (0.0)	0 (0.0)	0 (0.6)
	Neglect	8 (1.3)	0 (0.0)	16 (32.7)	47 (45.2)
7. Does not know what to do	167 (27.4)	131 (25.0)	9 (18.4)	23 (22.1)	330 (25.7)

Percentage in parenthesis

Table No. 2 Marital status wise separated and widow respondents were more prone to neglect husband/sex partner if infected with disease (45.2% & 32.7%) respectively and none among these groups expressed to take more care of victims. Similarly Sehgal P.N. 1992 observed that 57.6% people mentioned that if their spouse

tests HIV positive, he/she should be divorced. However no group difference is visible about these areas of attitudes among married & unmarried groups. Thereby more care taking attitude was expressed 6.7% married and 7.7% unmarried respondents. No widow preferred to continue social relationship while other marital

groups showed a mixed response. Attitude for not to continue sexual relationship, pursuation to treatment and indecisive set of mind does not show much difference among different marital

status groups, which shows that inculcation of attitudes in these areas are not determined by there marital status but are determined by their women hood factor only.

TABLE - 3

Attitude Towards HIV Infected Husband/Sex Partner According to Occupation of the Respondents
(Multiple Responses)

Sl. No.	Responses	Household work n=693	Domestic servant n=179	Employed as Labourer n=24	Teacher n=11	Semiskilled Service n=25	or skilled jobs N=96	Students n=256	Total
1.	Will continue social relationship	57 (8.2)	21 (11.7)	9 (37.5)	10 (90.9)	15 (60.0)	62 (64.6)	126 (49.2)	400 (31.2)
2.	Will continue sexual relationship with condom	50 (7.2)	0 (0.0)	0 (0.0)	10 (90.9)	1 (4.0)	2 (2.1)	46 (18.0)	109 (8.5)
3.	Will not continue sexual relationship	192 (27.7)	120 (67.0)	9 (37.5)	1 (9.1)	10 (40.0)	26 (27.1)	62 (24.2)	420 (32.7)
4.	Pursue to take treatment	402 (58.0)	101 (56.4)	0 (0.0)	11 (100.0)	10 (40.0)	66 (68.8)	247 (96.5)	837 (65.2)
5.	Will not disclose the matter to other	78 (11.3)	22 (12.3)	8 (33.3)	2 (18.2)	2 (8.0)	16 (16.7)	30 (11.7)	158 (12.3)
6.	Will look after him with								
	More care	48 (6.9)	4 (2.2)	2 (8.3)	5 (45.5)	1 (4.0)	1 (1.0)	21 (8.2)	82 (6.4)
	As usual	1 (0.1)	0 (0.0)	0 (0.0)	0 (0.0)	2 (8.0)	2 (2.1)	3 (1.2)	8 (0.6)
	Neglect	21 (3.0)	11 (6.1)	4 (16.7)	3 (27.3)	3 (12.0)	7 (7.3)	22 (8.6)	71 (5.5)
7.	Does not know what to do	224 (32.3)	59 (33.0)	15 (62.5)	0 (0.0)	2 (8.0)	21 (21.9)	9 (3.5)	330 (25.7)

Percentage in parenthesis

Table No. 3 - Respondents employed as teachers showed greater degree of concern for more care (45.5%) and also for continuation of social and sexual relationship along with pursuation for treatment of their husband/sex partner followed by service class occupational groups except Labourer (0%), all other occupation showed preferences for pursuation of treatment. Continuation of sexual relationship was minimal among teachers (9.1%) and maximum among domestic servant (67%). Other responses were of mixed types with different occupational groups.

Pursuation for treatment and continuation of sexual relationship was also expressed fairly good amongst students. Pandit K. et al 1994 observed among 8th Class Students that 50% males and 63.6% females have shown positive attitudes towards AIDS patients. However 88.4% females of 12th class have shown positive attitude towards AIDS patients⁵. Lal Panna et al 1996 observed that 79.5% students were willing to provide love, sympathy to AIDS patients and 20.2% would reject and 12.2% were in favour of having sex with HIV positive patients⁶. This pattern

indicates better level of attitude among teacher with 0% indecisiveness due to introduction of

HIV/STI related educational programmes through schools & education.

