

Assessment of Knowledge, Attitude, and Awareness of Dental Students Toward Probiotics – A Cross-Sectional Study

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Abstract

Background: Probiotics are defined as “those supplements of food which contain microbial flora that has the capacity to effect human health in a beneficial way.” The most commonly used bacterial strains for probiotic preparations belong to the genera *Lactobacillus* and *Bifidobacterium*. The present study aims to assess the knowledge, attitude, and awareness of dental students toward probiotics.

Materials and Methods: A questionnaire-based cross-sectional study was conducted among 450 dental students in Ghaziabad. The knowledge, attitude, and awareness of dental students toward probiotics were assessed using Chi-square analysis and $P \leq 0.05$ was considered statistically significant.

Results: The response rate of the present study was 89.1%. Out of the 401 students participated, 65.8% were females and 34.2% were males. The mean age of the participants was 22.11 ± 4.007 . The study reveals that 80.3% of undergraduates and 93% of postgraduates were aware of the term probiotics. About 75% undergraduates and 93% postgraduate students agreed that probiotics are safe.

Conclusion: The findings of the present study revealed that majority of the dental students were aware about the probiotics and its health benefits.

Keywords: Attitude, Awareness, Knowledge, Probiotics, Students.

INTRODUCTION

The indiscriminate and reckless use of antibiotics has led to the emergence of multi-resistant strains of bacteria. This unfortunate development has led scientists to seek alternate means of combating infectious diseases. Thus the good-old but forgotten concept of Bacteriotherapy seem to offer innovative tools for the treatment of infectious diseases.^[1,2] Bacteriotherapy or replacement therapy is the administration of naturally occurring living bacteria of human origin as a therapeutic manipulation of the bacterial microenvironment in the patient's body. The basic principle is to use good bacteria to compete against pathogenic bacteria and these beneficial living microorganisms are referred to as probiotics.^[1]

Simply probiotics can be defined as “those supplements of food which contain microbial flora that has the capacity to effect human health in a beneficial way.”^[3] The most commonly used bacterial strains for probiotic preparations belongs to the genera *Lactobacillus* and *Bifidobacterium*.^[4] The use of

probiotics plays an important role in dentistry too ever since the oral infections occupied the prime space among the other infections affecting the humans.^[5] Probiotics can be extensively used in dentistry for prevention and treatment of dental caries, periodontal disease, halitosis, oral candidiasis, etc.^[1,2]

Recent studies have shown a high level of awareness, knowledge, and consumption of probiotics supplements in some developed countries such as Canada, Australia, and the USA which deliver an advanced health-care system, however, this appears in contrary to some developing countries such as

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Nigeria and Arabian Gulf countries.^[6] Thus, the present study aims to assess the knowledge, attitude, and awareness of dental students toward probiotics.

MATERIALS AND METHODS

A questionnaire-based cross-sectional study was conducted among 450 dental students in Ghaziabad. The study included

all the undergraduate students, interns, and postgraduate students. The ethical clearance for the study was obtained from the institution review board of the college and the informed consents were taken from all the participants.

The questionnaire used to collect the data consists of two sections: Demographic information and awareness toward probiotic benefits.

Statistical analysis

The data were compiled and tabulated in Microsoft Excel spreadsheet and were subjected to frequency distribution analysis using the Statistical Package for the Social Sciences software (SPSS) 21.0 (SPSS Inc., Chicago, IL, USA). The knowledge, attitude, and awareness of dental students toward probiotics were assessed using Chi-square analysis and $P \leq 0.05$ was considered statistically significant.

RESULTS

The study was conducted among 450 dental students among which 401 students provided the entire data and completed the questionnaire given to them. The response rate was 89.1%.

