

# EFFECT OF DIETRY HABITES AND PHYSICAL ACTIVITY PATTERN ON NON COMMUNICABLE DISEASE AMONG COLLEGE GOING GIRLS

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**ABSTRACT:**The study was undertaken to assess **dietary habits and physical activity pattern on non communicable disease among college going girls**. Inadequate physical activity and unhealthy dietary intake established during youth may extend into adulthood and may increase risk for non-communicable diseases. This study aims to investigate the effect of dietary habits and physical activity pattern on non-communicable diseases on college going girls. A cross-sectional study was conducted which was based on primary data of 100 college going girls belonging to (19-25 Years) of age were randomly selected from Lucknow University. A data was ascertained by self structured questionnaire, and it comprises three parts: (1) Socio-demographic characteristics of the students (2) Dietary habits (3) physical activity pattern of the selected sample. In the result it was found that 70 percent respondents were age group of 19-22 years and 30 percent were 20-25 years of age group. Results shows that 41 percent respondents were come under the category of underweight (>18.5 BMI), 53 percent comes in normal weight category, 3 percent comes in over weight and remaining 3 percent comes under obese category. The study also revealed that 40 percent found underweight, 13 percent having eye illness, 20 percent facing menstruation related problems, 11 percent anemia, 4 percent high B.P, 3 percent obesity, 1 percent heart disease and remaining 7 percent found thyroid. Statistically, positive correlation found between dietary habits and non-communicable diseases. Statistically, positive correlation was observed between physical activity and non-communicable diseases among respondents and insignificant association was found.

**Keywords-** Dietary pattern, physical activity, Non - communicable disease and college going girls.

## I. INTRODUCTION

Noncommunicable diseases (NCDs) and their risk factors have exploded in recent years, posing a huge public health threat around the world. Noncommunicable diseases (NCDs) constitute a significant contributor to disease risk in developed countries, and their prevalence is quickly increasing in emerging countries. This is mostly due to urban growth demographic trends and changing population lifestyles. NCDs have devastating consequences in terms of premature morbidity, mortality, and economic loss.

More than two-thirds of all new occurrences of Noncommunicable diseases are caused by lifestyle-related risk factors such as an unhealthy diet heavy in saturated and trans fat, salt and sugar (notably in sweetened drinks), physical inactivity, tobacco use, and the use of alcohol and drugs. They play a role in the development of metabolic illnesses such hypertension, diabetes, hyperlipidemia, obesity, and overweight. Meanwhile, it is widely recognized that leading a healthy lifestyle helps to avoid sickness and promotes happiness. Weight control, physical recreation, and sleeping patterns are all healthy behaviors that have an impact on an individual's health. A healthy diet and regular physical activity can reduce at least 80% of cardiovascular disease, stroke, and type 2 diabetes, as well as 40% of cancer.

In most countries in the Eastern Mediterranean region (EMR), nutrition-related non communicable diseases (N-NCDs), particularly cardiovascular disease, diabetes, and cancer, are the major causes of morbidity and mortality. High blood pressure, elevated serum cholesterol levels, tobacco smoking, unhealthy eating habits, overweight or obesity, and physical inactivity are the key risk factors for these non communicable illnesses. Another element connected to N-NCDs in this region is demographic and socioeconomic status.

## II. RESEARCH METHODOLOGY: -

Methodology is the study of research methods, or more officially, "a clear and consistent scheme based on views, attitudes, and values that direct the choices researchers make." This includes Universe of the study, sample of the study, Data and Sources of Data, study's variables and analytical framework. The details are as follows;

- 1) **Population and Sample:** - To achieve the study's goals, a cross-sectional study was conducted using primary data from 100 college- aged girls from Lucknow University, who were selected randomly.
- 2) **Data and Sources of Data:** - For data collection, a well-structured questionnaire was created. Questions about dietary preferences, fast-food intake, beverages, and sweets were used to analyze dietary habits. Physical activity was determined by asking about it on a daily basis. The BMI of chosen respondents was calculated using anthropometric measurements.
- 3) **Theoretical framework:** - Variables of the study contains dependent and independent variable. In this study non communicable disease are dependent variable and food habits and exercise are independent variables.

Eating habits (also known as food habits) refer to why and how people eat, what foods they consume, and with whom they eat, as well as how they get, store, use, and discard food. Individuals' eating habits are influenced by a variety of factors including social, cultural, religious, economic, environmental, and political considerations.

Exercise is a movement or activity that you do in order to stay healthy or to become skilled at something. Exercise is the process of training the body to increase its function and fitness. Physical activity refers to any energy expenditure caused by body movement via the skeletal muscles; as such, it involves the full spectrum of activity from very low resting levels to maximal effort. Physical activity includes exercise as a component. Exercise is distinguished by the fact that it is a systematic activity that is expressly designed to improve and maintain physical fitness. Physical conditioning is the process of adapting the body and its various systems to a fitness routine in order to improve physical fitness.

