

Knowledge awareness and utilization of probiotics in students of Khawaja Fared University of Engineering and IT

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KEY WORDS

Probiotics,
Pycobiotics
Effects of probiotics,
healthy microbiota

ABSTRACT

Live bacteria known as probiotics have health benefits when taken as directed. The total living microorganisms that are colonizing the gastrointestinal tract of living organisms are referred as GI microbiota. They live in our gut and restore normal microbial balance. Probiotics are very advantageous for maintaining good gut health. They are used to treat and prevent certain diseases. Probiotics modulate intestinal microecological balance. Therapeutics that target the GI microbiome include prebiotics, probiotics, para probiotics/ postbiotics, and fermented milk. and they have ability to influence stress resilience and mood in an individual health and disease, they are useful for the treating health diseases so they are of potential interest. Probiotics are available in different forms Probiotics help in treating and preventing many diseases like cardiovascular diseases, mental health disorders, allergies, liver disorders, intestinal ailments, autism, irritable bowel syndrome, gastroenteritis, wound healing, improving oral health. On the other hand, probiotics in some cases caused negative effects on health of students. Purpose of this paper is to study the awareness and knowledge of students on beneficial effects of probiotics. A questionnaire was developed to study the knowledge, awareness and utilization of probiotics among students. Further positive and negative effects of probiotics were studied and observed. Questionnaire was distributed through official WhatsApp groups. Department of Life Sciences, Bio Sciences, Food Sciences and Chemistry participated in this study.

Introduction:

Probiotics are microbes that reside in our gut and work to maintain and restore a healthy microbial balance, which helps to prevent and cure several mental health issues. A healthy microbiota can be achieved by proper supplementation and consumption of probiotic-containing foods such as dairy products and fermented foods, and can thus function in supporting higher brain function. (Renee Alexis S. Guiao, Positive Influence of Probiotics on the Mental , 2021) Probiotics can affect the central nervous system's functioning in humans. (Charlotte Le Morvan de Sequeira, 2022) When probiotics are used in adequate quantities, they modulate intestinal microecological balance, hence providing beneficial effects. Probiotics influence psychological processes, cognition and emotion positively, so they are also called psychobiotic. Probiotics, when used appropriately, have the potential to affect the functioning of the central nervous system. (Nin Zhang MD, 2020). Yogurt is the most common and widely used probiotic product. Probiotics' advantages stem from their ability to maintain a healthy balance of gut flora makeup. If the delicate balance

is disrupted, it can lead to several health issues. (PA, 2013) As a result, when probiotics are taken, they correct the gut microbiota and restore the normal microbial population proportion. Prebiotics, like probiotics, are necessary for maintaining a healthy gut environment. Prebiotics are non-digestible food components that provide nourishment to probiotic bacteria (Kaur Palki Sahib, 2016). People may ensure that they acquire a range of prebiotics that will feed various probiotic microorganisms by eating a variety of foods (Dorna Davani-Davari, 2019). Prebiotics like inulin and pectin have been found to lower the duration as well as the frequency of diarrhea, alleviate inflammation and symptoms of intestinal tract problems, and even prevent colon cancer. Additionally, it has been asserted that they improve mineral bioavailability and absorption, lower cardiovascular disease risk factors, and prevent obesity (Karina Pokusaeva, 2011). Consumer knowledge of the relationship between diet and health has expanded considerably in recent years, with consumers now exploring strategies to have a direct influence on health. The enormous

number of clinical research studies that offer mounting proof of its potential buyer benefits also serve to support this. Various varieties of products containing probiotics are:

- Healthy foods and drinks (fermented meat products, non-dairy beverages, dairy products, breakfast cereal dry-food probiotics, baked foods)
- Nutritional additives (nutritional supplements and food supplements)
- Preparations for use in medicines
- Specialty foods (infant formulation)
- Animal feed (Richa Sharma, 2019)

An ideal probiotic should have the given properties:

- Short generation time
- Effective adherence to the gut lining
- Non-pathogenicity
- Tolerance to acid and bile
- Robust and enduring processing conditions
- Lactic acid production
- Anti-genotoxic
- Genetic stability.

Numerous processes are thought to be connected to the probiotics' beneficial effects.

