



The Influence of Modern Lifestyle on the Health of Medical Students in a Medical School in Dominica

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: A healthy lifestyle is a way of living that reduces the risk of being severely ill. In 1967, the World Health Organization (WHO) defined health as "of complete physical, mental and social well-being and not merely the absence of disease or infirmity ». An unhealthy diet and lack of physical activity are in the lead for global health risks.

Aim: This study explored the impact modern lifestyle has on the health of medical students

Methods: Our study included a literature review, and a questionnaire consisting of 24 questions which were answered by 76 participants which targeted; diet, exercise regimen, sleep cycle, alcohol, substance use, and technology use.

Results: From the responses, 63.1% of respondents practice a sedentary lifestyle, 68.4% skip breakfast and 35.5% have an unhealthy diet.

Conclusion: There is a need for individuals to pay attention to their daily practices as modern lifestyle can have a negative impact on quality of life.

Keywords: Modern lifestyle; healthy lifestyle; unhealthy lifestyle; sedentary; lifestyle practices; medical students.

1. INTRODUCTION

The World Health Organization (WHO) defines a healthy lifestyle "as a way of living that reduces

the risk of being severely ill, dying at an early age, and helps you enjoy more aspects of your life" [1]. An unhealthy lifestyle is a way of living that consists of activities or ways of living that are

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detrimental to one's health. These include skipping breakfast, eating meals high in low density lipoprotein (LDL), drinking too much alcohol, drinking too much soda, spending too many hours glued to technology, smoking, not exercising, and not keeping a healthy weight [2].

In 1967, the World Health Organization (WHO) defined health as "of complete physical, mental and social well-being and not merely the absence of disease or infirmity" [3]. An unhealthy diet and lack of physical activity are in the lead for global health risks. An unhealthy diet is one of the risk factors associated with a series of chronic diseases, including cardiovascular diseases, high blood pressure, tooth decay, ricket, osteomalacia, goiter, cancer, diabetes, and other disorders associated with obesity. As stated by WHO, 60% of factors related to personal health and quality of life are contributed by their way of living [4].

Our human diet has undergone extreme changes in recent years. Such changes include meals rich in sugar and salt, rich LDL, low in fibers, low macro and micro nutrients and water plus the introduction of Genetically modified organisms and plants (GMOs) in the last five decades which is likely to continue [5]. Modifications to the Deoxyribonucleic acid (DNA) may be directly influenced by diet leading to changes in health status, or 'programming' the genome so that it responds to nutrients throughout the lifetime of the organism [6,7]. Healthy diets arising either by tradition or design, share many common features and generally align with the WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases. In comparison with a Western diet, healthier alternatives are higher in plant-based foods, including fresh fruits and vegetables, whole grains, legumes, seeds, and nuts and lower in animal-based foods, particularly fatty and processed meats [8].

It is said that health is one of the fundamental and most important values of life for every individual [2]. The right lifestyle can be achieved when a person has adequate knowledge of his diet and significance. A healthy lifestyle consists of eating a well-balanced meal consisting of fruits, vegetables, proteins, low salt and sugar , decreasing or if possible stopping tobacco smoking, alcohol consumption, exercising at least 30 minutes a day, maintaining a healthy weight and also providing an adequate amount of nutrients and calories necessary for good health. Having a healthy lifestyle contributes to

not only a long life but an enjoyable one as well. Active people are not only fit but "they also have better memory and are able to focus better due to the greater amount of oxygen supplied to the brain" [2]. They also have the added benefits of reduced stress, lower blood pressure, strong bones, decrease risks of myocardial infarction and stroke, decrease risk of type 2 diabetes plus metabolic and energy boosting. In regard to the use of technology, there are many benefits, but it also has potential harmful effects which include heightened attention-deficit symptoms, impaired emotional and social intelligence, technology addiction, decreased social interaction, impaired brain development, and poor sleep quality. [9]. *Excessive and pathological internet use has been recognized as an internet addiction, which shares features with substance-use disorders or pathological gambling.* Common features include preoccupations, mood changes, development of tolerance, withdrawal, and functional impairment [10]. According to Luyster *et al*, *approximately 1 in 3 adult Americans are sleeping less than 7 hours per night (37.1%), an amount at which physiological and neurobehavioral deficits manifest and become progressively worse under chronic conditions* [11].

