

A STUDY TO ASSESS THE MAGNITUDE OF OVERWEIGHT AND OBESITY AMONG AGE GROUP 15 YEARS AND ABOVE IN THE RURAL KANPUR

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ABSTRACT :

Research Question : What is the magnitude of the problem of overweight and obesity in rural area of Kanpur?

Aims and Objective : To study the demographic profile and assess the prevalence and correlates of overweight and obesity.

Study design : Cross-sectional study.

Study place : Baniyapur and Durgapur village of Kanpur

Study period : March 2005 to July 2006.

Study subjects : 15 years and above population of Kanpur.

Study Variables : Age, sex, marital status, education and occupation.

Statistical analysis : Chi square test and percentage.

Results : Out of the total 2200 study population, 51.7% were males and 48.3% were females. Majority of study population was Hindus (96.9%). Prevalence of overweight (BMI = 25.0-29.9 Kg/m²) was 4.0% (3.3% in males and 4.7% in females) while prevalence of obesity (BMI ≥ 30.0 Kg/m²) was 0.5% (0.4% in males and 0.8% in females). Prevalence of overweight and obesity increased with advancing age and it was higher in high socio-economic status class.

Introduction :

For centuries, the human population has been suffering from varieties of health problems, which include both communicable and non-communicable diseases. Communicable diseases have been taking a large number of human lives throughout history. But now, the prevalence of non-communicable diseases like cardiovascular, renal, nervous and mental diseases, musculo-skeletal diseases, accidents, cancer, diabetes, obesity etc. has increased not only in developed countries, but also in developing countries.

WHO (2000) defines obesity as

"abnormal or excessive fat accumulation in adipose tissue, to the extent that health is impaired". Overweight and obesity are essentially due to energy imbalance. The major risk factors responsible for development of non-communicable diseases are lifestyle changes, environmental risk factors, inability to obtain preventive health services, cigarette smoking, alcohol abuse and stress factors. Obesity is very frequently also associated with other health conditions such as gall bladder diseases, certain cancers, musculo-skeletal problems and sleep apnea. It is estimated that about 315 million people worldwide fall into the WHO-defined obesity categories with a BMI 30 kg/m² or

above. This figure can double by year 2025 if no action is taken against this threat.

Material and Method :

The present study was carried out in Baniyapur and Durgapur villages of Kanpur Nagar from March 2005 to July 2006 among 15 years and above persons. Minimum sample size was calculated to be 2177. The study population was selected by using *Multistage Random Sampling Technique*. In the first stage of sampling, all the 10 blocks were listed and one block, Kalyanpur, was randomly selected. In the second stage, all the villages in the selected block were listed down and one village, Baniyapur, was randomly selected to study the required sample unit. House to house survey was carried out. The detailed information was elicited and collected on a pre-designed and pre-tested proforma. Simultaneously, BMI (Body Mass Index) values of eligible persons i.e. aged 15 years and above were calculated using the formula : BMI = Weight in kg/ (Height in meter)²

WHO (2000) recommended criteria were used for classification of obesity according to BMI.

Observations and Discussion :

It was observed that among 2220 studied population, maximum people belonged to 15-24 years age group (34%) followed by 25-34 years age group (26.6%). It was found that 96.9% were Hindus while 3.1% were Muslims. Majority of people were living either in joint (36.2%) or extended (24.2%) family while the remaining (39.6%) belong to nuclear family. Nearly three fourth (80.8%) belonged to social class III, IV and V and remaining (19.2%) were from social class I or II. It was also observed that 31.1% were illiterate followed by middle school 18.7% and just literate 17.7%. Illiteracy was more in females (46.6%) than males (16.6%). 33.7% in rural area were either unemployed or nonworking and 53.3% were doing either service/business/farming or were vendor or shopkeepers.

TABLE - 1
Distribution of study population by their Body Mass Index (BMI)

BMI (Kg/m ²)	Males (n=1148)		Females (n=1072)		Total (n=2220)	
	No.	%	No.	%	No.	%
<18.5	286	24.9	198	18.5	484	21.8
18.5-24.9	820	71.4	816	76.1	1636	73.7
25.0--29.9	38	3.3	50	4.7	88	4.0
≥30.0	4	0.4	8	0.8	12	0.5
Total	1148	51.7	1072	48.3	2220	100.0

χ^2 (BMI vs. Sex) =16.37 p<0.05

Table 1 depicts the sex wise distribution of study population according to their BMI status. It was observed that a total of 4.0% (3.3% males and 4.7% females) were overweight (BMI = 25.0-29.9 kg/m²) and 0.5% (0.4% males and 0.8

females) were obese (BMI ≥30.0 Kg/m²). It was observed that 21.8% were underweight (BMI < 18.5 Kg/m²) while three fourth of the study population were having normal BMI (BMI 18.5-24.9Kg/m²).

