

Assessment of the Type of diet affecting Students' Academic Performance in MSU Campus, Shah Alam: A Cross Sectional Study

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ABSTRACT

Introduction: A good food intake is central to a basic physical and mental state which can directly affect students' academic performances. An imbalanced routine diet often has negative effects on the student's performance in the academic and non-academic activities. The present study was designed to evaluate the type of diet that could be linked to academic performances among the students. **Material and Methods:** In this cross-sectional study, a total of 80 students from MSU Shah Alam were randomly enrolled. A questionnaire containing biodata, type of diet and academic grades was administered to each of the respondents. The questionnaires were later collected, and the data obtained was analyzed. **Results:** The results showed that, of the participants, 70% were females and 30% males. Overall, only 36 % of the respondents were dieting (20% of which take balanced diet), while 64% were not dieting. 15% of the dieting respondents were on excellent academic performance as against only 9% in non-dieting ones. Poor academic performance was recorded in 47% of the non-dieting subjects as against only 6% in dieting ones. Majority of those dieting (58%) were on good academic performance. **Conclusion:** The results suggest that balanced diet has a major contribution to students' high academic performances.

Keywords

Type of Diet, Academic Performance, Dieting.

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Introduction

Healthy diet habits have positive effects ; however, students can especially benefit more from meeting the normal nutritional demands. In today's world, it is not a mystery if there is an effect on the physical and mental health that comes from the nutritional intake by students. People who keep themselves well-nourished would be fit to get involved efficiently in many activities. Moreover, the healthy diet will also prevent the body from diseases and provide the energy required for optimal attentiveness and focus with resulting effect on their overall performances. In this regard, the knowledge about nutrition and healthy diet among students becomes even more important as a result of the growing concern about having a healthy lifestyle. This study attempted to address the possibility of a relationship between the type of diet students take and their academic performances.

There are different types of dieting practiced world-wide. This include, balanced diet, vegetarian, non-vegetarian, raw diet, detox diet, Atkins diet, and a lot more. Christian Nordqvist reported that a diet could be termed as a set of options of eat and drink in which the kind and amount of food one eats is intended to achieve weight regulation as a lifestyle. A well-planned diet will meet the vitamin and mineral demands. Supplements will benefit when diet is insufficient or has gross deficiency. The connection between good health and good food nutrition is well recognized. A

good nutrition also could boost mental and physical performances.

Water on the other hand, is one of the important factors in diet. According to Tarulli et al. (2014) the human body can survive for few weeks without food but not without water as it is made up of 50 to 75 per cent of water. Water forms the base for all the body fluids and is controlled in lean muscle, fat and bones. As the human body doesn't store water, then the needs for everyday supply to make up the losses are required from the lungs, skin, urine and feces and the requirement depends on the body itself as per size, the weather, the food intake and the daily routine level. The importance of water in human body is to maintain good health

and integrity in all the cells in the body, to keep the liquidity of blood to flow through blood vessels and regulate body temperature by means of sweating, enable digestion and by preventing constipation.

According to WHO, a proper nourishment is a responsibility of every individual. It must not be a luxury or a privilege for the chosen few. Nutritionally balanced meals help the body to boost the energy level and enhance the immune function and the recovery process. Good nutrition provides optimum calories, nutrients which the body needs for energy and wellness. In addition, the nutrients found in food are needed by the body for its growth, to repair itself, and to resource itself with energy. The student needs a good nutritional food

so that the performance on their academic or non-academic achievements are met.

The relationship between nutrition and brain function have been the main focus of many research and most of their observations have shown the impact of proper diet as a foundations

on normal brain functions. Study of neurotransmitters in conjunction with nutrition suggested that the brain cannot be viewed as an autonomous organ, free from other metabolic processes

but instead, it needs to be seen as being affected by nutrition, the concentration of amino acids and choline in the blood which made the brain create and use many of its neurotransmitters such as serotonin, acetylcholine, dopamine, and norepinephrine. Food consumption is vital to the brain being able to make the right amount of amino acids and choline. The human brain needs sufficient energy, specifically glucose and variety of micronutrient to perform cognitive function. Improvement in the nutritional quality of student's diet are associated with academically beneficial gains but have not been repeatedly and usually correlated to increased academic achievement. Concrete links between foods consumption either at large or specific foods and academic performance have not been established, likely because of the complex nature of the variables, the abundant confounders, and the longitudinal design necessary to understand the enduring effects 6.

