

*Original Article*

# Food habits and lifestyle of Indian medical students' study at Jiamusi University: A questionnaire-based study

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## ABSTRACT

**Objectives:** Dietary habits depend on the environment, the country, and the community. Changes have the potential to endanger people's health. There will be some dietary-related health issues when traveling. Many Indian students pursue medical studies overseas. A student begins to acclimate to the climate after moving to a new place. In an unfamiliar culture, they alter their way of life, particularly their eating patterns. Understanding the relationship between eating habits and appendicitis in Indian medical students at Jiamusi University in China was the primary goal of the study.

**Material and Methods:** A questionnaire was prepared in consultation with students who have undergone appendectomy within the past 6 months which included students' infographic details, dietary habits in their home, lifestyles, exercise, past illness regarding appendicitis, and adoption of the new lifestyle.

**Results:** In all, 627 medical students from India were included in the study. About 36% of the pupils were female, while 64% of the students were male. In China, just 36% of students continued to follow a vegetarian diet, despite 58% of students being vegetarians at home. Just 61% of students were happy with the food that they were eating, and 82% of students were preparing meals for themselves. Although just 6% of students required hospitalization, over 26% of students experienced difficulties as a result of stomach issues.

**Conclusion:** A rapid shift in diet from vegetarian to non-vegetarian foods can result in appendicitis or other serious gastrointestinal illnesses. Students may prevent appendicitis and other illnesses by continuing to lead a healthy lifestyle.

**Keywords:** Diet, Lifestyle, Gastric disorder, Appendicitis

## INTRODUCTION

Nutrition and dietary habits are essential to sustaining good health and are influenced by a person's environment, including their country and society. These tastes change based on the climate, lifestyle, and customs of the area.<sup>[1]</sup> People's welfare is in jeopardy as long as there is change. Dietary distress can result from traveling to a new location and present as symptoms such as diarrhea, vomiting, and stomach pain.<sup>[2]</sup>

The trend of studying abroad has grown significantly over the past two to three decades, with an especially noticeable increase in the number of students going to English-speaking nations. Students from a variety of disciplines, including medical, are keen to continue their education abroad. Foreign students must adjust to the distinct lifestyle, culture, and environment that each country offers. Despite the fact that Asia has different epidemiologies, Indian students frequently choose Asian nations for their medical courses due to their comparable lifestyles.<sup>[3]</sup>

Indian medical students are more inclined toward studying in Asian countries such as China, Nepal, and Bangladesh rather than Western nations, as the education expenses are more affordable and their internships hold recognition from the National Medical Council, previously the Medical Council of India.<sup>[4,5]</sup> A student begins to adjust to the new surroundings and climate after moving. As they relocate, people frequently alter their eating and lifestyle choices, which can have an impact on their physical and general well-being. Many people first have stomach problems in their day-to-day lives. The digestive system is impacted by physical exercise both instantly and over time. Physiological changes result from regular physical activity as well as from exercise. Regular exercise is linked to a lower risk of some digestive illnesses as a lifestyle choice.<sup>[6]</sup> University students run the danger of not getting enough exercise because they are too busy with their extracurricular and academic obligations. The adult population in India appears to be becoming less physically

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active, according to recent reports.<sup>[7]</sup>

A number of students were surprisingly diagnosed with appendicitis, necessitating surgical intervention. This matter has provided some insights for our research.<sup>[8]</sup>

### Aims and objectives

The aim of this study was to understand the correlation between food habits and appendicitis in Indian medical students' study in Jiamusi University, China.

### MATERIAL AND METHODS

A year-long prospective cross-sectional study utilizing questionnaires was carried out from April 2018 to March 2019 at Jiamusi University in Heilongjiang Province, China. The study targeted Indian medical students across all years at the university's International Education College, excluding students from other countries and Indian students from other colleges. Informed consent for participation and data publication was obtained from all participants. The questionnaire, developed with input from students who had appendectomy surgery within the past 6 months, included questions about demographics, food habits, and lifestyle changes impacting health during country-to-country migration. Out of 650 Indian medical students, 627 consented to participate in the study. Description on the questionnaire used. Number of questions, nature of administration of the questionnaire, etc., and attaching the same appendix would be appropriate.

To facilitate the sharing of experiences, group discussion sessions were organized, with an emphasis on lifestyle and nutritional habits before arrival in China, following arrival, and following appendectomy. These conversations' goals are stated here, in addition to the rules that apply to them.

