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Health Problems Resulting from Dietary Patterns and Food Choices in Undergraduates

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ABSTRACT: The transition to college from home can have both positive and negative effects. Positive effects include developing independence, lifelong friendships and networking. However, when the outcome of the life transition is positive (such as gaining new skills and paid employment), this experience can still be unpleasant and associated with life dissatisfaction [1]. Some examples of challenges refer to academic, social, studental-emotional and institutional adjustments [2]. Change is often a cause of uncertainty, which in turn can induce higher levels of stress and anxiety [3]. The transition to institutions from home may affect mood and overall mental health. This is a period of increased risk of onset of mental health problems [4], particularly for the onset of depression and anxiety [5]. Diet quality has lowered for undergraduates viz. pizzas, pastas, noodles, burgers, sandwiches rather than home food has changed health effects on students

KEYWORDS: health effects, diet quality, food choices, students, undergraduates, health, college, institution

I. INTRODUCTION

A healthy diet can improve and maintain health, which can include aspects of mental and physical health.^[2] Specific diets, such as the DASH diet, can be used in treatment and management of chronic conditions.^[2]

Dietary recommendations exist for many different countries, and they usually emphasise a balanced diet which is culturally appropriate. These recommendation are different from dietary reference values which provide information about the prevention of nutrient deficiencies.¹

Exclusionary diets are diets with certain groups or specific types of food avoided, either due to health considerations or by choice.^[2] Many do not eat food from animal sources to varying degrees (e.g. flexitarianism, pescetarianism, vegetarianism, and veganism) for health reasons, issues surrounding morality, or to reduce their studental impact on the environment.^[3] People on a balanced vegetarian or vegan diet can obtain adequate nutrition, but may need to specifically focus on consuming specific nutrients, such as protein, iron, calcium, zinc, and vitamin B₁₂.^{[4][2][5]} Raw foodism and intuitive eating are other approaches to dietary choices. Education, income, local availability, and mental health are all major factors for dietary choices.^[2]

Examples of dietary interventions that were used included individualized dietary counselling, group dietary classes and standardized dietary prescription. In view of the above evidence, there is scope to understand the influence of diet on mental health of students and vice versa by performing a systematic literature review of relevant observational studies. Moreover, establishing a link between diet quality² and mental health may be used for practical support involving interventions that could improve both diet quality and mental health of students. Biopsychosocial factors linked to mental health include stress, stressful life events, body image, physical activity, sleep, social support, use of alcohol or illicit drugs. There are also biopsychosocial factors linked to diet, such as availability and access of pre-prepared meals/fast foods on campus, lack of cooking skills, lack of culinary and basic nutritional knowledge, no previous hands-on involvement in food preparation in the family environment, limited resources including money for shopping,^{3,4} no easy access to healthy food and lack of companionship during meal times. It has been shown that there is a relationship between mental health and eating habits of college education students (undergraduates), as well as an influence of eating habits on their mental health. Students with a high level of stress, anxiety and more depressive symptoms tend to have unhealthy eating habits.⁵

The outbreak of Coronavirus Disease-2019 (COVID-19) has upended education systems. The pandemic switched traditional face-to-face classes to online classes. Poor eating behaviors in undergraduate students' lives may affect the

well-being of their later stages of life. Globally, unhealthier food intake and eating habits were observed during the COVID-19 home confinement [9]. Our current study revealed that more than half of the online learning undergraduates practiced meal skipping behaviors.⁶ A study published by Son et al. [17] among college students in the United States revealed that 20% of the surveyed respondents had inconsistent eating patterns such as irregular meal intake and skipped meals during the COVID-19 pandemic⁷. The reasons behind meal skipping during the COVID-19 pandemic may be due to the low accessibility to purchase food from physical stores [18]. It was reported that meal skipping in young adults⁸ was associated with the increment of cardiometabolic risks in their later life [19].

More than 90% of the online learning undergraduates consumed snacks during the COVID-19 pandemic. Current study revealed the most popular snack foods were biscuits (88.52%), bread (84.43%), and fruits (80.33%).⁹ Generally, undergraduates that live with family members tend to increase the intake of fruits as compared to undergraduates who live alone or far away from their family members [20]. It was found that students tend to snack while watching TV or studying [21]. Boredom is one of the reasons to add snacks into daily diet among university students [18]. In addition, students with higher stress levels¹⁰ tend to practice unhealthy eating behavior such as consumption of sugary snacks, food that is rich in carbohydrates content, junk food, and ready-to-eat processed food [22].