- The production of inhibitory compounds
- Blocking of pathogenic bacterial adhesion sites
- Competition for nutrition with pathogenic bacteria,
- The control of immune responses
- Breakdown of toxic chemicals
- Blocking of toxin receptors (Kavita. R. Pandey, 2015)

An optimum probiotic preparation must have elevated cell viability, be able to affect local enzymatic reactions, be resistant to the abrasion of the gut epithelium, be able to thrive in the intestine even if the probiotic strain becomes unable to colonize the gut, be able to communicate with and transmit messages to the immune cells associated with the gut, be non-pathogenic in nature, and be resistant to processing.

FAO and WHO put guidelines to set a systematic approach to effectively evaluate probiotics in food. These guidelines could be used as a global standard for evaluating probiotics in food. According to guidelines, it is necessary to perform the following activities:

Strain identification

Honest labelling of efficacy claims and content for entire shelf life

Functional characterization of strains for safety purpose and probiotic attributes

Health benefits validation in human studies (Kavita. R. Pandey, 2015)

The utilization of probiotics in improving health is increasing day by day. Today, one-third of the world's diet comprises a vast array of fermented foods and beverages. The probiotic level in food ranges from 2 to 20 grams per day and it depends on the desired effect. Probiotics can be used with different food products like bread, cereals, biscuits, sauces, or yogurt. Yogurt is the most common and preferred source of probiotics. Most commonly, microorganisms like Bifidobacterium and lactic acid bacteria (LAB) are used as probiotics. Probiotics affect the immune system positively by modifying humoral and cellular immune responses. All the bacterial strains have specific properties, some help treat and prevent obesity e.g., Bifidobacterium prevents obesity, some are useful in treating diabetes mellitus, some probiotics help in CKD, and some are useful in treating osteoporosis.

Mental health plays an integral part in the normal functioning and development of the human body... An individual's social, emotional, and psychological well-being is dependent on his mental health. (Renee Alexis S. Guiao, Positive influence of probiotics on mental health status of college students, 2021)

Probiotics are active microbes and they are being used to regulate psychiatric disorders. Probiotics regulate the synthesis and release of bioactive factors, a variety of neurotransmitters, serum corticotrophin-releasing factor, and tumor necrosis factor- α thus providing a beneficial role under stress conditions, so probiotics are expected to be used as a potential therapy for releasing stress. (Nin Zhang MD, 2020)

Probiotics also play a beneficial role in treating and preventing diseases like allergies, liver disorders, intestinal ailments, cardiovascular diseases, and metabolic syndrome that led to diabetes. Probiotics have a beneficial impact on dental caries and help in preventing the demineralization of enamel and dental plaque. Probiotics are also used in treating cardiovascular diseases, autism, irritable bowel syndrome (IBS), and wound healing. Probiotics also improve oral health. (Muhammad Modassar Ali Nawaz Ranjha, 2021)

Sometimes, probiotics cause some allergies and infections. Bifidobacterium and Lactobacillus are linked to dysbiosis in patients having IBS. Adverse effects of probiotics may include skin complications, gene transfer from the probiotics to the patient's normal gut, micro endocarditis flora, metabolic disturbances, and overactive immune function. (<https://www.news-medical.net/health/Can-Probiotics-Ever-Be-Harmful-to-Human-Health.aspx>)

An observational study is performed at Khawaja Fareed University of Engineering and Information Technology. Department of Life Sciences, Biosciences, Chemistry, and Department of Food Sciences were included in this study. Knowledge and awareness of students about probiotics were observed in this study.

Design and participants:

An observational study was done by creating a questionnaire. We distributed questionnaires in online and physical mode to the students of the Department of Life Sciences, Department of BioSciences, Department of Food Sciences, and Department of Chemistry at Khawaja Fareed University of Engineering and Information Technology.

Measures:

The questionnaire contains 13 questions divided into three parts. In the first part, we observed socio-demographic data including student's gender, age, and education

In the second part, we observed awareness of probiotics in students, whether they are familiar or unfamiliar with probiotics and their health benefits. In the third part, we examined the utilization of probiotics in students.