TABLE - 4

Attitude towards HIV Infected Husband /Sex Partner According to Literacy Status of the Respondents (Multiple Responses)

S. No.	Responses	Illiterate. n=401	Primary n=298	Jr. High school n=196	High school n=180	Inter-mediate n=128	Graduate & above=81	Total n=1284
1.	Will continue social relationship	3 (0.8)	2 (0.7)	24 (12.2)	98 (54.4)	97 (75.8)	76 (93.8)	400 (31.2)
2.	Will continue sexual relationship with condom	1 (0.2)	1 (0.3)	4 (2.0)	40 (22.2)	32 (25.0)	31 (38.3)	109 (8.5)
3.	Will not continue sexual relationship	30 (7.5)	38 (12.8)	94 (48.0)	121 (67.2)	88 (68.8)	49 (60.5)	420 (32.7)
4.	Pursue to take treatment	131 (32.7)	163 (54.7)	179 (91.3)	162 (90.0)	121 (94.5)	81 (100.0)	837 (65.2)
5.	Will not disclose the matter to other	52 (13.0)	40 (13.4)	28 (14.3)	22 (12.2)	11 (8.6)	15 (6.2)	158 (12.3)
6.	More care.	11 (2.7)	10 (3.4)	8 (4.1)	17 (9.4)	15 (11.7)	21 (25.9)	82 (6.4)
	As usual	2 (0.5)	1 (0.3)	1 (0.5)	1 (0.6)	1 (0.8)	2 (2.5)	8 (0.6)
	Neglect	14 (3.5)	13 (4.4)	12 (6.1)	11 (6.1)	11 (8.6)	10 (12.3)	71 (5.5)
7.	Does not know what to do.	180 (44.9)	68 (22.8)	42 (21.4)	22 (12.2)	18 (14.1)	0 (0.0)	330 (25.7)

Percentage in parenthesis

Table No. 4 - Education seems to help definite impact on attitude formation of respondents. Continuation of social & sexual relationship along with pursuation for treatment and more care of victim (husband/sex partner) was observed in highest percentage in graduate and above level, with gradual decrease in the prevalence along with decrease in the level of education. Similarly Benjamin A.I. et al 1997 observed a positive corelation between education and maintenance of social relationship with AIDS patients⁷. Level of indecisiveness is observed highest among illiterate and 0% among graduate and above respondents. However though

marginally but level of neglecting attitude and more care taking attitude is also observed increasing with increase in the level of education. This contrast may be because of sympathy towards victim but at the same time expression of annoyance for conduct of victim.

Suggestions :

There is need to make the women aware of HIV/AIDS/STI related knowledge and other rights which make her vulnerable for getting infection. Economic independence by providing proper vocational training and job to women and thus building their capacity against vulnerabilities.

Least services are being provided to the women of slums in the field of education, health, police, political etc. which make the women more vulnerable to HIV/AIDS/STI. Provision and availability of these services should be ensured. There is need to change the attitude of male counterparts because in every field of decision making females are dominated by males.

References :

1. **UNAIDS** : (2003)
2. **AIDS UPDATE** : WHO, (2003)
3. **Sehgal P.N.** : Knowledge, attitude, beliefs and practices (KABP) study related to AIDS in Manipur state and intervention (Executive summary). HIV-AIDS Research in India, 137-140, 1992.
4. **Sehgal P.N.** : Knowledge attitude, beliefs and practices (KABP STUDY) related to AIDS in Tamil Nadu state, India and Intervention strategies. HIV-AIDS Research in India, 141-147, 1993.
5. **Pandit K., Aggarwal O.P.** : Awareness, Knowledge and attitudes towards AIDS amongst the spouses of paramedics living in a medical college cum hospital complex: HIV-AIDS Awareness in India, 151-153, 1994.
6. **Lal Panna, Kumar Awadhesh, Ingle G.K., Gulati Neena** : Knowledge and Attitudes of University Students regarding HIV/AIDS : an urban rural difference. J. Comm. Dis., 26(4) : 186-191, 1996.
7. **Benjamin A.I., Zachairah P.** : KABP Study on Prevention of AIDS among health professionals. HIV/AIDS Research in India, 294-298, 1997.

