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IMPACT OF NUTRITION AND EXERCISE ON EDUCATION AND HEALTH OF YOUTH – A REPORT

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ABSTRACT

Nutrition and health of young children is always a reason for concern in recent days. Since the past two decades a change in life style, changes in food intake, increase sedentary living and rat race for being a topper has led to increasing incidences of diseases and psychological disorders in young individuals. There are many incidences in recent days, indicating hyper tension and increased sensitivity in children that have led to their death. Many youth between the age group of 16 to 22 years have reported health issues like Anemia, low BP, hypertension, sleeplessness which have affected their performance at college. Taking into note all these situations around, a sample case study was done in which data was collected from 50 students between the age group 16 to 22. A questioner was prepared and the collected data was analyzed. It was observed that only 50% of the students consume 3 meals per day, 37% of the students were skipping their breakfast which has affected their performance at school or college. Around 53% of the students had some or the other physical activity and such students no such issues as sleeplessness. The present study has revealed that students having good food intake, having a number of small meals, and good sleeping time can excel in their education. A stress-free environment and a good support system at home are required for today's youth to lead a healthy life.

Key words: Nutrition and health, Health of youth, Effect of life style on health, Effect of stress on health, Food intake and health.

INTRODUCTION

India is one of the most populated countries that has one-third of its population as youth, who are of the age group of 10 to 24 years. These people account for around 253 million people [1] in the world. And it is essential to ensure that this group becomes a part of the constructive force that can contribute to the growth of a nation. Their well being, their knowledge, their attitudes and skill transform them into competent individuals [2]. Many researchers have studied adolescent health issues in our country and have identified that they suffer from issues like under nutrition or over nutrition, stress, anxiety, some get addicted to alcohol, tobacco while few have a high risk of sexual behaviors and intentional violence [3-6].

To overcome these issues, healthy living is essential which includes, consuming a healthy diet, having a meal plan, exercise and social interactions. It has been observed that adolescents know about healthy eating and the problems that they can get out of unhealthy eating habits [7]. A minimum of 3 times meal with healthy snacks is recommended for youth. Along with a healthy diet youth also need physical activity. Since the past two decades a change in life style, changes in food intake, increase sedentary living and rat race for being a topper has led to increasing incidences of diseases and psychological disorders in young individuals. A healthy body is a the temple for healthy mind [8]. Few hours of physical activity is known to increase the cognitive skills of people and also contribute to their increased academic performance [9,10]. In recent days many incidents of youth suffering from hypertension, sleeplessness, increased crime, and also increased death rate is observed [3]. WHO reports stated that around 1.1 million adolescent children die every year which accounts for nearly 3000 deaths every day [11] and WHO recommended at least 60 minutes of daily exercise for healthy living.

Few reports have shown that female students face slightly more stress than their fellow male students [12]. This level of stress is due to the present education system which pose them increase challenges, high expectations, long study hours etc [13,14]. Stress deteriorates immune system [15] and change in life style, diet and exercise is reported to help increase in immune responsiveness [16]. Effect of stress on heart rate variability is due to stress during exams [17], and also the effect of High power Resonance Frequency from mobile phones on health [18] indicates that over pressurizing during exams and over use of mobile phones for relaxation both can effect functioning of heart. Keeping the above issues, a survey was conducted in which data was collected from 50 youth between the age group of 16 to 22 years and the data was analyzed in terms of healthy eating habits, exercise, academic performance and health issues if any.

STUDY METHOD

In the present study, a survey was conduction by preparing questioner which comprises of variables like: Age, Gender, Number of meals per day, Whether they are consuming breakfast or skipping it, Involvement in sports-related activities, Sedentary time (hours) - the time which they sit which can be in class or at home, Sleeping time (Hours that they sleep), their wake up time, Education status- whether students are excellent, good, average or poor performers and Health issues if any. A questioner was prepared having all these options listed and youth between the age group of 16 to 22 years were asked to fill their details. The name of students is not asked as the questioner had health issues if any and hence name is to be kept anonymous. Both male and female students were asked to fill their details and among the 50 students 27 were females and 23 were males. Among them 10 girls are of the age of 16 years, 4 are 17 years, 4 are 18 years, 4 are of 19 years, two each of 20 and 21 years and 3 girls are of 22 years. Among the boys, 6 are of 16 years, 4 of 17 years, 2 of 18 years, 4 are of 19 years, 5 are of 20 years and 1 each of 21 and 22 years.

DATA ANALYSIS METHODS

Mean: Mean refers to an intermediate value between a discrete set of numbers. The equation used for calculating the mean for the data set under analysis is :

$$\bar{x} = \frac{(\sum x)}{n}$$

Where, X is the value of variables and n is the total number of samples

Median: It is the value that divides the sample into two halves. It is the value of the data sample whose physical location is between the rest of the number.

Mode: It the value of the data set that has the highest number of recurrences.

Range: It is the range of data set under investigation which is the difference between the largest and the smallest value.