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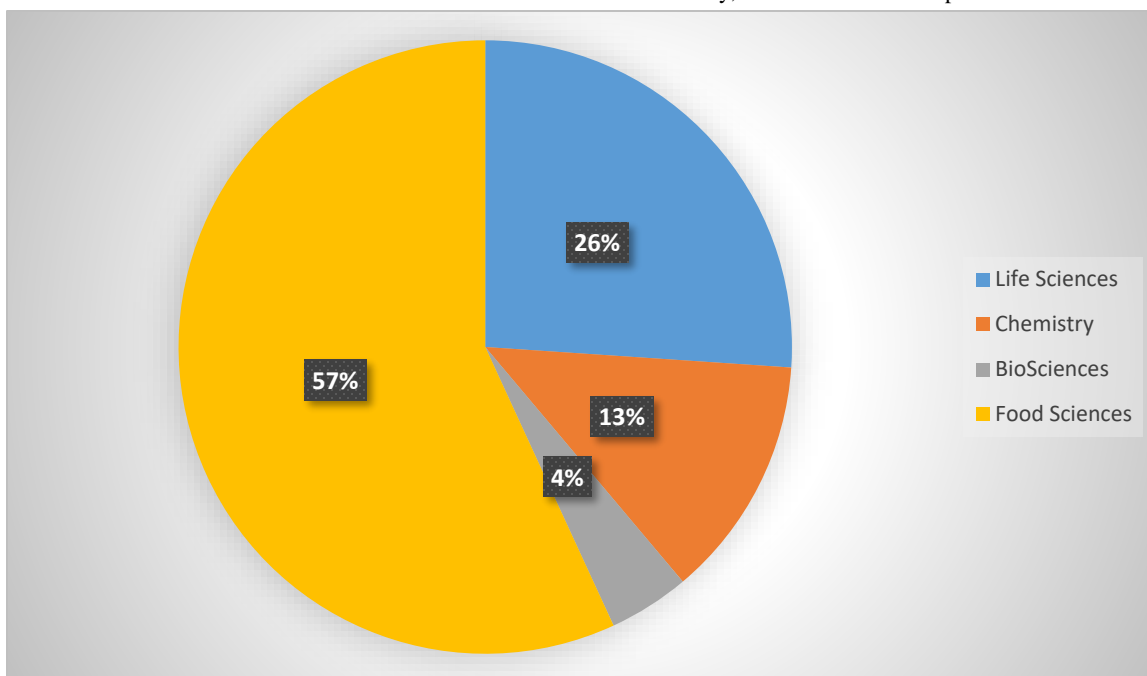
Statistical analysis:

We calculate average and percentage of the data we got from the questionnaire filled by the students of these departments.

Results and discussion:

Department:

89 students filled out the questionnaire out of which 49 were from the department of Life Sciences, were from the department of BioSciences, were from the department of Chemistry, and were from the department of Food Sciences.

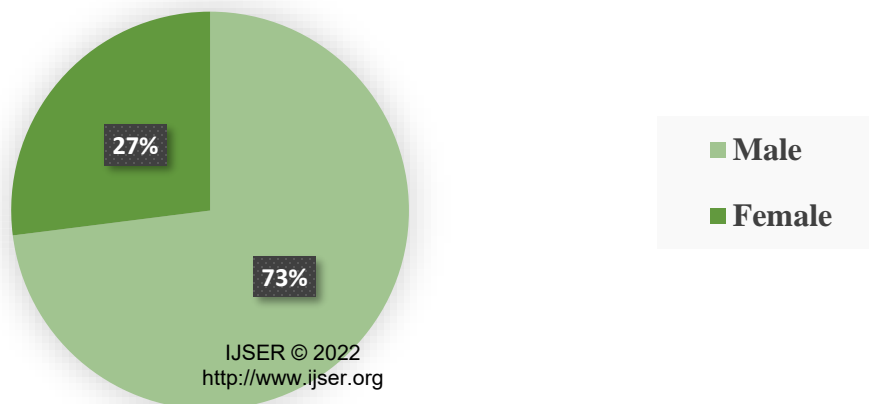


Gender:

When authors observed gender of students, it was observed that maximum of students that take part in responding to

questionnaire were female students. 65 students were female, that make 73% of total and 24 were male students (27%) that fill out the questionnaire.