### 4) Statistical Tools:-

#### ➤ Arithmetic Mean:-

The measures of central tendency enable us to make a statistical summary of the enormous organized data. One such method of measure of **central tendency** in **statistics** is the arithmetic mean. This condensation of a large amount of data into a single value is known as measures of central tendency.

Arithmetic mean is the sum of all observations divided by a number of observations.

Arithmetic mean formula = {Sum of Observation} ÷ {Total numbers of Observations}

Arithmetic mean formula =  $X = \frac{\sum X_i}{n}$  where i varies from 1 to n.

#### ➤ Standard deviation:-

**Standard Deviation** is a measure which shows how much variation (such as spread, dispersion, spread,) from the mean exists. The standard deviation indicates a "typical" deviation from the mean. It is a popular measure of variability because it returns to the original units of measure of the data set. Like the variance, if the data points are close to the mean, there is a small variation whereas the data points are highly spread out from the mean, then it has a high variance. Standard deviation calculates the extent to which the values differ from the average. Standard Deviation, the most widely used measure of dispersion, is based on all values. Therefore a change in even one value affects the value of standard deviation. It is independent of origin but not of scale. It is also useful in certain advanced statistical problems.

### Standard Deviation Formula

The population standard deviation formula is given as:

$$\sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (X_i - \mu)^2} \quad \sigma = \sqrt{\frac{1}{N} \sum_{i=1}^N (X_i - \mu)^2}$$

Here,

$\sigma$  = Population standard deviation

N = Number of observations in population

$X_i$  = ith observation in the population

$\mu$  = Population mean

Similarly, the sample standard deviation formula is:

$$s = \sqrt{\frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2} \quad s = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$$

Here,

$s$  = Sample standard deviation

$n$  = Number of observations in sample

$x_i$  =  $i$ th observation in the sample

$\bar{x}$  = Sample mean

**Variance Formula:**

The population variance formula is given by:

$$\sigma^2 = \frac{1}{N} \sum_{i=1}^N (X_i - \mu)^2 \quad \sigma^2 = \frac{1}{N} \sum_{i=1}^N (X_i - \mu)^2$$

The sample variance formula is given by:

$$s^2 = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$$

### ➤ T-Test:-

A t-test is a type of inferential statistic used to determine if there is a significant difference between the means of two groups, which may be related in certain features. It is mostly used when the data sets, like the data set recorded as the outcome from flipping a coin 100 times, would follow a normal distribution and may have unknown variances. A t-test is used as a hypothesis testing tool, which allows testing of an assumption applicable to a population.

A t-test looks at the t-statistic, the t-distribution values, and the degrees of freedom to determine the statistical significance. To conduct a test with three or more means, one must use an analysis of variance.

The formula for the two-sample t-test (a.k.a. the Student's t-test) is shown below.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2 \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

In this formula,  $t$  is the t-value,  $\bar{x}_1$  and  $\bar{x}_2$  are the means of the two groups being compared,  $s_2$  is the pooled standard error of the two groups, and  $n_1$  and  $n_2$  are the number of observations in each of the groups.

A larger  $t$ -value shows that the difference between group means is greater than the pooled standard error, indicating a more significant difference between the groups.

You can compare your calculated  $t$ -value against the values in a critical value chart to determine whether your  $t$ -value is greater than what would be expected by chance. If so, you can reject the null hypothesis and conclude that the two groups are in fact different.

## III. RESULTS AND DISCUSSION

**Table 3.1-Distribution of the respondents according to Demographic Characteristics**

<b>Socio economic status</b>		
Upper class	32	32
Middle class	42	42
Lower class	26	26
Total	100	100
<b>Body mass index</b>		
>18.5 underweight	41	41
18.5-25 normal weight	53	53
25-30 over weight	3	3
More than 30 obesity	3	3
Total	100	100

Table 3.1 As regard the age of respondents, it was observed that out of 100 respondent 70 percent were age group of 19-22 years and 30 percent respondent were age group of 20-25 years. While considering the mean age 21.40 years. **Mohammad Imad (2016)** also stated that the mean age ( $\pm$ SD) of students was 20.3 ( $\pm$ 2.1) years. From the above shows table 32 percent belonging to upper class, 42 percent belonging to middle and 26 percent belonging to the lower socio economic status. Body mass index of respondent is shown in above table, results shows that 41 percent respondents are come under the category of underweight ( $>18.5$  BMI), 53 Percent comes in normal weight category whereas 3 percent comes in over weight and remaining 3 percent was come in obese category. **Pragati Chabra (2007)** also observed that the mean BMI of the entire sample was  $22.14 \pm 4.61$ . It was higher among females, urban residents, and the higher-income group. Overall, 49.7% of the 3,428 subjects had a normal nutritional status, 24.8% were underweight, 19.4% overweight, and 6.1% obese. The prevalence of underweight was higher in rural areas (38.5%) and among the lower-income group (39.9%), while overweight and obesity were more common in urban residents (22.7% and 7.5% respectively), among females (21.7% and 7.7%), and the higher-income group (31.8% and 11%) ( $p < 0.05$ ). (**Al Turki, 2007**).

