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(RESEARCH ARTICLE)

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Effects of nutrition on Parul university student's quality of life

Nur Islam * and Tamzid Hasan

Parul Institute of Pharmacy and Research, Parul University, Vadodara, Gujarat, India.

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Abstract

AIM: The purpose of this work is to find out the quality of nutrition and its effects on the health of university students.

Material and methods: 350 students were interviewed. A questionnaire, which contains 29 questions and is aimed at studying the quality of students' nutrition, was created by authors.

Results: It was discovered that the students follow the diet foods 3-4 times a day which is 29.62%, consume dry foods 33%, fish and seafood only one time a day which is 28.05%, and consume dairy products 33%. 65.72% of students only consume fresh fruits once a day, and 17.02% of students regularly eat sweets for breakfast, lunch, and dinner. Wheat and rice are the two main cereals that students consume (55.42% of them). Only 42.87% of the vitamin B complex, 26.66 % of vitamin C, and 14.06% of vitamin D, according to the study, contributed to vitamin deficiencies in students. 77% of students reported being fatigued, and 13.7% of students reported having mental health issues.

Conclusions: It was determined that the majority of students had a poor quality diet during their studies: the diet was irrational, incomplete, and not varied. This does not promote a healthy lifestyle for modern students and can negatively affect the effectiveness of their future professional activities.

Keywords: Health; Nutrition; Quality of life; Students

1. Introduction

An organism uses food to sustain its life through a biochemical and physiological process known as nutrition. It supplies nutrients to living things, which they can digest to produce energy and chemical structures. The enormous socioeconomic changes that are occurring at this point in human evolution and the rapid population increase call for a reassessment of the theoretical underpinnings of global food security. One of the most significant ways that the environment and the human body interact is through nutrition, which gives the body access to simple and complex substances, minerals, and water. They are required for the organism to maintain its structure, produce new cells and tissues, and provide energy for bodily functions. The state of human life is substantially impacted by the quality and quantity of food [1,2,3,4].

A complex concept, quality of life has an impact on people's functioning, emotional health, and overall life happiness. The World Health Organization (WHO) defines quality of life as "An individual's perception of their position in life in the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns [5].

The situation of the students' nutrition has significantly worsened due to the demanding educational process, inadequate material security, ongoing environmental change, contradictory food product characteristics, fast food,

* Corresponding author: Nur Islam

genetically modified products, grown in polluted ecological conditions, etc. Traditional food theories are insufficient for students today to preserve their health and assure a healthy lifestyle. One of the key components of a healthy lifestyle is nutrition[6,7,8].

The state of the organism's nutrition affects its growth and formation, health, and degree of productivity .The physiological, mental, and social functions of people are all influenced by nutrition, which also affects their longevity, capacity for creativity. The ability of humans to function mentally and physically, to develop and grow, to resist sickness, and to live longer are all impacted by the quality of their diet. A person's diet should be varied, appealing, and meet the demands and dietary preferences they have established as a result of their age, occupation, living situation, nationality, and other factors [9,10,11,12,13].

Scientists contend that food is the sole way to replenish the energy lost during life. As a result, each student needs to be aware of what they eat, keep their knowledge current, and consider the advice of specialists on the unique nutritional requirements of their environment. Thus, the development of educational programmers in the area of nutrition, which promote the fundamentals of nutrition among students as one of the connections of a healthy lifestyle, is one of the issues that physical education teachers must address [14,1516,17,18].

Experts claim that all food sources with certain ingredients, particularly plants, can have an impact on the body's metabolic functions. Thus, cabbage has compounds that have anti-cancer properties and are used to cure gastric and duodenal ulcers; carrots are used to treat gallbladder and heart disorders; Potatoes were a life-saving food source in ancient times because vitamin C prevents scurvy and the main nutrient in potatoes is potassium, an electrolyte that aids in the functioning of the heart, muscles and nervous system; etc. Sorrel, rhubarb, tomatoes, legumes, spinach and a huge number of therapeutic plants are examples of plant products that can be dangerous if ingested in high numbers. It should be remembered that cooking can either intensify or drastically lessen a food's negative attributes [19,20].

Data from the study showed that students' meals lacked fish, pectin (apples and citrus food), and fiber, which control the function of the large intestine and are biologically complete animal products. The amount of animal fats and simple carbs in the students' diets increased at the same period. A consistent diet of fat and carbohydrates causes weight gain, hastens the onset of atherosclerosis, increases blood pressure, triggers insulin-dependent diabetes and cancer, and eventually results in incapacity [21, 22].

Eating disorders have been linked to age-related illnesses such osteoporosis, cancer, diabetes, stroke, cataracts, glaucoma, and cardiovascular diseases. Chronic non-communicable diseases like diabetes, coronary heart disease, and hypertension are brought on by an imbalanced diet. Nutritional deficiencies in protein and energy are the root cause of infectious diseases like TB. Inadequate food preparation contributes to the formation of iron deficiency in girls and women of reproductive age as well as the disease of endemic goiter. The WHO claims that a logical, scientifically sound diet can reduce the risk of developing cancer by 35 to 50% [23].

AIM

The purpose of this work is to find out the quality of nutrition and its effects on the health of university students.