Based on past research by Deniozou and Ryall, people tend to have positive health and lifestyle choices in certain areas of their lives while neglecting others [12]. From their results, we see that when it comes to diet, physical activity, and alcohol usage people are not as consistent compared to their sleep, mental health, and smoking pattern. For the case of this research, modern characteristics would be the use of technology and sedentary lifestyle and an unhealthy diet.

The overall aim of this research was to assess the impact of the modern way of life on the health of Medical students in Dominica. For this research work, we considered the definition of a healthy lifestyle as a way of living that diminishes the risk of being severely ill. The main focus of this research was on diet, exercise regimen, alcohol, substance abuse, the use of technology as well as sleep cycle. This enabled us answer the following questions:

1. Does modern lifestyle affect the health of Medical students?
2. Does modern lifestyle have a negative impact on their health?
3. Does modern lifestyle have a positive influence on their health?

2. METHOD

This research was conducted in a medical school in Dominica between January to April 2021. The research method included 24 questions designed independently using a google form after extensive literature review. The questionnaire was distributed to students of All Saints University School of Medicine (ASUSM) electronically via the school group chat. Premed, Basic science students, clinical students. Informed consent was added to the questionnaire for ethical purposes. The questionnaire was anonymous and collected immediately upon completion.

2.1 Data Analysis

The data were compared to literature reviews and analyzed using SPSS. Literature reviews were made by searching through databases such as google scholar, PubMed, and Research Gate. Keywords search included “Modern lifestyle and health”, “Modern lifestyle and healthy living” and “modern life's influence on health”.

3. RESULTS AND DISCUSSION

3.1 Results

Results were obtained from 76 medical students of All Saints University School of Medicine, the 76 participants, the majority were females (55)

with minority males (21) as shown on Fig. 1 and the age range was from 16-60+ with the majority of participants falling between ages 16-25 as shown on Fig. 2.

3.1.1 Sedentary lifestyle

From the responses we observe that 9.2% and 5.3% of the respondents spend 7-8 hours and 9 hours and above a day on social media respectively with 1.3% and 2.6% spending 7_8 hours and 9 hours and above watching TV respectively, 5.3% and 10.5% of respondents spend 1-2 hours and 3-4 hours sleeping respectively.

Sedentary lifestyle (Taxi use, social media use, TV watching and total sleep hours).

3.1.2 Unhealthy Diet

Based on the responses, 27.6% of respondents drink 1 bottle of water per day, 1.3% of respondents stated that they drink 5-6 bottles of alcohol a day, and 6.6% smoked daily and of that 6.6%, 1.3% of respondents stated they smoke 3-4 packs a day.

Unhealthy diet (skipping breakfast, not eating healthy, alcohol consumption, cigarettes smoking, fast food consumption, cooking habit, water drinking, and soda drinking).