**Table 3.2- Comparative analysis of food habits of college going girls belonging to different age groups**

Food habits	Age (in years)		Total	Mean	Standard deviation
	19-22	22-25			
Non vegetarian	14	20	34	22.26	1.50
Vegetarian	35	13	58	17.63	2.93
Eggetarian	4	4	8	22.00	1.50
Total	53	47	100	21.91	1.50

The above table shows the comparative analysis of food habits of college going girls belonging to different age groups the mean age of respondents was higher (22.26) among non vegetarian lower (17.63) in vegetarian respondent.

Table 3.3- comparative analysis of fast foods of college going girls belonging to different age groups

Fast food	Age (in years)		Total	Mean	Standard deviation
	19-22	22-25			
Excessive	5	1	6	21.00	1.60
Normal	42	19	61	17.00	3.25
Less	14	6	20	21.40	1.53
None	9	4	13	21.40	1.53
Total	70	30	100	20.99	1.60
<b>Sweets</b>					
Excessive	2	1	3	21.50	1.52
Normal	41	17	58	21.37	1.54
Less	16	8	24	21.50	1.52
None	11	4	15	21.30	1.55
Total	70	30	100	21.40	1.53
<b>Cold drink</b>					
Excessive	7	-	7	20.50	1.73
Normal	35	16	51	21.44	1.53
Less	14	9	23	21.67	1.51
None	14	5	19	21.28	1.55
Total	70	30	100	21.40	1.53

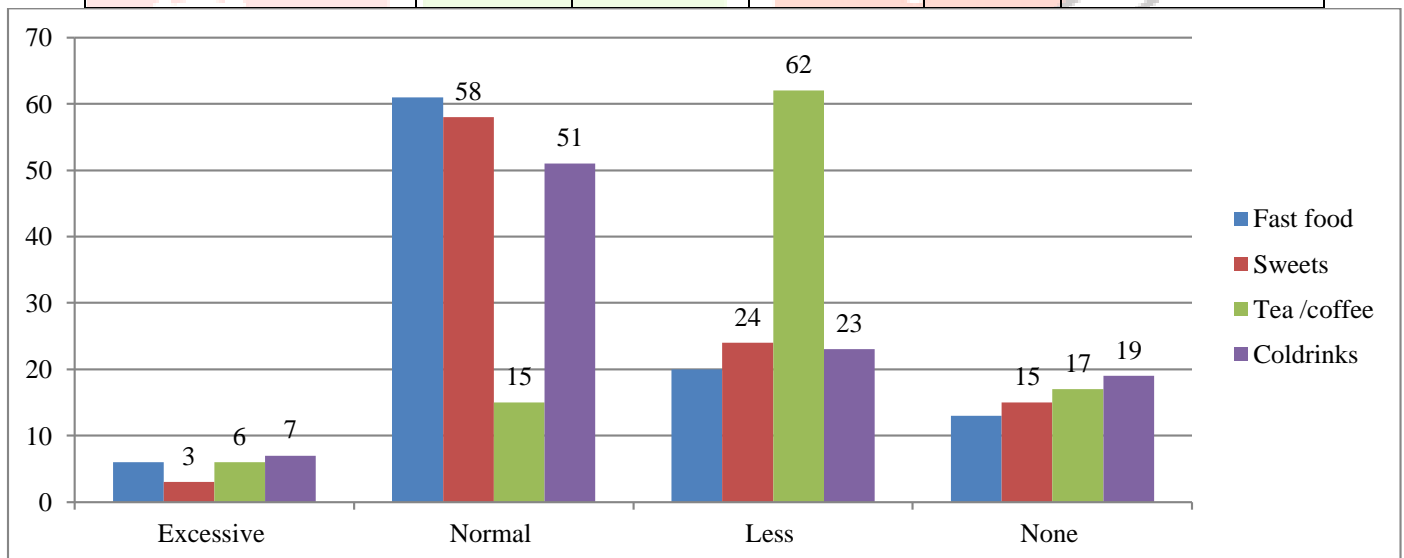
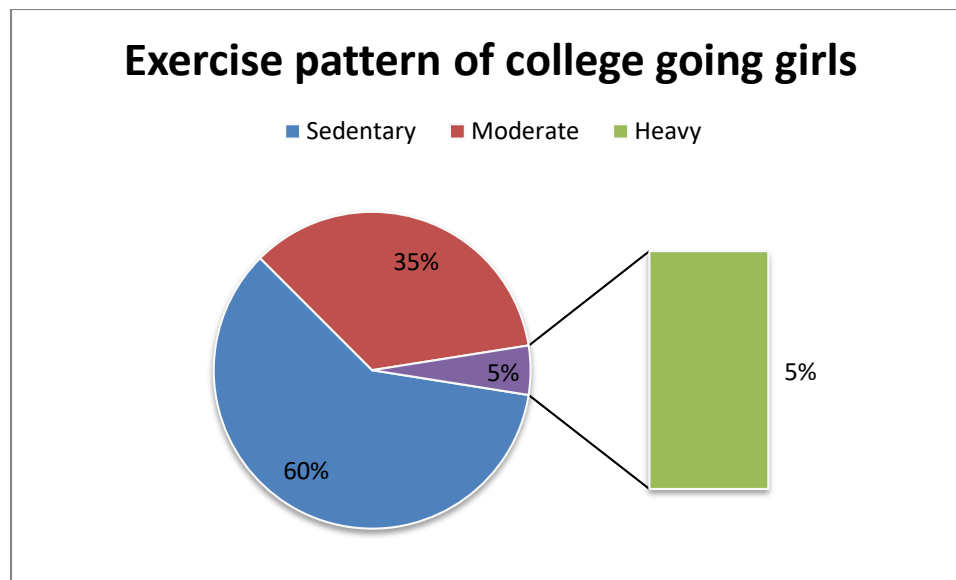