AN EPIDEMIOLOGICAL PROFILE OF DIABETES MELLITUS AMONGST HIGH RISK AGE GROUP - A COMMUNITY BASED STUDY.

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Abstract :

Research Question : *What is the epidemiological profile of Diabetes mellitus amongst high-risk age group population in urban and rural areas of Kanpur.*

Objectives : *To study the prevalence, magnitude, possible associates and socio demographic variables related to Diabetes mellitus amongst the high risk age group population in urban and rural areas of Kanpur.*

Study Design : *Cross-sectional study.*

Setting : *The study was performed on five thousand population each in urban and rural areas of Kanpur.*

Participants : *High risk age group population i.e. 45 years and above.*

Study variables: *Age, sex, education, working status, social class, Impaired glucose tolerance, Body mass index, Hypertension, family history of diabetes mellitus.*

Statistical analysis : *Chi-square test, Percentages.*

Results : *The overall prevalence of Diabetes mellitus amongst high risk age group population was found to be 7.6% with 11.3% in urban areas and 3.6% in rural areas. The overall maximum prevalence was in the 56-60 years age group. Higher prevalence was observed amongst the graduates and onwards (30.1%), social class-I (32.1%), sedentary lifestyle (62.5%), obese (19.7%), hypertensives (39.5%), family history of diabetes mellitus (31.5%). It was observed that 77.7% cases in rural areas and 26.9% cases in urban areas were newly diagnosed.*

Introduction :

Type-2 diabetes mellitus is a modern age epidemic and estimated to affect 150 million people world wide. It is projected that the disease prevalence will be more than double from 135 millions in 1995 to 300 millions by 2025¹.

WHO (1985)² reported that the characteristic symptoms of diabetes mellitus are excessive thirst, polyuria, polyphagia, pruritus and unexplained weight loss, or may be asymptomatic till complications present themselves. Quite often, diabetes is discovered because of an abnormal result of a routine blood or urine glucose test.

The Revised criteria for diagnosing Diabetes mellitus issued by National diabetes

Data Group and World Health Organization :

- Symptoms of Diabetes plus random blood glucose concentration ≥ 200 mg/dl. Or Fasting plasma glucose concentration ≥ 126 mg/dl. Or
- Two hour plasma glucose ≥ 200 mg/dl during an Oral glucose tolerance test.

Source : Adapted from **American Diabetes Association, 2000**³

An urban-rural difference in the prevalence rate was found indicating that the environmental factors related to urbanization had a significant role in increasing the prevalence of diabetes⁴. The prevalence of diabetes in urbanizing rural population was found to be

midway between the rural and urban populations. Although the prevalence of Type-2 diabetes is 4-6 times higher in urban India than in rural areas, the number of people with IGT is high (7.8%) even in the rural population which may indicate the presence of a genetic basis for Type 2 diabetes in the ethnic group⁴. Family history of Diabetes, Age, Body mass index, insulin resistance and sedentary lifestyle showed positive association with diabetes in Indian populations.

Material and Methods :

The present study was conducted amongst the individuals of high-risk age group population in the urban and rural areas of Kanpur. In this study five thousand population each in urban and rural areas of Kanpur was surveyed by selective screening epidemiological research technique to cover high-risk age group population i.e. 45 years and above as per ADA criteria 2000³. Survey was conducted by house to house contact. The high-risk age group persons were identified for detailed interviews and investigations and the detailed information was collected on a predesigned and pretested proforma.

The target individuals of high-risk age group were requested for the collection of urine sample two hours after taking meal/breakfast. Screening was conducted by urine examination with the help of DIASTIX. The urine positive individuals were considered as SUSPECTS and these suspects were further approached for confirmation of diagnosis by post-prandial blood glucose test i.e. by taking blood sample two hours after meal with the help of GLUCOMETER as per WHO criteria (1985)² to establish them as CASE. The data in examinations and investigations was analyzed by using various

relevant techniques of biostatistics.