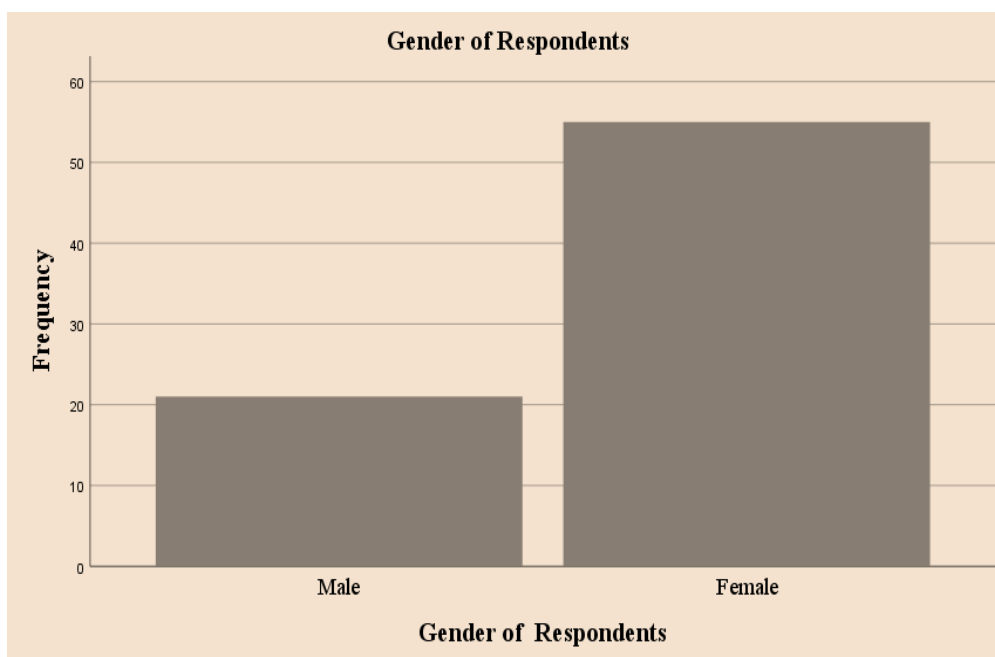


Fig. 1. Gender of Respondents

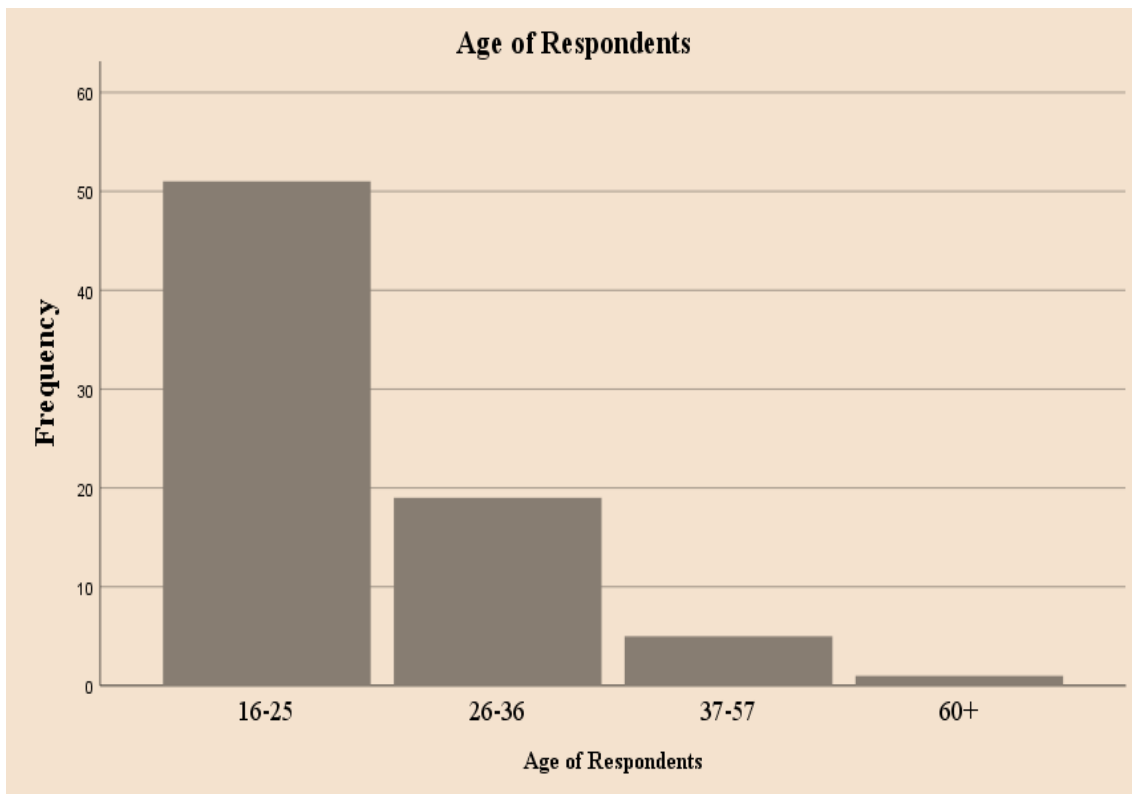


Fig. 2. Age of Respondents

Table 1. Sedentary lifestyle

Taxi use	Everyday	35.5%
	A Few times a week	27.6%
	Once a week	11.8%
	A few times a month	14.5%
	When necessary	6.6%
	Once a month	3.9%
Social media use	1_2hrs	30.3%
	3_4hrs	42.1%
	5_6hrs	13.2%
	7_8hrs.	9.2%
	9hrs and above	5.3%
TV watching	1_2hrs	67.1%
	3_4hrs	18.4%
	5_6hrs	10.5%
	7-8hrs	1.3%
	9 hrs and above	2.6%
Total sleep hours	1_2hrs	5.3%
	3_4hrs	10.5%
	5_6hrs	48.7%
	7-8hrs	34.2%
	9 hrs and above	1.3%