II.DISCUSSION

A particular diet may be chosen to promote weight loss or weight gain. Changing a student's dietary intake, or "going on a diet", can change the energy balance, and increase or decrease the amount of fat stored by the body.^[2] The terms "healthy diet" and "diet for weight management" (dieting) are often related, as the two promote healthy weight management.^{[6][7]} If a student is overweight or obese, changing to a diet and lifestyle that allows them to burn more calories than they consume may improve their overall health,^[2] possibly preventing diseases that are attributed in part to weight, including heart disease and diabetes.^[8] Within the past 10 years, obesity rates have increased by almost 10%.^[9] Conversely, if a student is underweight¹¹ due to illness or malnutrition, they may change their diet to promote weight gain. Intentional changes in weight, though often beneficial, can be potentially harmful to the body if they occur too rapidly. Unintentional rapid weight change can be caused by the body's reaction to some medications, or may be a sign of major medical problems¹² including thyroid issues and cancer among other diseases.^[10] An eating disorder is a mental disorder that interferes with normal food consumption. It is defined by abnormal eating habits, and thoughts about food that may involve eating much more or much less than needed.^[11] Common eating disorders include anorexia nervosa, bulimia nervosa, and binge-eating disorder.^[12] Eating disorders affect people of every gender, age, socioeconomic status, and body size.^[12]

Our study also revealed that 41% of the online learning undergraduates consumed health supplements, and parents were found to be their main adviser in taking the supplements. A same phenomenon was reported by Choi [25], in which the majority (49.7%) of the university students consumed supplements according to the suggestions given by their family members. To boost their immune system, a high proportion of some students¹³ (67.7%) consumed supplements such as multivitamins during the COVID-19 pandemic [22]. Vitamin C was the most consumed supplement owing to its nature in boosting the human immune system [20].

More than 90% of the online learning undergraduates did not participate in a weight control program. The finding results from a study conducted among other students¹⁴ revealed that 70% of the respondents were unable to meet the recommended physical activity level during the COVID-19 pandemic as compared to the past two years [7]. This may be due to the temporary closure of fitness centers due to the implementation of the MCO in Malaysia. A nationwide study conducted by Jia et al. [19] in China found out that the COVID-19 lockdown had reduced the physical activity levels and increased the sedentary lifestyle of the studied population.

Meal skipping was found to be significantly associated ($p < 0.05$) with gender. Females were more likely to skip breakfast intake than males, as they believed breakfast skipping helps to reduce weight [13]. It was reported that females are more concerned about their weight and have more body image distortion than males [21]. Skipping meals is often used as a weight-loss method [22]. However, breakfast skipping is not an effective strategy for losing weight, as it often caused a high intake of energy dense food later in the day [23]. Thus, it will cause weight gain instead of weight reduction.¹⁵

In nutrition, diet is the sum of food consumed by a student or other organism.^[1] The word diet often implies the use of specific intake of nutrition for health or weight-management reasons (with the two often being related). Although



humans are omnivores, each culture and each student holds some food preferences or some food taboos. This may be due to studental tastes or ethical reasons. Individual dietary choices may be more or less healthy.¹⁶

Complete nutrition requires ingestion and absorption of vitamins, minerals, essential amino acids from protein and essential fatty acids from fat-containing food, also food energy in the form of carbohydrate, protein, and fat. Dietary habits and choices play a significant role in the quality of life, health and longevity.¹⁷

III.RESULTS

In conclusion, the majority of the online learning undergraduates practiced meal skipping and snacking between meals. Health programs emphasizing the importance of regular meal intake and healthy snacks selection could be conducted to promote good eating behaviors among online learning undergraduates. Further studies of larger sample size straddling government and private universities are recommended to understand the eating behaviors of undergraduates after the COVID-19 pandemic.¹⁸

You can start to improve students' learning outcomes and mental wellbeing by promoting healthy eating throughout your school environment.

Some ideas to get you started:

- Have a healthy canteen menu in line with the Schools Canteen and Other School Food Services Policy.
- Make sure water is freely available across your school, and allow students to have a water bottle with them in class.
- Plant a vegetable garden and use the produce you grow in cooking activities and at the canteen. Check out the Stephanie Alexander Kitchen Garden Foundation program for more ideas.
- Schedule 'brain food' breaks during the day to encourage students to eat fruit and vegetables in class.
- Engage all school staff to become positive role models — visibly taking care of their health by eating healthy foods and drinks at school.
- Use non-food rewards in the classroom to help students develop healthy relationships between food and behaviour.
- Encourage parents to provide healthier lunches.
- Source fresh produce from your local community, such as local markets and food growers.¹⁹