2. Methods

The determination of the student's nutritional quality was conducted at Parul University state of Gujarat in India from November 2022 to February 2023. Thus, 400 students aged 18 to above 25 from various disciplines were questioned. In compliance with the demands of Parul University's Code of Ethics, the survey was conducted using a questionnaire designed by the authors of this article. The study's 29-question survey asks on the student's dietary habits, which are considered to be one of the most important determinants of their health, physical fitness, and ability to maintain a successful career. The Parul University Academic Council authorized the questionnaire after it had been evaluated by two graduate students and one professor who are experts in this field.

After class, the students were approached and requested to take part in the study. All students were made aware of the study's purpose and told that participation was optional and that the answers they provided would be kept anonymous. All participants provided their written consent. 50 of the 400 students that made up the targeted sample chose not to take part, primarily due to a lack of time to finish the interview. 87.5% of the student's response rate in total consented to take part in this survey.

All participants were required to complete a self-administered questionnaire that asked about their age, gender, place of birth (urban or rural), presence of chronic diseases (defined as illnesses lasting longer than a year), residence, use of alcohol, and smoking and drinking habits.

The Google form and face-to-face Health Survey is a multidimensional general self-administered tool that uses 7 scales to assess 8 different life areas and measures health-related quality of life for all participant was used to evaluate the Physical functioning (PF), role limitation due to Physical problems (PI), Body pain (BP), General health perception (GH), Social functioning (SF), role limitation due to Emotional problems (EI), Mental health (MH).

2.1. Research method

Questionnaire survey, method of mathematical Statistics, theoretical Analysis and Generalization Of the scientific and methodological literature: 23 sources about article topics from the PubMed, Scopus, Web of Science Core Collection, etc. being analyzed.

3. Results

A balanced diet, or properly organized supply of the body with well-prepared, nutritious, and delicious food that contains the ideal amount of different substances necessary for its development and functioning, is one of the indicators of a healthy lifestyle and maintains the health of students. Student's socio-demographic characteristics given in (table 1).

Table 1 The student's socio-demographic characteristics

Sr. No	Name	Range
1	Gender	Male, Female
2	Age	18 to above 25
3	Height	152 -177(cm)
4	Weight	63-80 (kg)
5	Body mass index (BMI)	25.5-27.3(kg/m2)
6	Residential	Village, City

Only 29.62% of students reported eating 3-4 times daily, 3.42 % reported eating twice daily, 43.2 % reported eating without sticking to a schedule, and 8.75 % reported skipping breakfast entirely, which is against one of the guidelines for leading a healthy lifestyle .The students who don't adhere to a diet frequently overeat, consume an unbalanced diet, and ignore the rules. Overeating in the evening, in particular, and eating twice a day can quickly result in obesity, overweight, and other metabolic disorders (table -2).

Table 2 The students assessment of their own diet (n=350, %)

Sr.No	Food consumption	Study				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	3-4 times a day	35.8	29.4	27.0	26.3	29.62
2	Always at a certain time	6.0	3.2	3.5	4.2	8.45
3	2 times a day	3.4	3.5	2.8	4.0	3.42
4	Have dinner 2-3 hours before going to sleep	3.5	2.8	1.9	3.5	2.92
5	Eat night before going to sleep	3.0	3.1	4.5	1.2	2.95
6	Do not have breakfast	4.2	15.1	5.8	9.9	8.75
7	Do not follow the regimen	51.2	36.2	33.9	51.8	43.2

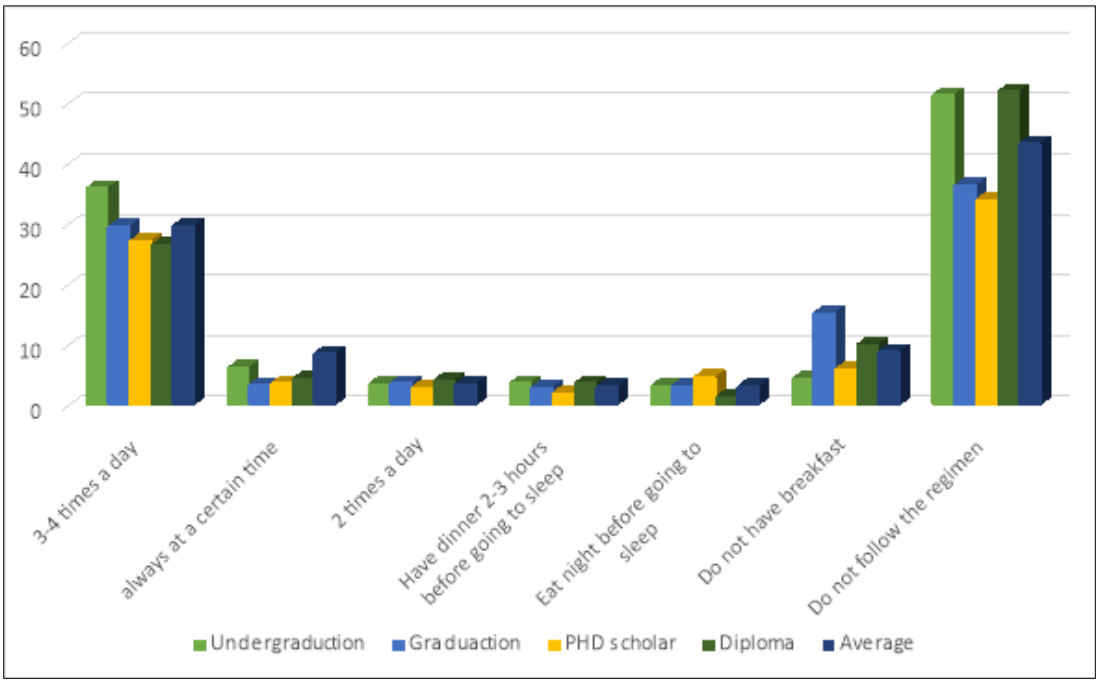

Figure 1 The student's assessment of their own diet

The student's assessment of the nutritional status revealed that 33% of them frequently consumed cold, dry food; 2.35 % frequently consumed fat and overly salty foods; 14.11 % frequently consumed fast food items (vermicelli, chicken etc.); more than 10.65% frequently drank strong coffee and tea; and 12.9% frequently preferred to eat a substantial meal. The majority of students 10.82% confidently acknowledged that their diet fell short of the minimum standards for its qualitative and quantitative composition (table -3).