Table 2. Unhealthy Diet

Skipping breakfast		
Do you eat breakfast every morning?	Yes	31.6%
	No	68.4%
Dietary habit		
Do you think you eat healthy?	Yes	64.5%
	No	35.5%
Alcohol usage	Yes	21.1%
	No	78.9%
Cigarette smoking	Yes	93.4%
	No	6.6%
Fast food consumption		
How many times in a week Do you order fast food	Once a week	32.9%
	2-3 times a week	10.5%
	4-5 times a week	1.3%
	6-7 times a week	0%
	I don't order fast food	55.3%
How many times in a week Do you cook?	Once a week	9.2%
	2-3 times a week	36.8%
	4-5 times a week	26.3%
	6-7 times a week	26.3%
	I don't cook	1.3%
Water drinking		
How many Bottles of water do you Drink a day?	Zero bottles	0%
	½ bottle	0%
	1-2 bottles	48.9%
	3-4 bottles	40.7%
	5-6 bottles	10.5%
Soda drinking		
How many bottles of soda Do you drink a day?	Zero bottles	51.3%
	½ bottle	0%
	1-2 bottles	46.1%
	3-4 bottles	2.6%
	5-6 bottles	0%
Alcohol consumption		
How many bottles of alcohol Do you drink a day?	Zero bottles	86.8%
	½ bottle	6.6%
	1-2 bottles	5.3%
	3-4 bottles	0%
	5-6 bottles	1.3%
Cigarette smoking		
How many packs of cigarettes Do you smoke a day?	Zero bottles	96.1%
	½ bottle	2.6%
	1-2 bottles	0%
	3-4 bottles	1.3%
	5-6 bottles	0%

Table 3. Family medical history

Family Medical condition	Percentage
Diabetes	18.4%
Obesity	1.3%
Breast cancer	1.3%
High blood pressure	21.2%
Asthma	2.6%
Adenomyosis	1.3%
No Family Medical History	53.9%

3.1.3 Family Medical history

From the response obtained, it is seen that 46% of Medical students have a family medical history, with 18.4% having diabetes, 1.3% obesity, 1.3% breast Cancer, 21.2% high Blood pressure, 2.6% asthma, 1.3% adenomyosis.

3.2 DISCUSSION

The questionnaire targeted Medical students and while analyzing the results, it was seen that modern lifestyle has an adverse effect on the health of medical students These adverse effects were on sedentary lifestyle (Lack of exercise 27.6%, and everyday use of taxi 35.5% and social media use), skipping breakfast (68.4%), unhealthy diet (35.5%) and Family medical History.

3.2.1 Sedentary lifestyle

Sedentary comes from the Latin word *Sedere*, meaning "to sit", which describes the idle population that do not take part in physical activities. From the response obtained from the research study, it is seen that 35.5% of respondents use taxis every day, 5.3% and 2.6% spend time glued to social media and TV watching respectively. Examples of a sedentary lifestyle include watching tv for a very long period of time, social media use for a very long period of time, as well as activities that requires sitting down for a very long period of time with little or no exercise [13].

According to Smal et.al, *excess exposure to the screen lights of our gadgets (phones, iPads, computers) has a damaging effect on cognitive and behavioral aspects of the brain which leads to insomnia (decrease in sleeping time) and sleeplessness*. This correlates with our results which shows that 5.3% of AUSM students spend 1_2hrs sleeping and 10.5% spend 3_4hrs

sleeping [9]. Insomnia is associated with decrease concentration and focus, when performing given tasks, sluggishness in performing daily activities, short and long term memory loss and increases the risk of developing neuro cognitive diseases such as Alzheimer's [9].

Based on the research conducted by Mavrovouniotis, *it is shown that some people willfully decide not to get involved in any form of physical activities whatsoever* [14]. Physical inactivity is one of the contributing factors to some chronic diseases like obesity, diabetes and cardiovascular diseases.

3.2.2 Skipping breakfast

Breakfast is the most important meal of the day. A healthy breakfast is a way the body refills its energy requirement which is needed to start the day and also provides nutrients required by the body for its normal functioning. This energy is important for normal functioning of the brain, and other organs. Eating breakfast has been linked to reduced incidence of illnesses, good memory, and increased concentration. Skipping breakfast can lead to many health conditions, such as obesity [15]. From our research, it is seen that 64.4% of respondents skip breakfast while 31.6% do take breakfast every morning.