Variance: It is the expectation of the squared deviation of a variable from its mean. It indicates how far a set of numbers are spread out from its average value. It is square of standard deviation.

Standard deviation: It is the measure of the amount of variation or dispersion of a set of value. Low standard deviation indicates that the values are close to mean, while a high value indicates that the values are spread out over a wider range. Formula used to Calculate standard deviation is:

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

Where $\{x_1, x_2, \dots, x_N\}$ are the observed values of the sample items, \bar{x} is the mean value of these observations, and N is the number of observations in the sample.

Mean deviation: It is the average of absolute deviations or the positive difference of given data. The absolute values of the difference between the data points and their central tendency are totaled and divided by the number of data points.

Coefficient of variation (CV): It is defined as the ratio of the standard deviation to mean. The equation used to calculate Coefficient of variation is:

$$\text{Coefficient of variation \%CV} = \text{Standard deviation} \times 100 / \text{Mean}$$

Percentage relative mean deviation (%RMD): The relative average deviation of a data set is defined as the mean deviation divided by the arithmetic mean, multiplied by 100. High values of %CV and %RMD indicates a poor set of values.

$$\text{Percentage relative mean deviation \%RMD} = \text{Mean deviation} \times 100 / \text{M}$$

RESULTS AND DISCUSSION

The data obtained from people is used analyzed for mean, median, mode, range, variance, standard deviation, mean deviation, coefficient of variation and Percentage relative mean deviation and are listed in table 1. All the samples were initially analyzed followed by analysis of girls and boys separately. From the mean for a number of meals per day, girls had lower mean value as compared to boys indicating their decrease in meal count per day. While mean values for sedentary time and sleeping time for girls are less than boys indicating that they do are slightly active than boys and girls sleep little more than boys indicating good health. The mean value for girls regarding wake up time indicates that girls wake up early than boys which indicates good life style.

Table 1: Statistical analysis of samples

Analysis for all samples				
Analysis	No. of meals	Sedentary time	Sleeping time	Wake up time
Mean	3.1666	10.7333	6.5333	6.82
Median	3.0000	11.5000	6.0000	7.00
Mode	3.0000	12.0000	6.0000	6 and 8
Range	2.0000	6.0000	3.0000	3.50
Variance	0.4722	4.3955	0.9823	
Standard deviation	0.6872	2.0965	0.9909	
Mean deviation	0.5556	1.8778	0.8711	
%CV	21.7015	19.5326	15.1669	
%RMD	17.5582	17.4951	13.3338	
For girls				
Analysis	No. of meals	Sedentary time	Sleeping time	Wake up time
Mean	2.8750	10.5625	6.6250	6.4687
Median	3.0000	10.0000	6.0000	6.3000
Mode	3.0000	8.0000	7.0000	6.0000
Range	2.0000	6.0000	3.0000	3.0000
Variance	0.5166	5.3291	1.1833	
Standard deviation	0.7180	2.3084	1.0877	

deviation				
Mean deviation	0.5468	2.0078	0.9531	
%CV	24.9739	114.9716	16.4181	
%RMD	19.7826	19.0088	14.3864	
For Boys				
Analysis	No. of meals	Sedentary time	Sleeping time	Wake up time
Mean	3.5000	10.9285	6.4285	7.2214
Median	3.5000	12.0000	6.0000	7.3000
Mode	3 to 4	12.0000	6.0000	7.3000
Range	1.0000	6.0000	3.0000	2.3000
Variance	0.2500	3.6377	0.8163	
Standard deviation	0.5000	1.9073	0.9035	
Mean deviation	0.5000	1.6612	0.7755	
%CV	14.2857	17.4524	14.0546	
%RMD	14.2857	15.2003	12.0635	