Table 3 The assessment of the students nutritional quality (n=350, %)

Sr.No	Food consumption	Study				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Often eat heavy, cold, and dry foods	33.2	33.2	32.1	33.5	33
2	Often eat fat, bitter, sour, and oversalt foods	2.5	1.3	2.3	3.3	2.35
3	Often eat fast food	15.7	12.3	9.67	18.8	14.11
4	Drink strong tea and coffee more than 2-3 times a day	12.2	11.1	7.5	11.8	10.65
5	Like to have a substantial meal often	13.3	12.7	11.2	14.4	12.9
6	Like to have a substantial meal sometimes at a party	3.4	5.6	1.8	2.5	3.32
7	Have a hunger day	7.5	5.5	4.7	10.8	7.12
8	Keep diets	6.8	5.5	5.5	4.5	5.57
9	Confidently recognized their nutrition as poor	11.1	8.2	9.3	14.7	10.82

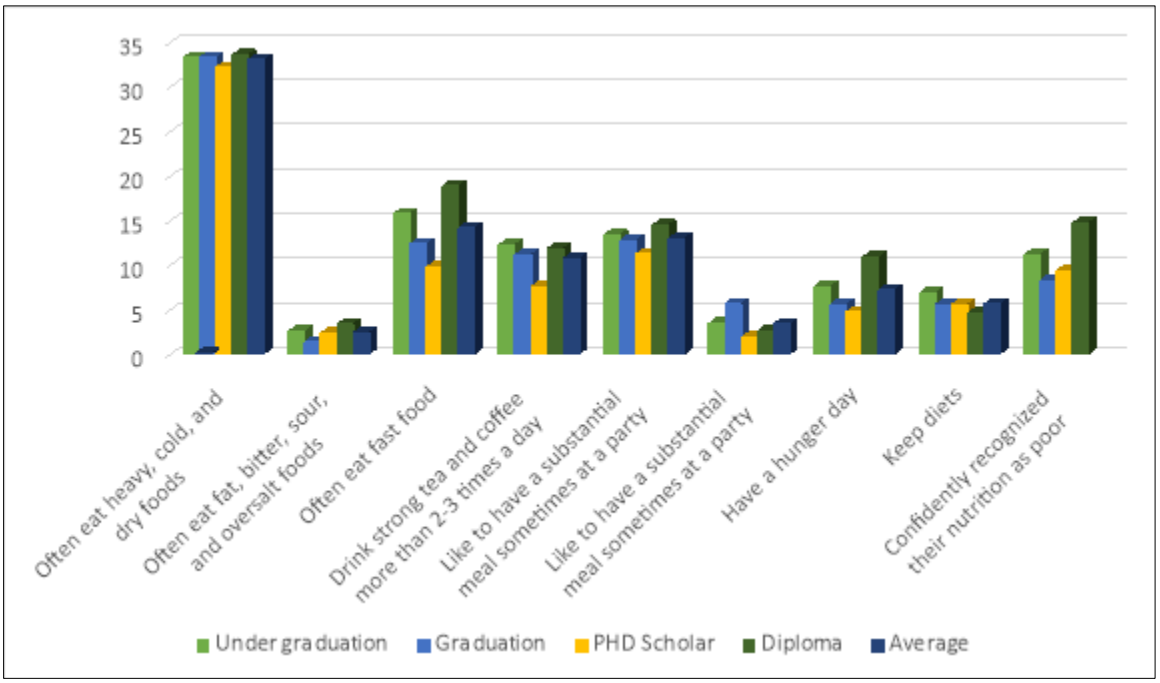

Figure 2 The assessment of the student's nutritional quality

The first meals (broths, soups, and others), which have some physiological value for humans, should play a substantial role in the students' diet. Their extractive and aromatic compounds promote the secretion of digestive juices, heightened appetite, and food absorption. The flavor of the first courses is somewhat influenced by the quality of the broth (meat, meat and bone, fish, mushroom, vegetable, dairy) on which they are prepared. Broths are flavored by extractives that contain or lack nitrogen. Free amino acids, creatine, creatinine, and purine bases are examples of nitrogenous extractives. Glucose, inositol, lactic acid, and glycogen are the components of extractives free of nitrogen. The students' menu should give the first courses a prominent position. However, the obtained data showed that 31.4 % of students only occasionally ate the first courses, 21.8 % – once every 2-3 days, 34.82 % – once a day and only 11.25 % of students ate the first courses twice a day (table -4).