Table 1: Demographic data of the study participants

Demographic data	Number	Percentage (%)
Gender		
Male	137	34.2
Female	264	65.8
Educational qualification		
1 st year students	76	19
2 nd year students	74	18.5
3 rd year students	78	19.5
4 th year students	6	1.5
Interns	81	20.1
Post graduates	86	21.4
Mean age	22.11±4.007	

Table 2: Knowledge, attitude, and awareness of dental students toward oral benefits of probiotics

Questions	Response	Under graduate students (%)	Post graduate students (%)	P-value
Are you aware of the term probiotics?	Yes	80.3	93	0.005**
	No	19.7	7	
What you think are the constituents of probiotics?	Live microorganism	85.07	84.9	0.453
	Synthesized drugs	7.96	8.13	
	Natural plant products	5.39	4.65	
	Don't know	1.58	2.33	
Do you think probiotics improve your health?	Yes	80.6	93	0.006**
	No	19.4	7	
Would you try a probiotic product if it were recommended by a health professional?	Yes	81	95.3	0.001**
	No	19	4.7	
Do you think probiotics are safe?	Yes	75	93	0.005**
	No	25	7	
Why do you consume probiotics food products?	Increase my well being	6.98	4.65	0.114
	Strengthen the immune system	18.44	12.79	
	Improve gastrointestinal Function	66.34	74.41	
	No specific reason	2.53	5.83	
	I do not consume probiotic food products	5.71	2.32	
Identify food sources of probiotics.	Milk	11.19	8.13	0.486
	Yogurt	61.58	51.18	
	Both	24.7	40.69	
	Don't know	2.53	0	
How did you obtain information about probiotics?	Doctors	20.63	38.37	0.734
	Friends/Relatives	4.76	10.48	
	Social media	6.98	16.27	
	Internet	67.63	34.88	
Have you ever used probiotics as a therapeutic drug?	Yes	22.9	20	0.704
	No	77.1	79	
In dentistry, Are you aware of the use of probiotics in the prevention of caries/periodontal disease?	Yes	80	93	0.005**
	No	20	7	

Out of the 401 study participants, 65.8% were females and 34.2% were males. The mean age of the participants was 22.11 ± 4.007 [Table 1].

The study reveals that 80.3% of undergraduates and 93% of postgraduates were aware of the term probiotics. Undergraduates and postgraduates who correctly answered that live organisms are the main constituents of probiotics were 85.07% and 84.9%, respectively. The participants willing to have probiotics if it is recommended by a health professional were 81% among undergraduates and 95.3% among postgraduates. About 75% undergraduates and 93% postgraduate students agreed that probiotics are safe. Among the present study participants, most have never consumed probiotic as a therapeutic drug [Table 2].

DISCUSSION

The present study assessed the knowledge, attitude, and awareness of probiotics among dental students. The results showed that maximum number of participants was aware of the role of probiotics and these results are in agreement with the study conducted among the dental students of Thodupuzha, Kerala in which 67% were aware of the term probiotics.^[7]

Most of the participants in the present study were willing to try probiotics if it was recommended by a health professional. This shows that the participants are willing to try something new on recommendation from their physician. In a previous study by Stanczak *et al.*, there were a significant number of the participants who agreed that they would try a probiotic product if it were recommended by a health professional.^[8]

Regarding the source of probiotics, 61.58% of undergraduates and 51.18% of postgraduates have chosen yogurt. In a study conducted among Nigerian clinician by Osazuwa *et al.*, 45.1% of the respondents indicated a preference for yogurt as a form of probiotic.^[9]

The present study was limited to students of only one particular college. Hence, generalizability of the results possibly will be one of the limitations of our study due to the smaller sample size. It is a fact that studies involving the use of questionnaires are susceptible to acquiescence bias and social desirability bias and this may also remain as another limitation.

CONCLUSION

The findings of the present study revealed that majority of the dental students were aware of the probiotics and its health benefits. Only a few students have used probiotics as a therapeutic drug; however, majority of the participants showed willingness to try probiotics if it was recommended by a health-care professional.

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