Observations & Discussion :

In the present study from a total of 1054 high risk age group population of 45 years and above 554 (52.5%) belonged to urban areas and 500 (48.0%) to rural areas with (52.0%) males and (48.0%) females. Majority belonged to age group 56-60 years (22.3%). Most of the diabetics were Muslims (11.2%) followed by upper caste Hindus (10.1%) and others (8.6%). Majority of diabetics were graduates and onwards (30.1%) and belonged to social class-I (32.1%) and class-II (25.3%). Observations regarding the prevalence and various socio-demographic variables are described as follows.

Table-1 shows that the maximum prevalence of Diabetes mellitus was observed in the age group 56-60 years (11.0%), followed by 51-55 (8.9%) and 61-65 years (8.8%). The maximum prevalence of IGT was in the age group of 51-55 years (16.1%). This finding is in conformity with the studies carried out by Diabetes Research Centre, Chennai where prevalence increased among urban Indian adults from 5.2% in 1984 to 13.9% in 2000 (Ramachandran et al. 2002)⁵.

Table - 2 points out that the prevalence of Diabetes mellitus was higher in males (12.2%) as compared to females (10.4%) in urban as well as rural areas (males 3.1% and females 3.3%) whereas that of IGT was more in females of study population. In urban areas prevalence of diabetes (11.3%) and IGT (15.5%) was more than 3 times higher than the prevalence of diabetes (3.6%) and IGT (7.0%) in rural areas.

Table - 3 shows that in those with

sedentary lifestyle the overall prevalence of Diabetes mellitus (11.0%) and IGT (16.8%) was higher and was followed by moderate (2.3% and 2.9% respectively) grade lifestyle.

Table-4 shows that the prevalence of Diabetes mellitus/IGT in those with diabetic parents was 31.5% and 19.2% which was higher than the corresponding figures in those with no history of diabetes in parents. These observations are similar to observations made by Vishwanathan et al (1996)⁷. If both parents are diabetic then the association becomes stronger.

Table-5 shows that high blood pressure is a common and modifiable risk factor for Diabetes mellitus. In this study overall 39.5% of the diabetics were hypertensives and this matches with the various epidemiological studies which observed that in type 2 diabetics about 40-53 % people were hypertensives.

Table - 6 reveals that the association of obesity with type 2 diabetes is complex and is

compounded by several heterogenous factors. In the present study the maximum prevalence of diabetes mellitus (19.7%) and IGT (24.0%) was amongst obese followed by in overweight i.e. 8.1% and 16.3% respectively. Similar observations were made by Ramachandran et al (1992)⁴ who observed maximum prevalence of diabetes amongst obese (21.5%).

Table-7 shows that 77.7% diabetes cases in rural areas and 26.9% cases in urban areas were newly diagnosed whereas in the urban areas most of the diabetics were known diabetics (73.0%) as contrast to only (22.2%) diabetics in rural areas.

Table - 8 shows the association between diabetes mellitus and its risk factors and reveals that majority of diabetics were leading a sedentary lifestyle (90.1%) and (56.7%) were obese. Tobacco/ Pan masala chewing shows a current trend of the society which has also been observed among the diabetics (33.3%).

TABLE - 1
Age wise prevalence of Diabetes Mellitus and IGT Cases in the Study Population

Age group	Diabetes mellitus		Impaired Glucose Tolerance		Normal		Total	
	No.	%	No.	%	No.	%	No.	%
45-50	10	4.6	20	9.3	184	85.9	414	20.3
51-55	20	8.9	36	16.1	167	74.8	223	21.1
56-60	26	11.0	29	12.2	181	76.6	236	22.3
61-65	15	8.8	18	10.6	136	80.4	169	16.0
66-70	7	6.2	12	10.7	93	83.0	112	10.6
71-75	3	4.5	5	7.5	58	87.8	66	6.2
>= 76	0	0.0	1	2.9	33	97.0	34	3.2
Total	81	7.6	121	11.4	852	80.8	1054	100.0