Table 4 The Frequency of the students consumption of the first courses (n=350, %)

Sr.No	The number of times	Study				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Once a day	39.3	34.2	32.5	33.3	34.82
2	Twice a day	11.4	11.7	10.5	11.4	11.25
3	One every 2-3 days	25.7	25.7	18.2	17.6	21.8
4	Sometimes	36.2	30.3	28.5	30.6	31.4

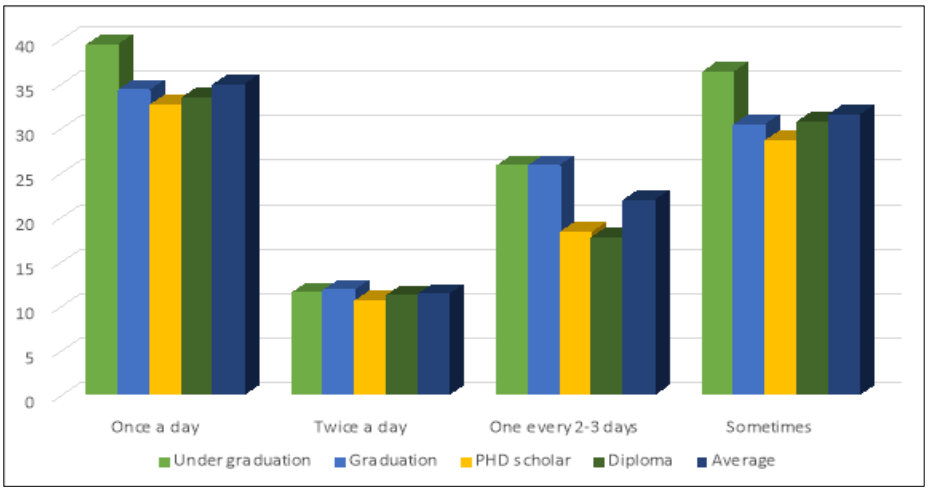

Figure 3 The Frequency of the student's consumption of the first courses

Seafood should be consumed every day because it is less radioactively contaminated than freshwater fish. Eat seaweed, sea fish, mussels, squid, shrimp, and meat from marine creatures to overcome an iodine shortage. In addition, seafood is a significant source of proteins, vitamins, and minerals. Unfortunately, relatively little fish and seafood was consumed by the pupils. Only 10.87 % of students used them in sufficient quantities, and 26.62 % – 1-2 times a week, 27.9 % – very rarely (table -5).

Table 5 The Frequency of the students consumption of the fish and seafood (n=350, %)

Sr.No	The number of times	Study				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Once a day	28.2	28.2	27.1	28.7	28.05
2	2-3 times a day	12.2	11.1	10.1	10.1	10.87
3	Once every 2 days	5.5	6.6	5.5	4.4	5.5
4	1-2 times a week	25.6	23.7	24.4	32.8	26.62
5	Sometimes	31.2	30.1	28.2	22.1	27.9

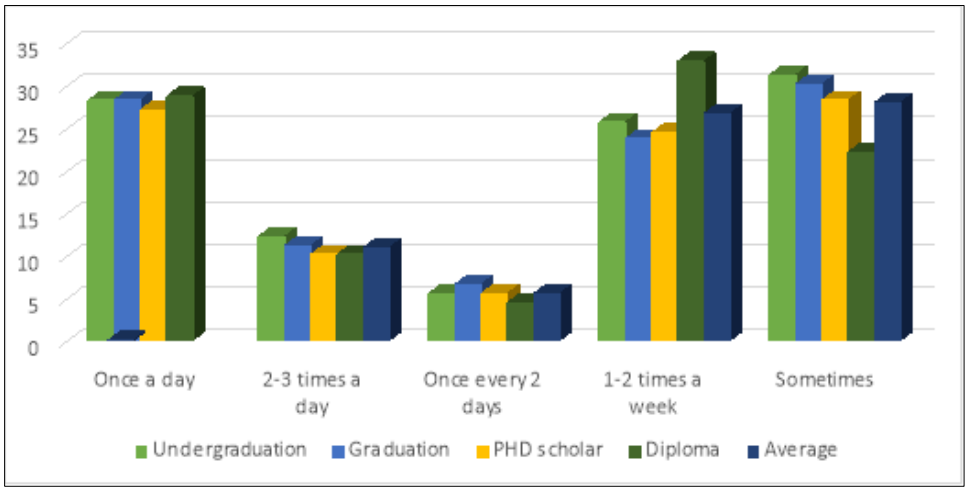

Figure 4 The Frequency of the student's consumption of the fish and seafood

Calcium insufficiency is brought on by a low milk and dairy product consumption. The radio-protective properties of calcium and the sulfur-containing amino acids in cheese and cottage cheese make them essential components of a daily diet. Dairy products also contain vitamins, minerals, fat, carbs, protein, and other nutrients. Currently, there is a severe problem with dairy products in students' diets. Unfortunately, milk, other dairy products, and cheese are frequently absent from student canteens and are quite expensive in stores, despite the fact that students like to consume them. The investigations revealed that only 9.97 % of students could afford to consume milk and dairy products in sufficient amounts 2-3 times per day, 35% only once per day, and the other students did not consume these items in sufficient amounts. Nearly a third of students 34.3% ate dairy products once to twice a week, and 19.32% did so very infrequently (table -6).

