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## SURVEY ON KNOWLEDGE AND AWARENESS OF PROBIOTICS AMONG DENTAL STUDENTS

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### Abstract

**Background:** To assess the extent of knowledge of probiotics among dental students. Probiotics are live microorganism that present health benefits to the host when consumed. Their role as therapeutic agents for the prevention and management of gastrointestinal infections, allergic disease and their anticancer potentials is globally recognized especially in developed countries. Foods such as some yogurts, cheese and dairy drinks are developed with probiotics, and this practice has thrived in countries in Europe, Asia and America.

**Methods:** The survey was cross-sectional in design. Following participant self-administered enrolment in the study, data were collected by questionnaire that assessed participants' knowledge on probiotics. A total of 200 questionnaires were distributed to dental students in dental colleges Chennai, Tamil Nadu.

**Results and Discussion:** It was found that 63% were female and 37% were male. It was evident that there was a high level of awareness on the importance of probiotics towards one's health, its food source, its constituents and aware of the term probiotic. The respondents have a good basic knowledge regarding probiotics. However, there was high number of participants 161(80.5%) of the participants were unaware of the role of probiotics in the prevention of any diseases in the oral cavity. This showed that the respondents are unaware of the significance of probiotics in dentistry.

**Conclusion:** The results obtained from this survey shows that dental students have good knowledge and awareness on probiotics however they are unaware of its significance in dentistry.

**Keywords:** *Dental students, probiotics, yoghurt, microbes*

**Introduction:** Probiotics comprises of living microorganisms, when administered in adequate amounts, it confers a health benefit on the host (Stanczak and Heuberger, 2009; Salminen et al., 1999). Probiotics can be bacteria, molds or

yeast. However, most probiotics are bacteria. Among bacteria, lactic acid bacteria are more popular (Saxelin et al., 2005, de Vrese and Schrezenmeir, 2008, Haukioja, 2010). A probiotic can be a single bacterial strain or it may be a consortium as well. It can be in powder, liquid, gel, paste, granules forms or available in the form of capsules, sachets, etc. (Suvarna et al., 2005). Probiotics are seen in the form of fermented milk which was thought to be beneficial to the human body when ingested (Stanczak and Heuberger, 2009). Different types of probiotic bacteria are added to a variety of food such as milk products and fermented foods of plant origin (Tamime et al., 2005), fruits, vegetables, legumes, cereals, malt and soybeans (Payahoo et al., 2012). It has been reported that gram positive lactic acid-producing bacteria such as lactobacillus and bifidobacterium are generally safe and both are constitute a major part of the normal intestinal microflora in animals and humans (de Vrese and Schrezenmeir, 2008). Hence, traditionally, probiotics have been implicated with gut health, and most clinical interest have focused on the prevention or treatment of gastrointestinal infections and diseases; however, during the last decade, promising health effects of probiotic bacteria have been reported, including enhancement of the adaptive immune response, treatment or prevention of urogenital and respiratory tract infections, and prevention or alleviation of allergies and atopic diseases in infants (Saxelin et al., 2005, de Vrese and Schrezenmeir, 2008).The use of probiotic is said to be an imperative aspect in dentistry also ever since the oral infections play pivotal role among the other infections in humans. The most commonly used strains belong to the genera lactobacillus and bifidobacterium, generally that are commonly found in the oral cavity, including caries lesions (Haukioja et al., 2006).In oral health context, Krage and coworkers had reported the usage of lactic acid bacteria in the field of dentistry and demonstrated the probiotics for improvement of oral health and in the treatment of periodontal inflammation (Krage, 1954).