TABLE - 2

Sex wise prevalence of Diabetes Mellitus and IGT Cases in
Urban and Rural Areas of Kanpur

	Urban			Rural			Grand
	Males (n =286)	Females (n =268)	Total (n =554)	Males (n =262)	Females (n =238)	Total (n =500)	Total (n =1054)
	No. (0/0)	No. (%)	No. (%)	No. (0/0)	No. (%)	No. (%)	No. (%)
Diabetes mellitus	35 (12.2)	28 (10.4)	63 (11.3)	10 (3.8)	8 (3.3)	18 (3.6)	81 (7.6)
Impaired glucose tolerance	44 (15.3)	42 (15.6)	86 (15.5)	18 (6.8)	17 (7.1)	35 (7.0)	121 (11.4)
Normal	207 (72.3)	198 (73.8)	405 (73.1)	234 (89.3)	213 (89.4)	447 (89.4)	852 (80.8)
Total	286 (100.0)	268 (100.0)	554 (100.0)	262 (100.0)	238 (100.0)	500 (100.0)	1054 (100.0)

$\chi^2 = 45.01$: $P < 0.001$: d.f. = 1. (Highly significant)

TABLE - 3

Prevalence of Diabetes Mellitus and IGT Cases According to their Physical
Activity in the Study Population.

Physical Activity	Diabetes mellitus		IGT		Normal		Total	
	No.	%	No.	%	No.	%	No.	%
Sedentary	73	11.0	111	16.8	475	72.0	659	62.5
Moderate	8	2.3	10	2.9	318	94.6	336	31.8
Heavy	0	0.0	0	0.0	59	100.0	59	5.5
Total	81	7.6	121	11.4	852	80.8	1054	100.0

TABLE - 4
Prevalence of Diabetes Mellitus and IGT Cases According to their Family History

Family History	Diabetes mellitus		IGT		Normal		Total	
	No.	%	No.	%	No.	%	No.	%
Present	18	31.57	11	19.29	28	19.12	57	5.40
Not Present/ Not Known	63	6.31	110	11.03	824	82.64	997	94.59
Total	81	7.68	121	11.48	852	80.83	1054	100.0

$X^2 = 39.11$, d.f. = 1; $P < 0.001$; Highly significant

TABLE - 5
Prevalence of Diabetes Mellitus and Impaired Glucose Tolerance Cases According to their Blood Pressure Status

Blood Pressure status	Normal		IGT		Diabetes mellitus		Total	
	No.	%	No.	%	No.	%	No.	%
Normal	468	54.9	17	14.0	3	3.7	488	46.2
High normal	285	33.4	65	53.7	46	56.7	396	37.5
Hypertension	99	11.6	39	32.2	32	39.5	170	16.1
Total	852	100.0	121	100.0	81	100.0	1054	100.0

$X^2 = 66.82$; d.f. = 1, $p < 0.001$; Highly significant

TABLE - 6
Prevalence of Diabetes Mellitus and IGT Cases in Relation to Body Mass Index in the Study Population

BMI	Diabetes mellitus		IGT		Normal		Total	
	No.	%	No.	%	No.	%	No.	%
Obese	46	19.7	56	24.0	131	56.2	233	22.1
Overweight	27	8.1	54	16.3	249	75.4	330	31.3
Normal	8	1.6	11	2.2	472	96.1	491	46.5
Total	81	7.6	121	11.4	852	80.8	1054	100.0

$X^2 = 138.8$; d.f. = 1, $p < 0.001$; Highly significant

TABLE - 7

Sex wise Distribution of known and newly Diagnosed Diabetics
in the Urban and Rural Areas of Kanpur

Diabetes mellitus cases	Urban			Rural			Grand Total	
	Male	Female	Total	Male	Female	Total	Male	Female
	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %
Known	28	18	46	2	2	4	30	20
Diabetics	80.0	64.2	73.0	20.0	25.0	22.2	66.6	55.5
Newly	7	10	17	8	6	14	15	16
Diagnosed	20.0	35.7	26.9	80.0	75.0	77.7	33.3	44.4
Total	35	28	63	10	8	18	45	36
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE - 8