Table 6 The Frequency of the students consumption of dairy products (n=350, %)

Sr.No	The number of times	STUDY				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Once a day	38.2	34.2	25.2	42.4	35
2	2-3 times a day	14.4	10.6	2.6	12.3	9.97
3	Once every 2 days	2.5	1.6	2.3	2.1	2.12
4	1-2 times a week	35.1	35.1	36.2	30.8	34.3
5	Sometimes	18.7	17.2	22.2	19.2	19.32

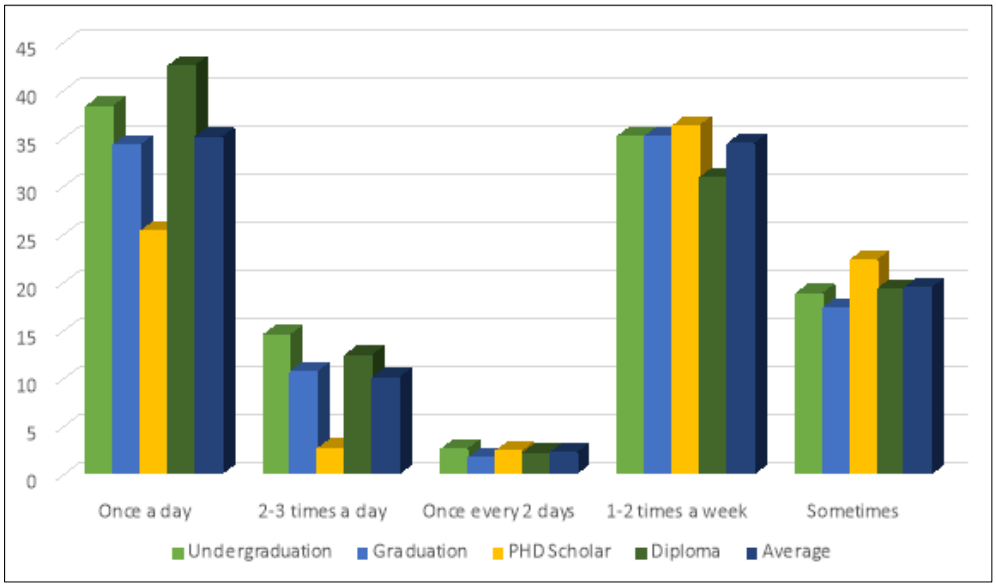

Figure 5 The Frequency of the student's consumption of dairy products

According to studies, and 65.72 % of students only ate locally produced produce once a day. Vegetables contain non-starch carbohydrates (alginates, polysaccharides, dietary fiber, and pectin), which are essential for young student's adequate nutrition since they have radio-protective characteristics. Students who live in a polluted environment and are exposed to inorganic compounds, heavy metals, or radionuclides should use fresh fruits and vegetables, fruit and vegetable juices, jellies, and beverages with a lot of pectin as part of their preventive nutrition (table -7).

Table 7 The Frequency of the students consumption fresh fruits (n=350, %)

Sr. No	Food consumption	STUDY				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Once a day	66.2	66.2	66.2	64.3	65.72
2	2-3 times a day	14.2	11.2	18.2	10.2	13.45
3	Weekly	10.2	17.3	23.2	8.0	14.67
4	Rarely	5.1	4.7	4.1	7.0	5.22

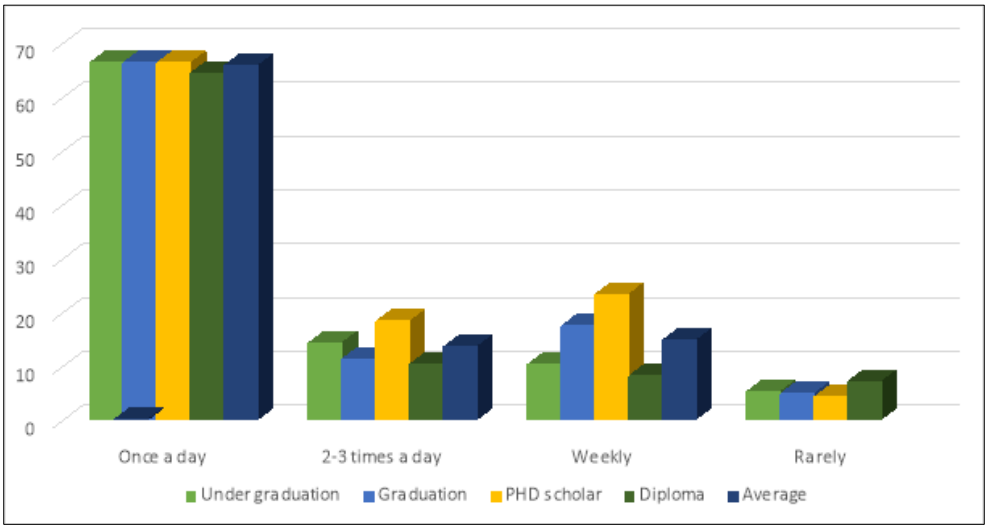

Figure 6 The Frequency of the student's consumption fresh fruits

The studies also revealed that almost all students consumed excessive amounts of simple carbohydrates (such as sugar and jams), which should be swapped out for foods like fruits, vegetables, cereals, honey, and other healthy options. 17.02 % of students regularly consumed sweets for breakfast, lunch, and dinner (table -8).