3.2.3 Unhealthy diet

A healthy diet is one in which carbohydrates, proteins and fats are consumed in the right proportions to support physiologic processes and energy requirements, while also providing enough vitamins, minerals and hydration to meet the physiological needs of the body. [8] On the other hand, an unhealthy diet is one which does not provide the body with water and a variety of nutrients for good health. Unhealthy foods include meals high in sugars, salts, cholesterol and food low in fibers and vitamins. Excessive

intake of fast and processed foods increases health illnesses with 10.5% and 1.3% of ASUSM students ordering fast food 2-3times and 4-5 times a day respectively. Excess sugar consumption is associated with weight gain and an increased risk for cardiovascular disease, type 2 diabetes, and cancer [16]. Forty six point one percent and 2.6% of ASUSM students drink 1-2 and 3-4 bottles of soda a day with 18.4% having a Family history of Diabetes, 1.3% family history of obesity and 1.3% having a family history of breast cancer.

Water is the main constituent of the body, constituting most of the lean body mass and total body weight. It hydrates the body, provides about 20% of important ions (calcium and magnesium) to the body and also transports vitamins, minerals, trace elements and electrolytes. From our research conducted, it is seen that 64.5% of respondents at healthy with 40.7% and 10.5% drinking 3-4 and 5-6 liters of water respectively [8]. Some disadvantages of not drinking enough water include dehydration, constipation, fatigue, and dry mouth. Chronic dehydration can cause renal calculi and eventually renal failure. It is seen that 48.9% of our respondents do not consume a lot of water (1-2 bottles) per the daily water recommendation of 2.7-3 liters.

Research from Fortunka states that *Drinking alcohol and smoking cigarettes contains toxins that are harmful to the body*. Nicotine and alcohol alter metabolic processes in the body, leading to many diseases. They also have a high rate of dependence, leading to addiction which has psychological and social consequences [2]. Chronic alcohol consumption is associated with liver cirrhosis, high blood pressure, heart disease, cancer of the mouth, throat, esophagus, liver, and colon as well as vitamin B1 deficiency which leads to Wernicke encephalopathy. Five point three percent and 1.3% of respondents drink 1-2 and 5-6 bottles of alcohol respectively, 2.6% and 1.3% smoke ½ pack and 3-4 packs of cigarettes respectively with the remaining 86.8% and 96.1% not drinking alcohol and smoking cigarettes respectively.

Modern lifestyle has led to a significant change in human diet, and a decline in exercise and human activity. Western diet, GMO-ingredients, and sedentary lifestyle has been linked to the obesity epidemic. The rising number of obese individuals may be due in part to an energy-rich diet as well as insufficient physical exercise [17]. According to WHO, GMOs can be defined as organisms

(i.e., plants, animals, or microorganisms) in which the genetic material has been altered in a way that does not occur naturally by mating and or natural recombination. According to Myers S, *dietary factors can alter genetic processes such as transcription and translation* [5]. The consumption of such foods might increase the risk of developing a particular disease in genetically susceptible people (family medical history) such as diabetes, hypertension, obesity, and cancer. Thus, a healthy diet is important for these cases to reduce the incidence of such diseases or worsening of already existing conditions.

4. CONCLUSION AND RECOMMENDATIONS

From the results obtained, it is recommended that ASUSM students need to make changes to their lifestyle in the following ways: eating a fruit or vegetable with each meal, developing a habit of cooking more healthy foods, drinking more water, exercising at least 30 minutes a day, eating a healthy breakfast every morning, spend less time on social media and engage more with nature.

There is a need for individuals to pay attention to their daily practices as modern lifestyle can have a negative impact on quality of life. The specific lifestyle affected are in-activity, skipping breakfast, and unhealthy eating habits.

LIMITATIONS

There were several limitations to this study. First, it's a cross sectional study so we could not analyze lifestyle over time.

There might have been a response bias from participants, which might have resulted in exaggeration of responses on their use of social media and dietary lifestyle.

Another limitation we had with our study was the small participant group.

CONSENT AND ETHICAL APPROVAL

Ethical approval was given by the research department of All Saints University School of Medicine. Informed consent was given by the participants.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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