Association of Diabetics with risk Factors
of Diabetes Mellitus

Risk Factors	Diabetics (n = 81)	
	No.	%
Obese	46	56.7
Sedentary Lifestyle	73	90.1
Hypertensives	27	39.5
Family history of DM	18	22.2
Non-vegetarian diet	25	30.8
Alcohol intake	8	9.8
Smoking	12	14.8
Tobacco / Pan masala	27	33.3

Conclusions and Recommendations :

The present study highlights the link and association of Diabetes mellitus with different variables such as age, sex, traditional

background, economic status, physical activity, dietary habits, family background etc. as important contributing factors in development of Diabetes mellitus. So, community surveys and screening by urine sugar and blood sugar tests should be routinely conducted in the high-risk age group i.e. 45 years and above population to explore the hidden cases of diabetes mellitus. Regular IEC activities addressing the diabetics, family members and community in mass about modification in dietary pattern, preventive measures against obesity and role of exercise. Efforts should be made to introduce the concept of spiritual health in the community through yoga and meditation. To motivate the individuals and community to avoid alcohol consumption, tobacco chewing and smoking which potentiate the complications of diabetes mellitus. To deal it as an epidemic of great challenge, government intervention is essential. So regular screening, examination, investigation, monitoring, health education and medical care regarding to diabetes

mellitus to be included in existing basic health care system.

References :

1. King H, Aubert RE, Herman VM. Global burden of diabetes 1995-2025: prevalence, numerical estimates, and projection. *Diabetes Care* 1998; 21:1414-3 1.
2. World Health Organization: Diabetes Mellitus; Report of a WHO study group. Geneva, World Health Organization, 1985. Technical Report Series No. 727.
3. Screening for type 2 diabetes. American Diabetes Association. *Diabetes Care* 2000;23 (Suppl-1) : S20-3
4. Ramachandran A, Snehalatha C, Daisy Dharmaraj, Viswanathan M. Prevalence of glucose intolerance in Asian Indians: Urban rural difference and significance of upper body adiposity. *Diabetes care* 1992; 15:1348-55.
5. Ramchandran A, Snehalata C, Latha E, Vijay. Impacts of urbanisation on the lifestyle and on the prevalence of diabetes in Asian Indian population. *Diab. Res. Clin. Pract.* 1999; 44: 207-213.
6. Ramchandran A, Snehalata C, Vijay V. Prevalence of type 2 diabetes and impaired glucose tolerance in urban southern India. *Diabetes Res Clin Pract*; 58:55-60,2002.
7. Viswanathan M, McCarthy MI, Snehalatha C et al. Familial aggregation of type 2 diabetes mellitus in south India: *Diabetic Med*; 13: 232-7, 1996.

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OBITUARY



Prof. C.M.S. Siddhu

MD, DPH, FIPHA

**Head of the Department of Social & Preventive Medicine,
K.G. Medical College, Lucknow**

From March 5, 1972 to Oct. 29, 1976

Death on 13th August, 2004

Obtained MBBS in 1945 from Lucknow and DPH in 1947 from Calcutta. Did M.D. in Social Medicine and Public Health in 1954 from the University of Lucknow. Served the Uttar Pradesh Health Services in various positions. Attended BCG Conference at Rangoon in 1952 and played an active role in launching B.C.G. Scheme in the State, heading the programme during the period 1949-53. Appointed in 1959 Professor PSM at Medical College Bhopal and later at Gwalior. Joined in 1962 as Professor and Head S.P.M., Medical College, Kanpur. Established and developed the Rural Health Centre of these departments. Has been a hard task master and strict disciplinarian. Inculcated seriousness about the subject among the undergraduates. Became Professor of Public Health Administration at Lucknow in 1968. Tookover the Chair of Head, Upgraded Department of Social & Preventive Medicine, K.G's Medical College, Lucknow in 1972 and continued until 1976 when joined Medical College, Faridkot. Strengthened the rural component of training and services during this tenure. Became the first Consultant of ICDS Scheme in U.P. and was instrumental in the success of Mobile Hospital. Has authored 45 scientific papers and participated in a number of conferences and seminars.

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