Florence and colleagues observed that, students who had better nutritional were significantly less likely to fail learning assessment 7. On the other hand, students who were overweight or obese, but not necessarily unhealthy, perform lower academically than their normal weight counterparts 8. A regular, balanced breakfast offers many health benefits to the students, including safeguarding that they consume suitable calories to support growth and providing a variety of vitamins and minerals to prevent deficiencies 9.

All available research reviews support the hypothesis that students' performances depend on different socio-economic, psychological, and environmental factors. The present study was undertaken to assess the effect of diet types on academic performance of a cross section of students at Management and Science University, Shah Alam campus.

Materials And Methods

Study design

This study is a cross-sectional by design with target population as MSU students in the Shah Alam campus.

Data collection

Collection of data was done using a pre-validated English structured questionnaire. The data was obtained directly from the students after filling informed consent forms. All the respondents were fully informed about the purpose of the study and were given the liberty to choose freely to participate in the study without any coercion. The questionnaires were then retrieved and the data analysed.

ETHICAL APPROVAL

The study approved by the Ethical Committee of International Medical School, Management and Science University. for reviewing and approval proposes as an ethical clearance.

Data Analysis

The data collected was systematically arranged and tabulated for the purpose of analyses. The data was analysed using the Microsoft Excel version 2010 and presented in pie chart and histogram as percent (%).

Results

Figure 1 (A and B) summarizes the respondents by gender and types of dieting. The female respondents outnumbered the males. In both genders, the number of those not dieting is more than those dieting.

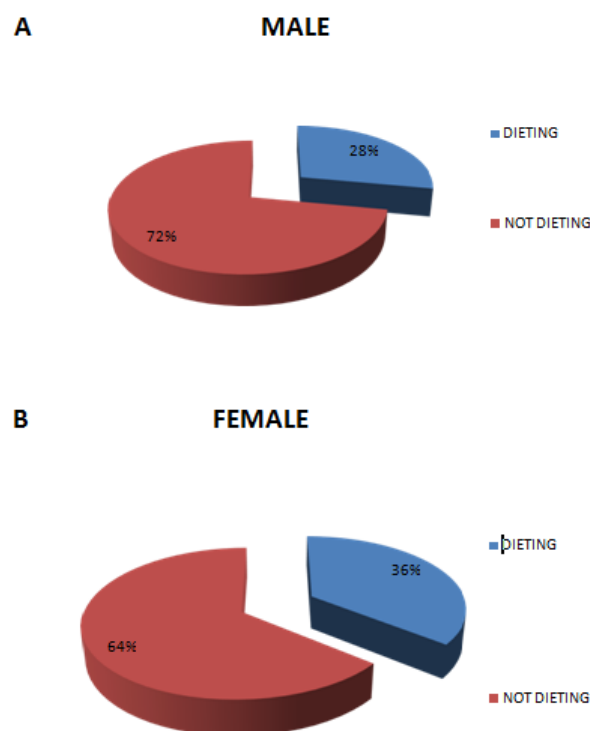


Figure 1: The percentage of respondents and the types of diet. A, male respondents (n= 24); B, female respondents (n=56)

Figure 2 summarizes the types of dieting the respondent were on. Overall, majority of respondents were not dieting. However, large number of them were on balanced diet (n=16), making this group the second largest in the distribution.

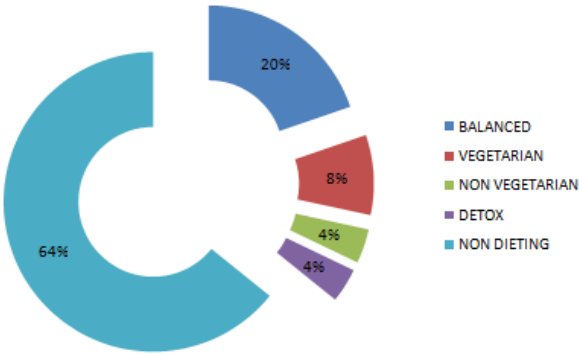


Figure 2: Shows the different diet types the respondents (n=80) were on irrespective of the gender.

Figure 3 depicts the CGPA graded distribution of the respondents by types of diet. Overall, those on balanced diet had the highest number of excellent graders followed by vegetarians. Interestingly, those on detox diet were above average though none had excellent grade. Poor graders were highest among the non-dieting respondents (Figure 4). Surprisingly, very few of the non-dieting (9%) had excellent grade (Figure 4).