Table 8 The Frequency of the students consumption sweets (n=350, %)

Sr.No	Food consumption	STUDY				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Once a day	18.2	18.2	12.7	19.0	17.02
2	2-3 times a day	3.4	3.6	2.1	10.2	4.82
3	Weekly	47.5	45.5	46.1	15.2	38.57
4	Rarely	38.2	35.8	24.2	50.1	37.07

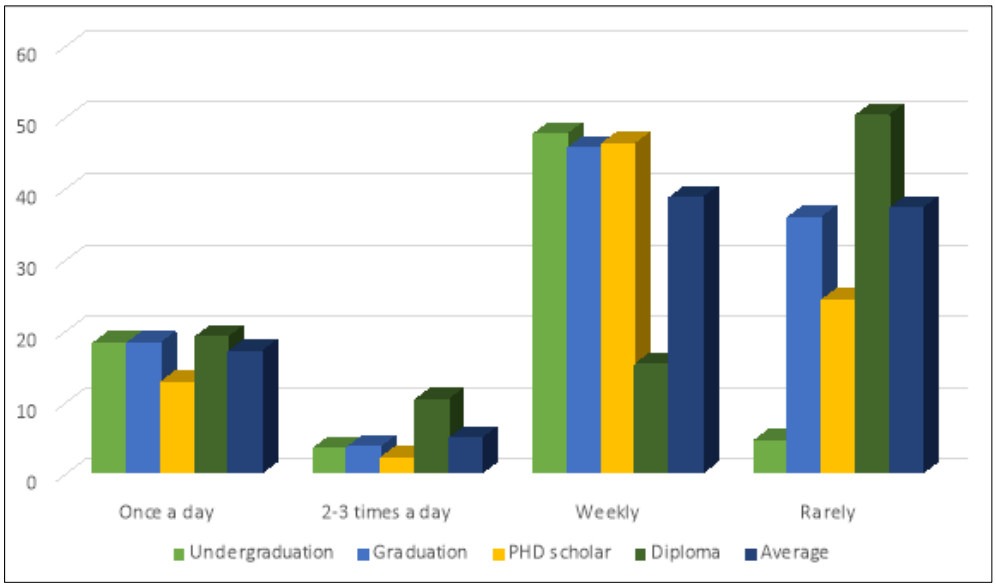

Figure 7 The Frequency of the student's consumption sweets

Cereals, an important component of both the first and second courses, hold a significant place in the diet of students. In terms of nutritional value, cereals are advantageous and can take the place of quite expensive products. Oats and buckwheat are preferred in radiation-polluted environments because they are high in complete protein, essential amino acids, vegetable fat, magnesium salts, and polyphenols that have anti-radiation properties. Wheat 55.42% and rice 10.3 % were preferred; peas, millet, and wheat groats were also less common (table -9).

Table 9 Cereals that dominate in the diet of students (n=350, %)

Sr.No	The name of cereals	STUDY				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
6.0	5.7	5.8	6.8	6.0	6.8	6.0
12.3	13.2	12.2	3.5	10.3	3.5	10.3
3.4	2.5	1.8	2.6	2.57	2.6	2.57
14.2	12.7	15.7	8.1	12.75	8.1	12.75
52.3	55.4	52.6	61.4	55.42	61.4	55.42
2.5	2.5	1.3	1.1	3.7	1.1	3.7
3.4	5.8	2.1	5.9	4.3	5.9	4.3
8.7	4.7	3.8	4.5	5.42	4.5	5.42

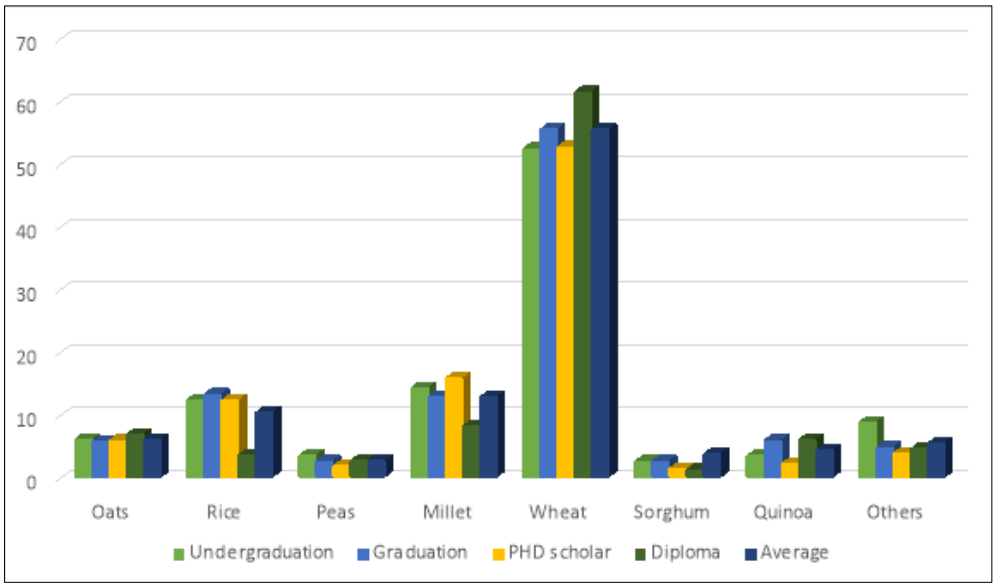

Figure 8 Cereals that dominate in the diet of students

A balanced diet is very important for human health. Dietary imbalances can lead to an oversupply or deficiency of certain nutrients. Insufficient intake of certain nutrients can lead to deficiencies. Iron in the form of hemoglobin transports oxygen from the lungs to various body tissues, leading to anemia and death. Iodine is essential for the development of the brain and is responsible for hormone production. Vitamin D causes rickets, vitamin C can lead to scurvy, and vitamin A is necessary for normal vision, reproduction, growth and a healthy immune system. Vitamin B1 causes beriberi, B6 causes anemia and certain skin diseases, and B12 causes muscle and nerve paralysis, extreme fatigue, dementia and depression. The study found that only 42.87% of vitamin B complex, 26.6% of vitamin C and 14.06% of vitamin D contributed to vitamin deficiencies in students (table -10).