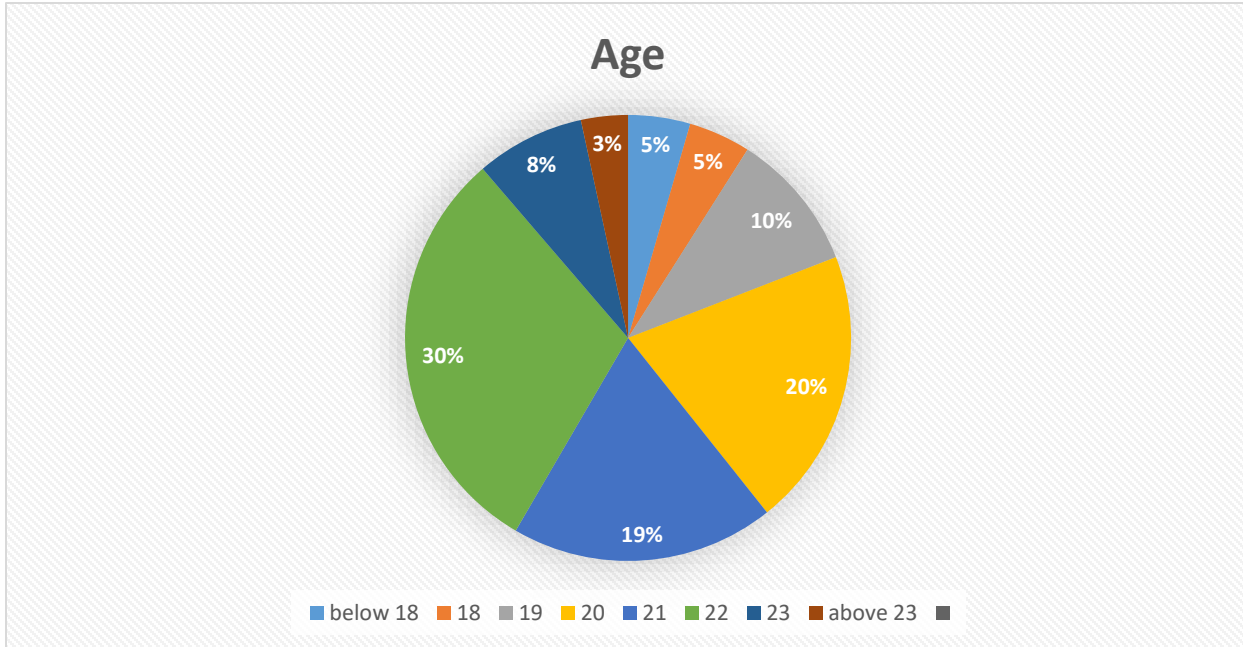
Gender



Age groups:

Students belong to different age groups. Maximum students that participated were 22 years old. 4.5% students were below 18 years. 4.5 % students were 18 years old. 10.1% students were 19 years in age. 20.2% were 20years old.

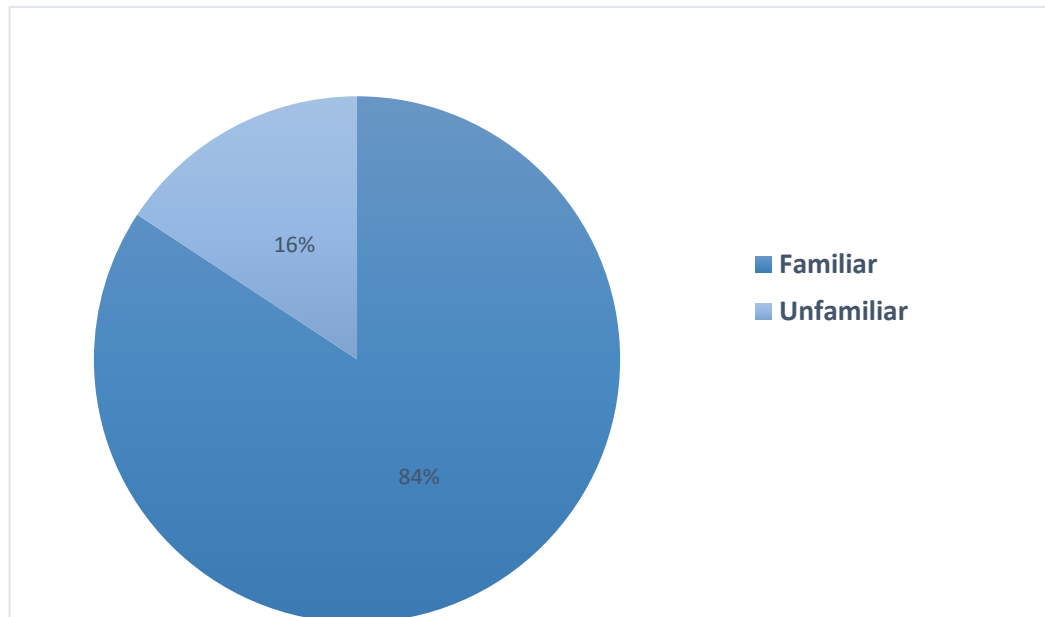
19.1% students were 21 years. 30.3% students were 22 years old. 7.9% students belong to age group of 23 years. 3.4% students were 23 above in age. So, students that participated in filling questionnaire are from different age groups their responses were observed.