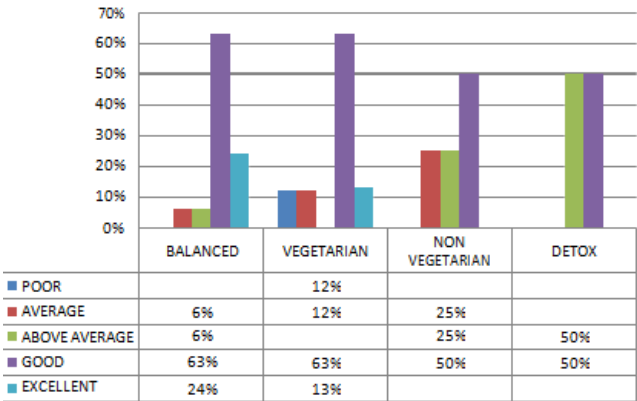


Figure 3. CGPA grades distribution of the respondents (n=80) according to the types of diet.

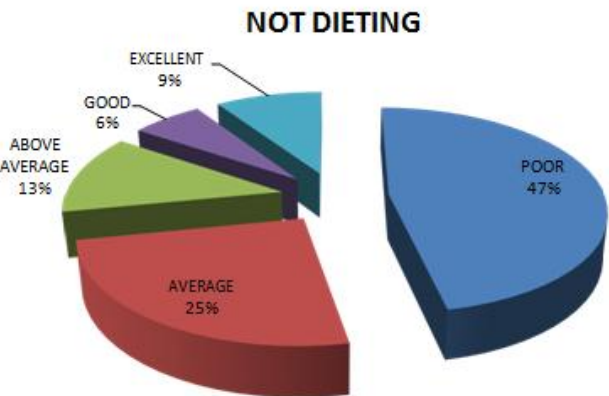


Figure 4: CGPA grades of respondents not dieting (n=51)

Figure 5 depicts the respondents' sport activities participation by types of diet. Larger percentage of those not dieting (69%) were not active in sports. Most of those dieting were active participants in sports. The respondents

who participated in active sports (97%) were more likely to exercise than those who did not.

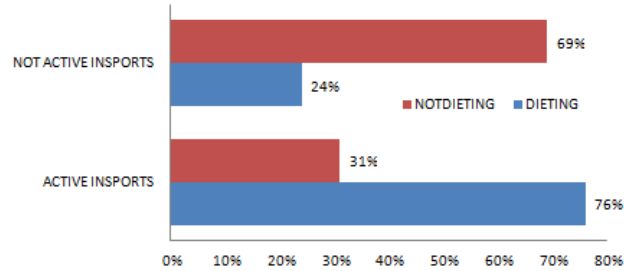


Figure 5: CGPA grades of respondents not dieting (n=51)

Discussion

Several studies were carried out with differing perspective of assessing the effect of diet on students' academic performance 6,7,9-19. However, most of the studies vary significantly with the present study. The findings in this study revealed the respondents' type of diet (dieting or non-dieting) influence their academic and physical performances. It is interesting to note that, students on diet, had a good to excellent CGPA grade in exams compare to the students who are not dieting. This finding conforms with previous reports by Chinyoka (2014), Uwannah (2018), and Kleiman et al. (2002) 12,14,19, however, Chinyoka and Uwannah studies were performed on primary and secondary school students. Furthermore, skipping meal, especially breakfast, reported to affect cognitive function in students, was not observed in this study (data not shown). Similar findings of breakfast skipping effect on academic performance was reported by Arshad et al. (2014) in university students 15. A regular, balanced breakfast offers many health benefits to the students, including safeguarding that they consume suitable calories to support growth and providing a variety of vitamins and minerals to prevent deficiencies. The breakfast programs have been shown to improve nutrition status among students who are measured to be at nutritional risk. The relationship between breakfast and academic performance has been the most researched. Breakfast has been shown to enhance academic performance by improving cognitive functions such as memory and neural efficiency and the breakfast programs have been shown to reduce absenteeism and tardiness 15,19,23-25. Furthermore, we observed that, those on balanced diet were more on the excellent CGPA grade (Figure 3) compared to the rest, and most of those who were not dieting were on poor CGPA grade (Figure 4). This further support the fact that diet, especially balanced one, influence academic performance 14-15,19. In addition, non-dieting respondents showed reluctance to participate in sport activity compared to those dieting. This supports previous reports that healthy diet facilitates motor development and functions 20-22. This could in part related to the observation (data not shown) that, those who were dieting can focus in lecture during the first 30 minutes more than those not dieting. Overall, dieting has a central role in growth, development and maintenance of functions of central nervous system which translate to high academic, physical and mental states of an individual.

Conclusion

In conclusion, our data suggest that balanced diet has a major contribution to students' academic, physical and mental performances.

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Conflict Of Interest

The authors declare no conflict of interest

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