Recently, there has been significant interest in using probiotics in treatment of periodontal disease. Patients with various periodontal diseases such as gingivitis, periodontitis, and pregnancy gingivitis were locally treated with a culture supernatant of a *L. acidophilus* strain recovered significantly (Chatterjee et al., 2011).Halitosis is a discomfort due to oral diseases including periodontitis and probiotics are studied for the treatment of both mouth-and gut-associated halitosis. Interestingly, it has reported that different probiotic strains such as *E. coli*Nisle 1917, *S. salivarius* K12, three *Weissellaconfusa* isolates, and a lactic acid-forming bacterial mixture were found effective against halitosis (Haukioja, 2010). Undoubtedly, the above clinical evidences have proved the health benefits of probiotics in prevention and

treatment of caries, periodontal diseases, halitosis, and other oral diseases. Hence, in this study it is intended to evaluate

the knowledge and awareness of probiotics among dental students.

## Method

A total of 200 questionnaires were distributed to dental students in dental colleges Chennai, Tamil Nadu. Of which 63% were female and 37% were male. Charts and Graphs were used to show the distribution of data.

**Table 1. Questionnaire**

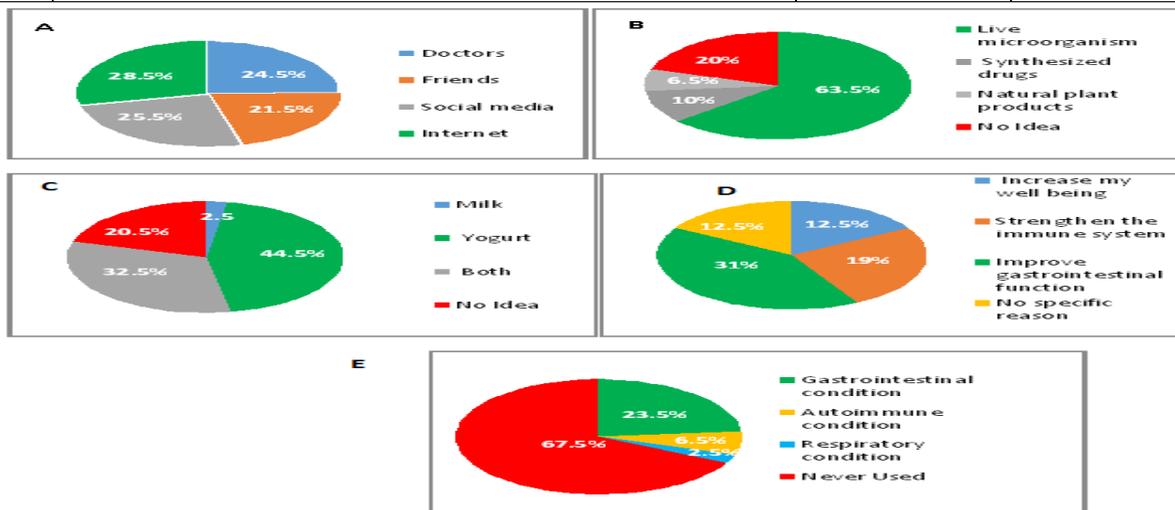
S. No.	QUESTIONS
1	Gender A. Female B. Male
2	Are you aware of the term probiotics? A. Yes B. No
3	What do you think are the constituents of probiotics? A. Live microorganism B. Synthesized drugs C. Natural plant products D. Don't know
4	Do you think probiotics improve your health? A. Yes B. No
5	Would you try a probiotic product if it were recommended by a health professional? A. Yes B. No
6	Do you think probiotics are safe? A. Yes B. No
7	Why do you consume probiotics food products? A. Increase my well being B. Strengthen the immune system C. Improve gastrointestinal function D. No specific reason E. I do not consume probiotic food products
8	Identify food sources of probiotics A. Milk B. Yogurt C. Both D. Don't know
9	How did you obtain information about probiotics? A. Doctors B. Friends / relatives C. Social media D. Internet

10	Have you used probiotics as a therapeutic drug for? A. Gastrointestinal condition B. Autoimmune condition C. Respiratory condition D. I have never consumed probiotics as a therapeutic drug
11	In dentistry, are you aware of the use of probiotics in the prevention of caries/periodontal disease? A. Yes B. No