TABLE - 2
Age and sex wise prevalence of overweight and obesity in rural study area

Age groups (years)	Sex	No. of People	BMI <25 (Kg/m ²)		BMI 25.0-29.9 (Kg/m ²)		BMI ≥30 (Kg/m ²)	
			No.	%	No.	%	No.	%
15-24	Males	392	386	98.5	6	1.5	0	0.0
	Females	362	353	97.5	8	2.2	1	0.3
	Total	754	739	98.0	14	1.9	1	0.1
26-34	Males	308	298	96.8	8	2.6	2	0.7
	Females	282	269	95.4	11	3.9	2	0.7
	Total	590	567	96.1	19	3.2	4	0.7
36-44	Males	198	189	95.5	8	4.0	1	0.5
	Females	178	164	92.1	12	6.7	2	1.1
	Total	376	353	93.9	20	5.3	3	0.8
46-54	Males	136	129	94.9	6	4.4	1	0.7
	Females	122	112	91.8	8	6.6	2	1.6
	Total	258	241	93.4	14	5.4	3	1.2
56-64	Males	82	74	90.2	8	9.8	0	0.0
	Females	92	82	89.1	9	9.8	1	1.1
	Total	174	156	89.7	17	9.8	1	0.6
≥65	Males	32	30	93.8	2	6.3	0	0.0
	Females	36	34	94.4	2	5.6	0	0.0
	Total	68	64	94.1	4	5.9	0	0.0
Total (All Age Groups)	Males	1148	1106	96.3	38	3.3	4	0.4
	Females	1072	1014	94.6	50	4.7	8	0.8
	Total	2220	2120	95.5	88	4.0	12	0.5

χ^2 (age groups vs. males) = 15.74 p<0.05

χ^2 (age groups vs. females) = 70.57 p<0.05

χ^2 (age groups vs. total) = 30.19 p<0.05

Table 2 reveals that prevalence of both overweight and obesity increased with advancing age. Overweight was maximum

(9.8%) in 55-64 years age group and lowest (1.9%) in 15-24 years age group. Higher prevalence of overweight and obesity was seen

in females than males in all age groups except those above 55 years of age. It was observed that the prevalence of overweight was highest

among Muslims (5.4%) followed by 3.9% in Hindus while prevalence of obesity was 2.7% and 0.5% in Muslims and Hindus respectively.

TABLE - 3

Prevalence of overweight and obesity in relation to socio-economic status

Socio-economic status	No. of people (n=2220)	Over wt. (n=88)		Obese (n=12)		Total (n=100)	
		No.	%	No.	%	No.	%
Class I	16	3	18.8	1	6.3	4	25.0
Class II	410	36	8.8	4	1.0	40	9.8
Class III	652	31	4.8	4	0.6	35	5.4
Class IV	860	14	3.0	3	0.4	17	2.0
Class V	282	4	1.4	0	0.0	4	1.4
Total	2220	88	4.0	12	0.5	4.5	2220

Table 3 reveals that the prevalence of overweight and obesity was highest among people belonging to social class I and lowest in social class V socioeconomic status group. Thus, in the present study, the prevalence of overweight and obesity is found to be inversely proportional to socioeconomic status of people.

In rural area, prevalence was found to be highest among unemployed / nonworking people (5.5%) and minimum in unskilled workers. Study revealed that majority (80.0%) were consuming 3 or more major meals per day while two major meals were being consumed by 20.0% persons.

The distribution pattern of prevalence of various associated diseases in the study subjects on the basis of history given by them revealed that musculo-skeletal problem was the most prevalent problem (27.0%) followed by hypertension (14.0%), Bronchial asthma (9.0%) diabetes mellitus (7.0%), chronic skin diseases

(4.0%) and gall bladder diseases 3.0%. Regarding the practices and plans of overweight and obese people to control weight, it was observed that nearly half of the rural subjects (48%) had no plans, 78.0% were in favour of either avoiding oily food (40.0%) or fasting once in a week (38.0%). Females were more in favour of fasting compared to males (14.3% males, 55.2% females).

Recommendation :

In the light of the findings of the present study in both the areas, following recommendations and suggestions can go a long way towards preventions & control of overweight and obesity.

1. Low caloric diet to be consumed to prevent and control overweight & obesity.
2. Avoidance of intake of additional food substances between the major meals

may be useful to control the overweight and obesity.

3. People leading sedentary life styles should do the physical exercise to lose the body weight.
4. Practices & plans to lose the weight like daily walking, exercise, skipping a meal in day, avoiding oily foods, fasting once in a week to be followed.
5. Information, education and communication (IEC) to be imparted about high risk factors, interventional activities to lose the body weight.

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