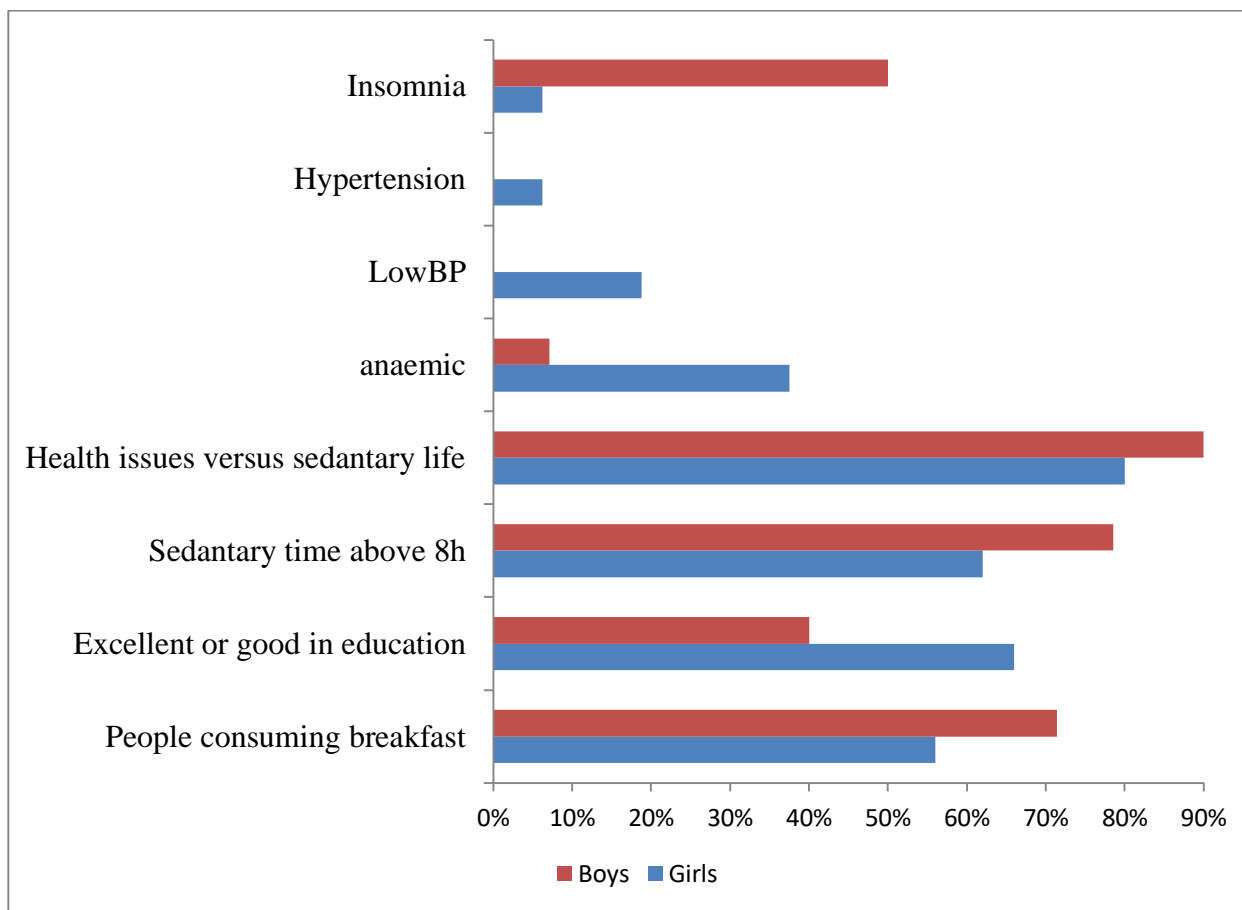
The median and mode values for all the variables are almost the same. Variance for a number of meals and sleeping time is less indicating the good choice of range and not much variability, while a variance of 4.39 indicates a stretch of variables. The mean deviation for the number of meals and sleeping time is less than 1 while for sedentary time spent if more. A low percentage of %CV and %RMD indicates that the values are a good set.

ANALYSIS OF HEALTH OF YOUTH

The health of girls and boys under study are analyzed and compared for their food intake against academic performance and health issues. Among the girls only 56.25% consumed breakfast while 71.42% of boys consumed breakfast. Around 66.66% of girls were good at education while only 40 % were good at education. This can be correlated to the sedentary life. Only 62.5% of girls had a sedentary life for more than 8 hours, while 78.57% of boys were leading a sedentary life. Most of the boys spend time sitting beyond college hours while few girls had a sedentary life. 50% of girls were involved in sports while among the samples studied only 35.71% involved in sports. Among the people having sedentary life, 80% of them had health issues while 90% of boys had health issues due to sedentary life. The most prominent health issues among girls are anemic nature and low BP. Around 37.5% of girls are anemic while it is just 7.14% in boys. This can be related to their nutritional status. Boys did not have issues of low BP or hypertension, while 6.25% of girls had this issue. These girls are prone to problems related to heart and with time they may experience deterioration in the functioning of immune system. Around 50% of boys had sleeping disorder while only 6.25% of girls had the disorder. This can be due to other activities that they are engaged in along with sedentary life while girls had other activities engaged and hence less of insomnia problems. The analysis of these results is presented in figure 1.

CONCLUSION

Among the collected data, it was observed that 50% of the students consumed only 3 meals per day while 16.6 % of them have 2 meals indicating that they skip breakfast. Around 37% of the students were skipping their breakfast, which has affected their performance at school or college and few of these also have the issues of insomnia. Around 53% of the students had some or the other physical activity and such students no such issues as sleeplessness. Students having a good sleep of 6 to 8 hours have performed well in their academics too and have no such health issues. Girls were found to suffer from health issues like anemia and low BP, while 50% of boys had sleeping disorders. Youth having a good life style and physical activity were found to be good performers while youth having sedentary life and skipped food had health issues and are poor performers. To overcome all these stress-free environment and a good support system at home is required for today's youth to lead a healthy life.

Figure 1: Health issues, sedentary time and food habits analysis

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