### Data analysis

Participant's response data from the questionnaire form were entered in Microsoft Excel sheet 2013 manually, and analysis was done using WinPepi V11.65 (Abramson, J.H. WINPEPI updated: computer programs for epidemiologists and their teaching potential. Epidemiologic perspectives and innovations 2011, 8.1).

### RESULTS

A total of 627 Indian medical students from 1<sup>st</sup> year to final year were recruited for the study. There were 64% (402) male students and 36% (225) female students among them [Table 1]. The research included medical students ranging in age from 18 to 42 years. Participants of varied ages were divided into age groups. The participants' mean age was 24.31 years  $\pm$  standard deviation 2.83 years, while the median age was 24 years. In the present study, 94.41% (592) of the students are between the ages of 21 and 30 [Table 1]. In their families, 58% (366) of students were vegetarians, while only 36% (228) continued vegetarianism in China [Table 2]. As

per their response, 82.93% (520) of students prepare food by themselves and 17.07% (107) eat outside, yet only 61% (385) are happy with their food, and 39% (242) of students are dissatisfied with their food or eating habits. In the dissatisfied students' group, the majority of them eat their meals outside (89/107, 83.17%) compared to cooking by themselves student (144/520, 29.42%).

Only 20% (129) of the students consumed fruits, whereas 62% (389) consumed vegetables on a regular basis. The majority of the students (92.34%) were eating food either cooked by themselves or cooked in their presence. In response to questions about physical activity and exercise, 81.97% (514) of students said that they get too little exercise in their daily lives. We found that 73.84% (463) were doing only walking as a part of their physical activities in their daily

**Table 1:** Sociodemographic distribution of the participants.

Category	Details	Number (%)
Gender	Male	402 (64)
	Female	225 (36)
Age group	<20 Years	11 (1.75)
	21–30 Years	592 (94.41)
	Above 30 years	24 (3.82)

**Table 2:** Question-wise participant response.

S. No.	Details	Response	Numbers (%)
1.	Type of food at home	Vegetarian	366 (58.37)
		Non-vegetarian	261 (41.63)
2.	Type of food at China	Vegetarian	228 (36.36)
		Non-vegetarian	399 (63.64)
3.	Mode of food	Self-made	520 (82.93)
		Outside	107 (17.07)
4.	Satisfied with food	Yes	385 (61.40)
		No	242 (38.60)
5.	Adopted outside food habit	Yes	58 (9.25)
		No	569 (90.75)
6.	Fruits in diet	Yes	129 (20.57)
		No	498 (79.43)
7.	Green vegetables in diet	Yes	389 (62.04)
		No	238 (37.96)
8.	Readymade food habits	Yes	48 (7.66)
		No	579 (92.34)
9.	Level of exercise	Inadequate	514 (81.98)
		Adequate	113 (18.02)
10.	Type of exercise	Walking	463 (73.84)
		Running	51 (8.13)
		Weight lifting	72 (11.48)
		Sports playing	41 (6.54)
11.	History of gastric problem	Yes	168 (26.79)
		No	459 (73.21)
12.	Hospital care needed	Yes	39 (23.21)
		No	129 (76.78)

lives. Although only 6% (39) of students needed hospital care for gastrointestinal sickness, more than 26% (168) of students were having problems due to gastrointestinal issues such as stomach pain, constipation, and gastritis. Of those 168 students, 37% (52), 42% (58), and 42% (58) seek advice from doctors, relatives, and friends, respectively, regarding digestive issues.

Hospitalization requirements or a history of stomach issues based on dietary habits, self-made food, or gender would have been more relevant to the study's particular goals. Data can be processed to find these.

## DISCUSSION

Students from India and other nations travel to China to further their education, bringing with them lifestyles and food habits from their native lands. They risk falling unwell immediately if they do not modify their habits to blend in with the new surroundings.<sup>[9]</sup> Many of these students are vegetarians, and switching abruptly from a vegetarian to a non-vegetarian diet after coming to China has caused digestive problems for a large number of them.

In Naaeder and Archampong<sup>[10]</sup> study, female participants were 26.01% and Khan *et al.*<sup>[11]</sup> study 32% while, in the present study, female participants were 36% and Lin *et al.*<sup>[12]</sup> have that 45.54% participated in a study related to appendicitis. The mean age of the present study, Naaeder and Archampong<sup>[10]</sup> and Khan *et al.*<sup>[11]</sup> was  $24 \pm 2.83$  years,  $29.2$  years, and  $38 \pm 15$  years, respectively.

