

## Research Article



## Cross Sectional Study to Assess the Impact of Dietary Pattern, Life Style and Physical Activity Leading to Obesity in Urban Population of Jaipur

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### ABSTRACT

Obesity is a condition in which excess body fat accumulated in the body and it can be measured by BMI. There are so many causes of obesity like more calorie consumption, sleeping disturbance, low physical activity, alcohol consumption, endocrine disruptors etc. There are so many diseases associated with obesity. They are Diabetes, Osteoarthritis, coronary heart disease, gall bladder disease, and hypertension. Obesity can be maintained by proper dietary habit, physical exercise, some medications to lose weight, etc. Obesity has reached epidemic proportions in India in the 21st century, with morbid obesity affecting 5% of the total India's population.

**Keywords:** BMI, diabetes, hypertension, coronary heart disease.

### INTRODUCTION

Obesity can be described as an imbalance between energy intake and expenditure such that excess energy is stored in fat cells, which enlarge or increase in number.<sup>1</sup> As per WHO Obesity is a medical condition in which excess body fat has accumulated to the extent that it may have an adverse effect on health, resulting in reduced life and/or increased health problems.<sup>2</sup>

#### Body Mass Index (BMI)

The BMI is a statistical measurement derived from the person weight and height. Although it is considered to be a useful way to estimate obesity, it does not measure the percentage of body fat.

The BMI measurement is not correct in all respect like a muscleman may have a high BMI but have much less fat than an unfit person whose BMI is lower.

But still generally, the BMI measurement can be a useful indicator for the average person's.

To calculate the index, there is a very simple formula:

$$BMI (kg/m^2) = \frac{Weight (kg)}{Height^2 (m)}$$

#### Classification of Obesity

**Table 1:** Classification of Obesity<sup>4</sup>

BMI	Classification
< 18.5	Underweight
18.5–22.9	Normal weight
23.0–24.9	Overweight
25 and above	Obesity

### RESEARCH AND METHODOLOGY

The following data was collected, calculated and shown in below Table 2.

**Table 2:** Summary of Demographics (n=150)

Sex	N	%
Male	78	52
Females	72	48
Age	N	150
	Mean (yrs)	29.13
	SD (yrs)	6.15
	CV (%)	21.10
Height	N	150
	Mean (cm)	167.75
	SD (cm)	7.29
	CV (%)	4.35
Weight	N	150
	Mean (Kgs)	72.57
	SD (Kgs)	6.62
	CV (%)	9.12
BMI	N	150
	Mean	26.04
	SD	1.57
	CV (%)	6.28



Questionnaire was prepared with a view of collecting data from the urban population about level of Physical activity, Dietary pattern, Habits, Life style, etc.

Questionnaires were distributed to a population selected by visiting Gyms, Health management centers, House of the person's, Hospitals, etc.

Subjects were also requested to sign the Informed

consent in order to confirm their willingness to participant in the study.

Data was collected form adults (Age 18-60 Yrs) as per protocol requirement and factors affecting the general health and wellbeing were collected with the aid of the distributed questionnaire to evaluate the study variables namely dietary pattern, Life style, Physical activity and its predisposition to Obesity.

**Flow Chart of Research and Methodology**



**RESULTS AND DISCUSSION**

The below Table 3 shows the percentage of people under Exclusive and Inclusive criteria.

**Table 3:** Status of Inclusion and Exclusion Criteria (n=150)

Inclusion Criteria	Yes		No	
	n	%	N	%
Is the subject aged between 18 to 60 (inclusive) years?	150	100	0	0
Subjects who have gained weight in past 6 months (due to lack of exercise, Medical condition, Hormonal disorders)	150	100	0	0
Exclusion Criteria	Yes		No	
	n	%	N	%
Pregnant or lactating women	0	0	150	100
People with physical or mental impairment	0	0	150	100

The below Table 4 shows the number and percentage distribution of profession status among population.



**Table 4:** Distribution of Profession status among urban population of Jaipur (n=150)

Category	N	%
Student	16	10.7
Business	31	20.7
Public sector	26	17.3
Private sector	66	44
Others (House wife)	11	7.3

The below Table 5 shows the number and percentage distribution of alcohol status among population.

**Table 5:** Distribution of Alcohol status among urban population of Jaipur (n=150)

Response	Yes		No	
	n	%	n	%
Does the subject drink alcohol?	53	35.3	97	64.7
<b>Level of Drinking</b>				
Level		N		%
Moderate		38		25.3
Heavy		9		6
Binge		6		4
Excessive		0		0
Others		0		0

The below Table 6 shows the number and percentage distribution of tobacco status among population.