Table 10 Vitamin deficiency of students (n=350, %)

Sr.No	Deficiency	STUDY				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Vitamin C	25.7	23.6	22.2	34.9	26.6
2	Vitamin D	14.2	14.2	13.3	14.56	14.06
3	Vitamin B complex	42.8	40.4	43.5	44.8	42.87
4	Iron	18.9	9.5	7.2	19.7	13.82
5	Iodine	1.1	0.9	0.9	2.1	1.25
6	Vitamin A	0.5	0.5	0.4	0.5	0.47

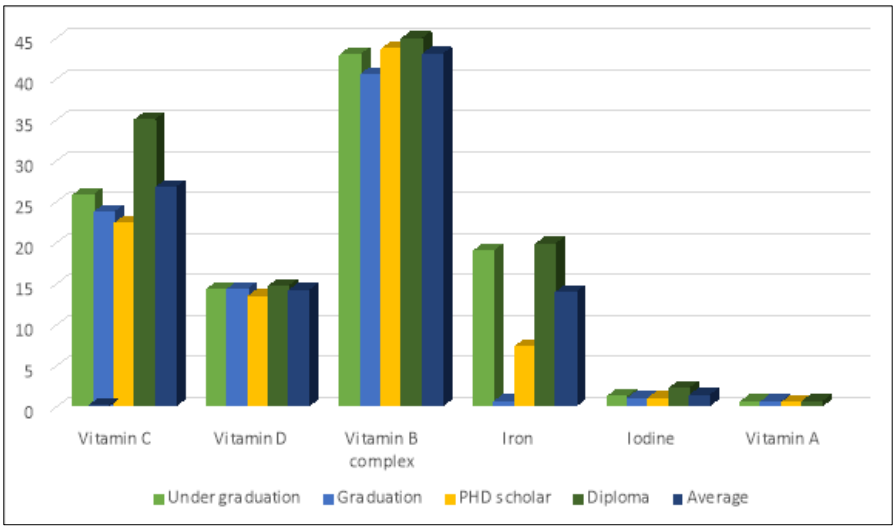

Figure 9 Vitamin deficiency of students

Fatigue (chronic tiredness or sleepiness, headache, dizziness, sore or aching muscles, muscle weakness, slowed reflexes and responses, impaired decision-making and judgement, moodiness, such as irritability). Fatigue leads to slow reactions, reduced information processing capacity, memory loss, drowsiness, reduced awareness, lack of attention, underestimation of risk, and poor coordination. Fatigue does resolve with proper rest and nutrition. Assessment of student fatigue status indicated that 77% said yes, 7.75% said no, and 14.23% said sometimes.(table -11)

Table 11 Fatigued of students (n=350, %)

Sr.No	Fatigued	STUDY				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Yes	77.67	76.89	77.56	78.11	77.55
2	No	8.2	7.9	6.1	8,8	7.75
3	Sometimes	14.9	13.2	13.1	15.6	14.23

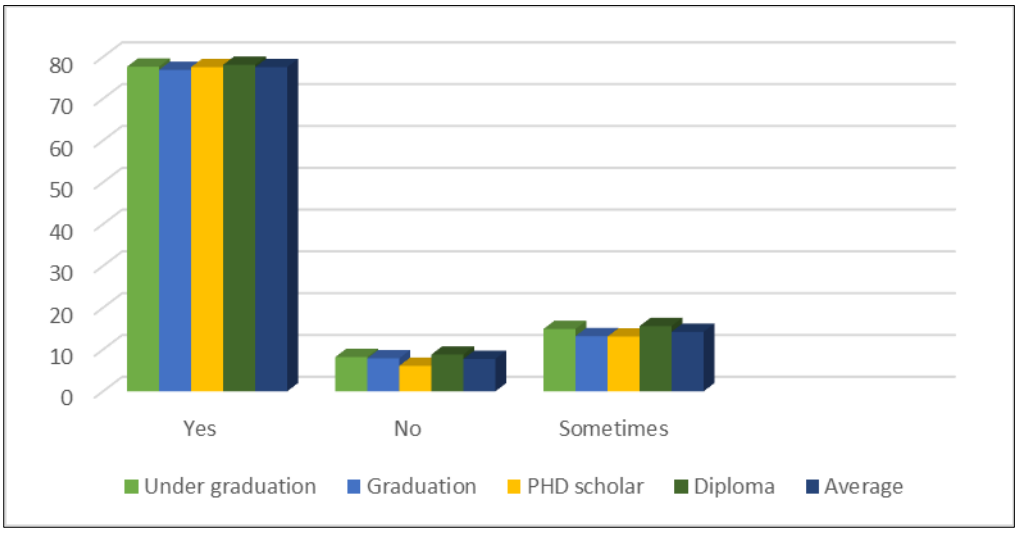

Figure 10 Fatigued of students

Mental health is a state of mental health that enables people to cope with the pressures of life, recognize their ability to study and work, and contribute to their communities. Mental health issues can affect a student's energy level, concentration, reliability, mental capacity, optimism, grades and quality of life. 13.7% of students have mental health problems, 19.35% are average and 65.45% are good (table -12)