A significant 82% of students in this survey prepared their own meals, demonstrating a preference for home-cooked meals. In comparison, only 32.4% of respondents to Mills *et al.*'s<sup>[13]</sup> study reported consuming homemade meals. According to their research, eating meals produced at home lowers your chances of developing diabetes, high cholesterol, obesity/body mass index, and other health problems.

According to Mustafa *et al.*'s study,<sup>[14]</sup> international students tend to welcome new experiences. They find it less difficult to learn ways to cook than it is to get their digestive systems used to new food habits. Creating their own traditional meals can help them stay healthy and lessen homesickness.

Of the participants in this study, 39% were unhappy with their diet, and half of them routinely ate fast food. According to Schnettler *et al.*'s research<sup>[15]</sup> eating out is less likely when fast food is consumed; hence, there is a strong correlation between eating well and preparing meals yourself. According to their research, 60.3% of participants who never ate fast food expressed satisfaction with their cooked meals.

Considering fruits and vegetables have a high nutritional content and increase energy and general health, eating them is crucial to maintaining a healthy digestive system and body weight. In this study, 62% of participants cooked with vegetables but just 20% consumed fruits every day. A diet high in fruits and green vegetables can reduce the incidence

of appendicitis, according to research by Barker *et al.*<sup>[16]</sup> and Morris *et al.*<sup>[17]</sup> In fact, the condition and these foods have an inverse relationship.

While Naaeder and Archampong<sup>[10]</sup> discovered that a high fiber intake did not significantly prevent appendicitis in healthy individuals, the study by Nelson *et al.*<sup>[18]</sup> indicated that a diet rich in green vegetables may reduce the risk of appendicitis. The correlation between appendicitis and a non-vegetarian diet is supported by research by Appleby *et al.*<sup>[19]</sup> and Ahmed *et al.*,<sup>[20]</sup> where results show that cutting out meat lowers the risk by 50%. In a similar vein, Niranjana *et al.*<sup>[21]</sup> found that 70.53% of people who were not vegetarians experienced digestive problems. Before migrating to China, 58% of the participants in this study were vegetarians; however, only 36% of them stuck to their vegetarian diet after immigration, and 22% changed to non-vegetarian diets, which may have increased their risk of appendicitis.

Walking, running, and doing housework are examples of regular physical exercise that is good for one's health and lifestyle.<sup>[22,23]</sup> In addition, for optimal health, the Centers for Disease Control and Prevention advise engaging in simple physical activity.<sup>[24]</sup> Despite the fact that 81.97% of participants in our study did not engage in even a minimal amount of physical activity, there was no discernible relationship between physical activity and the risk of appendicitis.

Medical students who dwell in hostels are more likely to experience digestive issues. According to studies by Niranjana *et al.*,<sup>[21]</sup> 63.17% of these kids had gastrointestinal problems, whereas only 26% did in this study. Instead of seeing professionals, medical students frequently self-manage or ask friends and family for assistance when they have gastrointestinal issues. Just 23.21% of the participants in our study who had gastrointestinal problems went to the hospital for care. It is critical to modify food and lifestyle in accordance with medical advice to avoid these problems.

## CONCLUSION

Maintaining a healthy diet is essential, but lifestyle and environmental changes can also have an impact on well-being. To prevent disease, it is important to identify the risk factors. This study discovered that eating outside for extended periods of time, switching from a vegetarian to a non-vegetarian diet suddenly, and not eating enough fruits and vegetables are the leading causes of gastrointestinal problems. Adopting a healthy lifestyle lowers the risk of appendicitis and other severe gastrointestinal disorders in students. Being aware of the risks of disease is essential, and improving one's diet by following recommended guidelines can also improve one's health.

### Ethical approval

The research/study approved by the Institutional Review Board at the Institutional Ethical Committee of Jiamusi University, number XZRWSK2018-34, dated May 08, 2018.

### Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

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The present study was conducted as a short-term student (STS) project for undergraduate students of Jiamusi University to encourage the students to research work. Fund was provided by the Jiamusi University research department for the study to the principal investigator for the study.

### Conflicts of interest

There are no conflicts of interest.

### Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

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