Figure:1 distribution of the respondents according to their dietary pattern



**Figure-2 Comparative analysis of life style factors of college going girls belonging to different age groups**

The above figure conveys the comparative analysis of exercise pattern of college going girls belonging to different age groups the mean age of respondent was higher(22.00) among respondent who perform moderate and heavy exercises.

**Table 3.4-correlation between dietary pattern and non communicable diseases of college going girls**

Dietary pattern	Non-Communicable diseases					
	Mean	Standard deviation	Mean	Standard deviation	t- value	P value
Food habits	21.91	1.50	21.43	1.53	2.24	0.026*
Fast food	20.99	1.60	21.43	1.53	1.98	0.048*
Sweets	21.40	1.53	21.43	1.53	0.13	0.889
Cold drinks	21.40	1.53	21.43	1.53	0.13	0.889
Tea/ coffee	21.37	1.54	21.43	1.53	0.27	0.782

The above table highlights the relationship of dietary pattern followed by the respondent and occurrence of non communicable diseases. Mean found in dietary pattern in food habit (21.9), fast food (20.99), sweets (21.40), cold drink (21.40), and in tea/coffee (21.37) respectively.

Statistically, positive correlation found between Dietary pattern and Non communicable diseases and association was found to be significant of food habits and fast food intake with NCD while sweets, cold drink, tea/coffee were associated insignificant. **Monera Bassuny (2015)**. It was clear that there was significant and strong positive correlation between Quality of life of the studies subjects and their health satisfaction, having breakfast and number of meal / day ( $P < 0.1$ ). Meanwhile, negative correlation between quality of life and fast food, chips and consumption of spicy and salty food were observed. As regard students' health satisfaction, there were strong positive correlation were observed in relation to breakfast, number of meals, fruit, vegetable and soft drinks consumption / day ( $P < 0.1$ ). According to the World Health Organization (WHO), this cluster of diseases accounted for 36 million (63%) of the 57 million total deaths in 2008 were due to non-communicable diseases, comprising mainly cardiovascular diseases (48% of non-communicable diseases), cancers (21%), chronic respiratory diseases (12%) and diabetes (3.5%). These major non communicable diseases share four behavioral risk factors: tobacco use, unhealthy diet, physical inactivity and harmful use of alcohol. **WHO (2010)**,

also inline the same result. Regarding consumption of fast-food, it appeared that children with higher BMI's were actually consuming lesser fast-food ( $p=0.001$ ) which can best be explained on the basis of dietary modification instituted at home considering their being overweight. Adding extra table salt was seen to cause a rise in systolic B.P ( $p=0.000$ ) (Freedman DS).

#### IV. CONCLUSION:-

Awareness related to healthy dietary habits and physical activity pattern among people should be disseminated through different formal and informal programs that can help to reduce the risk of non-communicable diseases among them.

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