Table 12 Mental health of students (n=350, %)

Sr.No	Mental Health	STUDY				Average
		Under graduation	Graduation	PHD Scholar	Diploma	
1	Good	65.7	64.4	64.4	67.3	65.45
2	Poor	13.2	12.4	12.4	16.8	13.7
3	Average	18.2	18.8	19.6	20.8	19.35

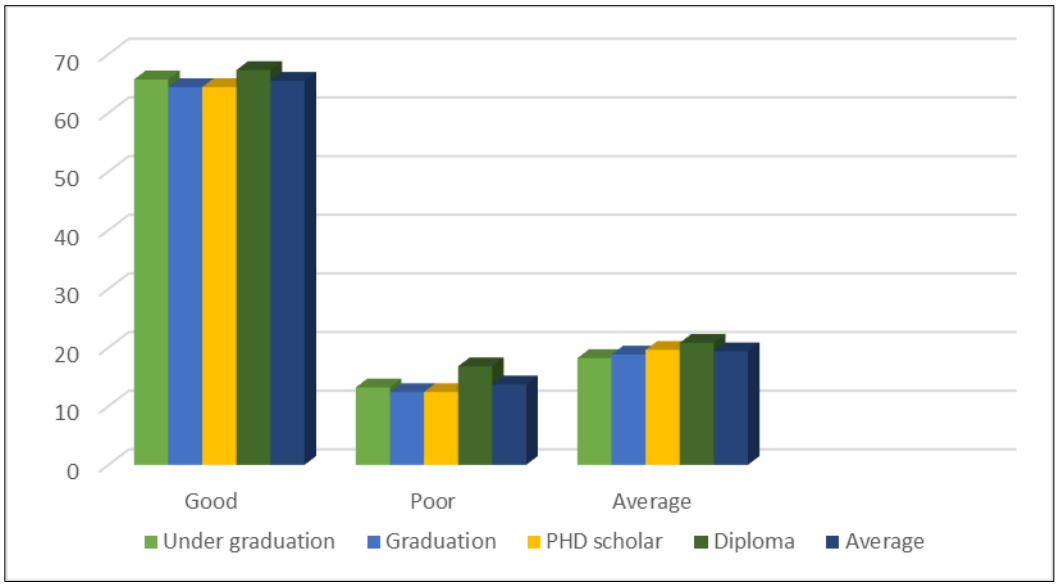

Figure 11 Mental health of students

4. Discussion

Experts predict that by 2030, the world's population will increase by 3.7 billion people, food demand will double and energy consumption will triple. Despite scientific and technological achievements, it has already been concluded that social tensions will rise, with societal nutritional status and energy security playing a leading role.

Today, one of her six on the planet goes to bed hungry, and between 15 and 20 million of her children die from malnutrition each year. Even in relatively wealthy countries with economies in transition, more than 30 million people have problems with the quality of their diets. In recent years, the deterioration of economic and environmental conditions in India and other countries around the world has led to a steady deterioration in the quality of agricultural products and food in various indicators.

The cultivation of crops by intensive techniques using mineral fertilizers and pesticides, and the introduction of genetic engineering have led to a decline in the quality of food ingredients.

Many food additives are used in the processing of agricultural raw materials and in the production of food, but they do not always have beneficial effects on human health.

The environmental safety of food is declining due to the decline in technical characteristics and nutritional value. Violation of the technology of using pesticides, even in small amounts, and the use of outdated technology have resulted in the fact that food products from numerous farms with various forms of ownership contain large amounts of pesticides and heavy metals. It has been confirmed that food poisoning occurs frequently, especially in low-income groups.

According to experts, more than 60% of his toxins enter the human body through food. Rising standards of living in developed countries have also changed attitudes towards food.

Consumers are becoming more conscious of their diet and are prepared not only to eat right, but to eliminate all risks and future developments of diseases such as hypertension, cholecystitis, diabetes, obesity and cancer.

Therefore, there is a need to improve the quality of nutrition for students. The results of these studies suggest that teachers in sports departments and other university structures should conduct educational activities with students, establish nutritional systems in universities, and plan lessons taking into account student mealtimes.

5. Conclusion

Our study shows that although university students' health-related quality of life is not good enough. While attending higher education institutions, it was found that the majority of students—both male and female—had poor nutritional quality; their diets were inconsistent, unbalanced, and illogical. The diet of pupils was found to be severely deficient in meat, fish, milk and dairy products, fresh vegetables, and fruits. The vitamins and minerals they needed were not present in sufficient quantities in their diet. Not taken into account were the rules for establishing energy balance and the proportions of the three major nutrients—proteins, fats, and carbohydrates. The majority of pupils were told that eating too much animal fat and not enough plant fat causes growth problems, a reduction in organism resistance, and skin problems. All of these things are detrimental to the health of contemporary students' lifestyles and may reduce the effectiveness of their future professional endeavors. Future investigations will focus on finding ways to enhance students' diets while they are enrolled in higher education institutions.

Limitation and future research

Since only one Parul university provided a sample for our study, the findings might not be generalizable to all university students. Additionally, the survey results show a moment in time. Our research model did not track a cohort group, therefore it cannot reflect how a group of students developed throughout their time at university. Comparing the health-related quality of life of students with that of the general population should be the focus of further study in order to pinpoint the unique health needs of students and create more effective health policies to enhance their wellbeing.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest.

Statement of informed consent

Approved by Institutional ethical approval.

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