A healthy diet is a diet that maintains or improves overall health. A healthy diet provides the body with essential nutrition: fluid, macronutrients such as protein, micronutrients such as vitamins, and adequate fibre and food energy.^{[2][3]}

A healthy diet may contain fruits, vegetables, and whole grains, and may include little to no processed food or sweetened beverages. The requirements for a healthy diet can be met from a variety of plant-based and animal-based foods, although additional sources of vitamin B12 are needed for those following a vegan diet.^[4] Various nutrition guides are published by medical and governmental institutions to educate individuals on what they should be eating to be healthy. Nutrition facts labels are also mandatory in some countries to allow scholars to choose between foods based on the components relevant to health.^{[5][6]}

The World Health Organization (WHO) makes the following five recommendations with respect to both populations and individuals:^[7]

1. Maintain a healthy weight by eating roughly the same number of calories that your body is using.
2. Limit intake of fats to no more than 30% of total caloric intake, preferring unsaturated fats to saturated fats. Avoid trans fats.²⁰
3. Eat at least 400 grams of fruits and vegetables per day (not counting potatoes, sweet potatoes, cassava, and other starchy roots). A healthy diet also contains legumes (e.g. lentils, beans), whole grains, and nuts.^[8]
4. Limit the intake of simple sugars to less than 10% of caloric intake. (Below 5% of calories or 25 grams may be even better).^[9]
5. Limit salt/sodium from all sources and ensure that salt is iodized. Less than 5 grams of salt per day can reduce the risk of cardiovascular disease.^[10]

The WHO has stated that insufficient vegetables and fruit is the cause of 2.8% of deaths worldwide.

Other WHO recommendations include:

- ensuring that the foods chosen have sufficient vitamins and certain minerals;
- avoiding directly poisonous (e.g. heavy metals) and carcinogenic (e.g. benzene) substances;²¹
- avoiding foods contaminated by human pathogens (e.g. E. coli, tapeworm eggs);
- and replacing saturated fats with polyunsaturated fats in the diet, which can reduce the risk of coronary artery disease and diabetes.^[10]

The Nutrition Source of Harvard School of Public Health (HSPH) makes the following dietary recommendations:^[20]

- Eat healthy fats: healthy fats are necessary and beneficial for health.^[21] HSPH "recommends the opposite of the low-fat message promoted for decades by the USDA" and "does not set a maximum on the percentage of calories people should get each day from healthy sources of fat."^[20] Healthy fats include polyunsaturated and monounsaturated fats, found in vegetable oils, nuts, seeds, and fish. Foods containing trans fats are to be avoided, while foods high in saturated fats like red meat, butter, cheese, ice cream, coconut and palm oil negatively impact health and should be limited.^{[21][22]}
- Eat healthy protein: the majority of protein should come from plant sources when possible: lentils, beans, nuts, seeds, whole grains; avoid processed meats like bacon.^[23]
- Eat mostly vegetables, fruit, and whole grains.^[20]
- Drink water. Consume sugary beverages, juices, and milk only in moderation. Artificially sweetened beverages contribute to weight gain because sweet drinks cause cravings. 100% fruit juice is high in calories. The ideal amount of milk and calcium is not known today.^[24]
- Pay attention to salt intake from commercially prepared foods: most of the dietary salt comes from processed foods, "not from salt added to cooking at home or even from salt added at the table before eating."^[25]
- Vitamins and minerals: must be obtained from food because they are not produced in our body. They are provided by a diet containing healthy fats, healthy protein, vegetables, fruit, milk and whole grains.^{[23][24]}
- Pay attention to the carbohydrates package: the type of carbohydrates in the diet is more important than the amount of carbohydrates. Good sources for carbohydrates are vegetables, fruits, beans, and whole grains. Avoid sugared sodas, 100% fruit juice, artificially sweetened drinks, and other highly processed food.^{[24][20]}

Other than nutrition, the guide recommends staying active and maintaining a healthy body weight^{22,23}

IV.CONCLUSIONS

Scholars are generally aware of the elements of a healthy diet, but find nutrition labels and diet advice in popular media confusing. Fears of high cholesterol were frequently voiced up until the mid-1990s. Later research shows that the distinction between high- and low-density lipoprotein is vital when considering the potential ill effects of cholesterol.²⁴ The British Heart Foundation released its own government-funded advertisements, labeled "Food4Thought", which were targeted at children and adults to discourage unhealthy habits of consuming junk food. The UK government 2020 Obesity Strategy encourages healthier choices by restricting point-of-sale promotions of less-healthy foods and drinks²⁵

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