**Table 6:** Distribution of Tobacco status among urban population of Jaipur (n=150)

Response	Yes		No			
		N	%	N	%	
Does the subject use tobacco?		32	21.3	118	78.7	
<b>Subject taking Tobacco In the form of</b>						
Form		N	%			
Smoke		28	18.7			
Chewable		4	2.6			
Both		0	0			
<b>Tobacco smoking status</b>						
Status		N	%			
Current smoker		29	19.3			
past smoker		0	0			
Passive smoking (Family & Friends)		3	2			
<b>Tobacco smoking status</b>						
Status	N	%				
Gutka	4	2.6				
Paanparag	0	0				
Tulsi	0	0				
Hans	0	0				

It cannot be concluded based on this study that smoking may have direct relation on obesity.

The below Table 7 shows the number and percentage distribution of Quality of Life status among population

**Table 7:** Distribution of Quality of Life status among urban population of Jaipur (n=150)

S. No.	Criteria	Response	n	%
1	How much sleep does the subject get in a day?	Less than five hours	2	1.333
		Five to seven hours	62	41.333
		Eight hours or more	68	45.333
		I hardly get sleep	18	12
2	About how much time does the subject spend on Computer/Listening music/TV/Video games on a weekend?	1 hour or less	24	16
		2 to 3 hours	32	21.333
		3 to 4 hours	41	27.333
		4 hours or more	53	35.333
3	How often does the subject exercise in a week?	Every day	44	29.333
		Once or Twice	25	16.7
		Three or Four times	10	6.7
		Rarely/ Never	71	47.333
4	What keeps the subject from being physically active?	No motivation to exercise from family	24	16
		His/her friends (They make him feel like it's not cool to exercise or be active)	9	6
		His/her confidence or self image	41	27.33
		lack of time	76	50.7

It can be concluded based on this study that less physical activity has direct effect on obesity.

The below Table 8 shows the number and percentage distribution of Dietary intake status among population.

**Table 8:** Distribution of Dietary intake status among urban population of Jaipur (n=150)

S. No.	Criteria	Response	N	%
1	How often does the subject eat breakfast?	Always	92	61.3
		Sometimes	24	16
		Rarely	27	18
		Never	7	4.7
2	At work, subject usually?	Bring your lunch from home	61	40.7
		Buy a meal from the cafeteria	59	39.3
		Buy fast food/snacks	24	16
		He/she skip lunch	6	4
3	How often does the subject eat fast food (e.g. McDonald's, Subway, Taco Bell, pizza, quick neighborhood takeaway, etc.)?	Every day	15	10
		Once or more times a week	55	36.7
		A few times a month	74	49.3
		Rarely/Never	6	4
4	Which of the following foods does the subject snack on most often?	Salty snacks: chips, crackers', etc	46	30.7
		Baked goods, cookies, donuts, snacks	42	28
		Other sweets: fruit snacks, candy, chocolate, ice-cream. etc.	37	24.7
		Fruit or vegetables	20	13.3
		Never/Rarely	5	3
5	How often does the subject eat fresh fruit?	Every day	28	19.7
		Once or more times a week	35	23.3
		A few times a month	54	36
		Rarely/ Never	33	22
6	How often does the subject eat when he/she is not really hungry?	Stressed	14	9.3
		Lonely/depressed	27	18
		Following a fast	46	30.7
		Never	63	42

It can be concluded based on this study that over eating may have direct effect on obesity.

## CONCLUSION

Data is collected from Adults (Aged 18-60 years) and factors affecting their general health and wellbeing (Physical activity, Dietary pattern, Life style) have been collected with the aid of questionnaires to evaluate study variables like Dietary pattern, lifestyle and its predisposition to Obesity (Weight gain leading to Obesity).

Based on BMI, 150 obese persons were identified and included in the survey.

Informed consent was collected from each subject who ensured their willingness to participate in the survey.

They shared information regarding their dietary patterns, lifestyle and physical activity.

By doing statistical analysis of the information obtained, it was found that a large percentage of obese persons take alcohol and fast food.

These people rarely take fresh fruits also.

It was also assessed that the percentage of obesity was more in private sectors compared to government or other job sectors.

From the survey it was found that persons having history of Diabetes as well as Heart disease, Arthritis and Asthma have more chance of obesity.

Regular exercise was also absent in many of these people and many get sleep harder than required hours.

They spend majority of their time with TV/Computer or Video games.

Despite being highly educated, most of these people have not taken any measures to reduce their body weight.

Hence, it is important to create awareness regarding the ill effects of obesity and the harm it can cause to each individual.

It is also required to make the general population aware of the importance of sleep, physical activity and proper healthy and balanced diet, in order to lead a healthy, long and stress free life.

## Future Scope

The survey gives an insight to the causes of obesity, which is mainly due to lifestyle changes, dietary patterns and lack of physical exercise.

By controlling above conditions, with regular exercise can reduce body weight, and ultimately reduce the risk of Diabetes, Hypertension etc.

Even though the people are well educated they are not aware of the risk of taking fast-food and alcohol.

This survey is conducted on Jaipur population only but it can be expanded to all India level.

The same method can be applied to compare obese persons in Urban as well as Rural population of India.

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