**Results and Discussion**

**Table 2. General awareness on probiotics among dental Students**

S. No	Questions	Response No.	Response %
1	<b>Gender</b>		
	Female	126	63
	Male	74	37
2	<b>Are you aware of the term probiotics?</b>		
	Yes	144	72
	No	56	28
3	<b>Do you think probiotics improve your health?</b>		
	Yes	157	78.5
	No	43	21.5
4	<b>Would you try a probiotic product if it were recommended by a health professional?</b>		
	Yes	167	83.5
	No	33	16.5
5	<b>Do you think probiotics are safe?</b>		
	Yes	160	80
	No	40	20
6	<b>In dentistry, are you aware of the use of probiotics in the prevention of caries/periodontal disease?</b>		
	Yes	39	19.5
	No	161	80.5



**Figure 1. Knowledge and awareness on probiotics. A-Sources of information; B-Constituents of probiotics; C-Food sources of probiotics; D-Reason for consuming probiotics; E-probiotics used for therapeutic purpose.**

As this study was conducted among dental students, a question regarding the role of probiotics in the prevention of caries/ periodontal disease was asked. The results showed that a maximum number of participants 161(80.5%) were unaware of the role of probiotics in the prevention of any disease in the oral cavity (Table 2). Similarly, in a study conducted among the population in Rio, when asked the benefits arising from the ingestion of probiotic foods only thirty-three (7.86%) of them have chosen 'reduction of caries'(Viana et al. 2008). This clearly shows that the population has little or lack of knowledge regarding the benefits of probiotics in the prevention of caries or any periodontal diseases.

On the other hand, the present study shows that there is an association between having heard of probiotics and knowing about probiotics are and correctly answering it as 'live microorganism' with 127 (63.5%). About 144 (72%) students disclosed that they are aware of the term probiotics. This clearly shows that the participants have a basic knowledge on probiotics. In a previous study conducted by Payahoo *et al.* showed that the medical science students had approximately acceptable level of knowledge (50.7% high versus 6.3% low knowledge, however this could have been due to the high quality training methods and accumulating evidences that support the health effects of probiotics (Payahoo et al., 2012).

Regarding the source of probiotics, 89 (44.5%) of the respondents have chosen yogurt as the source however there are also a significant number of respondents 65 (32.5%) have chosen both milk and yogurts as the source of probiotics. This shows that the respondents have better knowledge regarding the probiotic food source. A study which was conducted among Nigerian clinicians regarding their knowledge on probiotics, 45.1% of the respondents indicated a preference for yogurt as a form of probiotic (Anukam, 2006). A similar study has shown results in which 38.2% (n=128) have chosen yogurt, however in their study 54.6% of the participant have answered that were unaware (Stanczak and Heuberger, 2009). This clearly shows that the respondents for this study have knowledge and awareness regarding the food source of probiotics.

There are about 167 (83.5%) of the participants were willing to try probiotics if it were recommended by a healthcare profession. This shows that the participants are willing to try something new upon recommendation from their physician. Previous study has also shown that there was a significant number of the participants agreed that they would try a probiotic product if it were recommended by a health profession, 41.5% (n=139) (Stanczak and Heuberger, 2009) and our current results are in agreement with this report. Questions on probiotics were asked towards patients and whether they were willing to take probiotics as a supplement, a majority of them (74 of 102, 72.5%) of them were willing to

consume those supplements (Chin-Lee et al., 2013). Most of these studies have portrayed the same similarity which is when health professions recommend or advise on the consumption of probiotics as it benefits your health, they tend to listen and take up their advice as they believe that health profession have proper knowledge and awareness regarding probiotics. When asked about the reason for consuming probiotics they have chosen the option to improve gastrointestinal condition 167 (83.5%) and it is in contrast with previous study shown that majority of respondents chosen the option 'increase immune function' as they answer (Stanczak and Heuberger, 2009). In conclusion, the results obtained from this survey shows that dental students have good knowledge and awareness on probiotics however they are unaware of its significance in dentistry. The awareness and knowledge can be improved by conducting continuous dental and medical education programmes and conferences pertaining to probiotics.

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