Familiarity:

84.27% students were familiar with probiotics while 16% students were unfamiliar with probiotics. Familiarity with beneficial effects of probiotics is important for maintaining

Probiotics are microorganisms that live in our gut. Probiotics function in maintaining and restoring normal microbial balance (Renne Alexis S Guiao, 2021) When we observed knowledge of probiotics in students. It was observed that 84.27% students (75 out of 89) were familiar and 15.73%



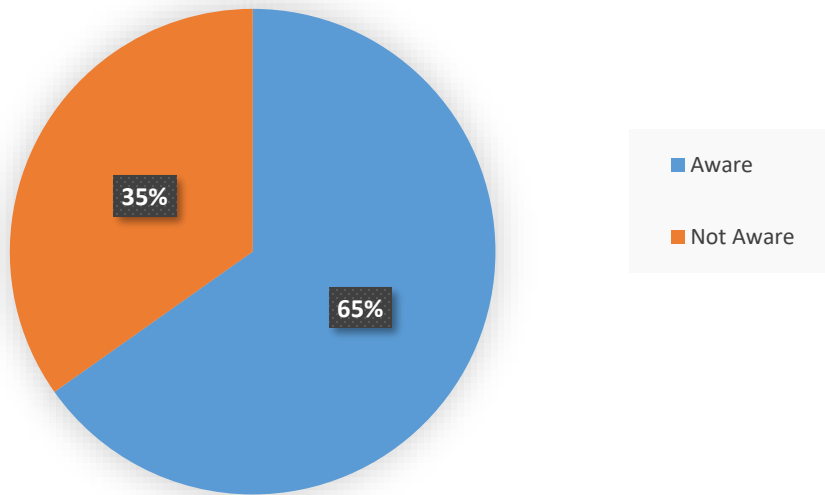
healthy life.

students (14 out of 89) were unfamiliar with probiotics.

Awareness on beneficial effects of probiotics:

Probiotics are beneficial for human health and when the authors studied the awareness of students on beneficial

effects of probiotics, it was found that 65.2% students were aware about beneficial effects of probiotics while 34.8% students were not aware about the beneficial effects of probiotics.

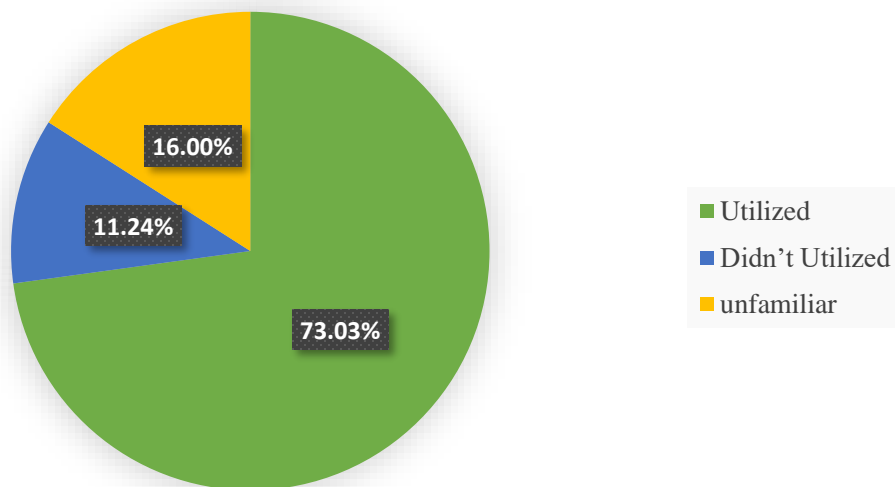


Utilization:

73.03% students (65 students out of 89 students) have utilized probiotics and 11.24% students (10 out of 89

students) didn't utilize probiotics although they were familiar with probiotics.

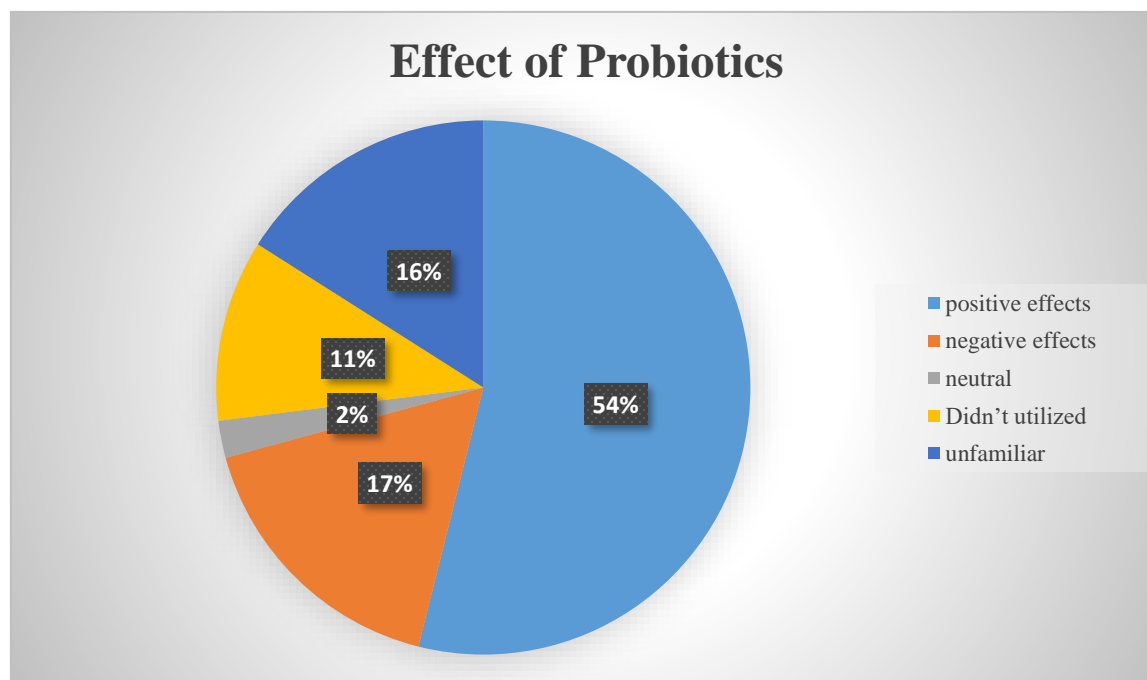
Utilization of probiotics



The knowledge of students on positive, negative and neutral effects of probiotics:

Appropriate supplementation of probiotics function in boosting host's healthy life. Probiotics work to boost the immune system, improve mental health, and lessen the impact of gastrointestinal tract illnesses, antibiotic treatment related symptoms. (Sivamaruyhi, 2019)

- 53.93% (48 out of 89 students) were affected positively.
- 16.8% (15 out of 89) experienced negative effects of probiotics. In some cases, probiotics when administered resulted in fever, headache and nausea. (Megan Clapp, 2017)
- 2.24% (2 out of 89) students were neutral when they administered probiotics.



Conclusion:

Probiotics play a very important role in maintenance of healthy gut environment. Gut has main role in maintain the body healthy. A questionnaire-based survey was conducted in Khawaja Fareed University of Engineering and Information Technology and students of department of Life Sciences, Bio Sciences, Food Sciences and Chemistry participated in this study. Students were guided to fill the survey accurately. Both male and female students participated in this study. Authors observed the knowledge and awareness of positive effects of probiotics. 84% students were familiar with probiotics, 65% students were aware of positive effects of probiotics and 73.03% have utilized probiotics and those students who utilized probiotics, 54% got positive effects while 17% gain negative effects and 2%

were neutral. So, probiotics are very useful in preventing and treating different diseases. The purpose of this study was to know the knowledge, awareness and utilization of probiotics. Probiotics aid in the removing of dangerous bacteria such as germs and the maintenance of healthy body systems from your mouth to your stomach. Probiotics are naturally present in fermented foods and cultured milk. This study raised awareness of the value of probiotics and increased people's knowledge about them. Everyone should be aware of the benefits and uses of probiotics in maintaining our gut health. The primary goal of this study is to learn about people's knowledge and usage of probiotics, as well as to educate them about probiotics and encourage their use in our daily lives.

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