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Research Article

AWARENESS ABOUT PROBIOTICS IN DENTAL, MEDICAL PROFESSIONALS AND HEALTH CARE PROVIDERS

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ABSTRACT

Objective: This survey was initiated to find out in general awareness about probiotics in dentist, medical professionals and other health care providers.

Materials and methods: This survey was conducted in Chennai. Total of 300 people were included in this survey. These participants were divided in four categories (i.e. dentist, physicians, nurses and other health care providers). 75 participants under each category were asked to fill structured questionnaire containing questions regarding knowledge about probiotics.

Result: Statistical studies were performed based on the data which was collected through these questionnaires. Hence this survey shows that dentist, physicians and other health care provider (e.g. pharmacist, vaccinators etc) have knowledge about probiotics whereas nurses are not much aware about them.

Conclusion: 69% of the participants under categories like dentist, physicians and other health care providers were aware about this product, whereas nurses are not much aware about it. And this result indicated that they need to be more educated in terms of benefits, mechanism and future aspects of this product.

Keywords: Probiotic, Dentist, Physicians, Nurses, Health Care Providers.

INTRODUCTION

Probiotics are those live microorganisms which are thought to be beneficial in improving the health condition of the host. As an antonym of the term “antibiotics”, it was introduced by Lilly & Stillwell (1965)¹. The currently used consensus definition of probiotics was put forward by the World Health Organization, and the Food and Agriculture Organization of the United States. They defined probiotics as “Live microorganisms which, when administered in adequate amounts, confer a health benefit on the host”. The commonly used microorganisms for the preparation of probiotics are lactobacillus species, bifidobacterium species and streptococcus species.

Generally probiotics are consumed in the form of fermented food such as yogurt or any other dietary supplements. The probiotics supplements which are marketed are generally in the form of capsules, liquids, tablets and even food-like forms. They are even marketed in the form of curd and chewing gums to prevent halitosis, oral candidiasis and tooth decay.

The effects of probiotics can originate from three main modes of action i.e. colonization, resistance and immune modulation. The advantage of using probiotics is that they do not have any side effects on the patients using them and can also be given to the patients having multi drug resistance. The most well known effect of probiotics is regarding the treatment of colon cancer as it helps in reduction of the concentration of the cancer promoting enzymes and bacterial metabolites in the guts. Lactobacillus rhamnosus GG (LGG) has extensively been studied on the prevention and treatment of acute infantile diarrhea, antibiotic associated diarrhea and atopic dermatitis with very interesting results²⁻⁵. They are most commonly used for treatment of respiratory problems like common cold and influenza and infectious diseases like urogenital infections. Bifidobacteria (i.e. B. infantis and B. bifidum) in combination with different strains of Lactobacillus spp. have been documented to be useful in diarrhoea prevention and treatment⁶. Dentistry is no exception to this according to some of the studies which were done in the field of dentistry showed

daily consumption of probiotic products such as probiotic milk can also help to reduce plaque induced gingivitis and inflammatory condition and probiotic yogurt can help in prevention of dental caries⁷. They have even showed that use of probiotics mouthwashes containing Bacillus subtilis have a good effect in patients having periodontitis. Some of the recent experimental studies and results from the clinical trials showed that certain gut bacteria, in particular, species of Lactobacillus and Bifidobacterium may exert beneficial effects in the oral cavity by inhibiting cariogenic streptococci and Candida sp⁸. Further studies showed that the probiotics bacteria remain in detectable levels in the oral cavity shortly after the intake but they failed to demonstrate the effects on long term installation⁹. Though in the developed countries this is a common phenomena not many health care providers in India are aware of the consequences of probiotics. With this in mind the main purpose of this survey was to know whether the health care providers are aware of this upcoming product, so that it can be used more in improving the general health of the patients and to improve the outcome of therapy given to the patient.

MATERIALS AND METHODS

Study area: The study was set in Tamil Nadu with Chennai as the study population. Chennai is the capital of the Indian state Tamil Nadu. The reason for choosing this area was that it is densely populated and consists of people from diverse background.

Study population: Under this survey we included only for categories:

- General medical physicians
 - Dentist
 - Nurses
 - Other health care provides
- Sampling and sample:

Chennai corporation area was divided into four clusters as follows north, east, south and central. One zone was randomly selected by means of lottery method. A total of 300 people where asked to participate in this survey. 75 people from each category where asked to fill the questionnaire. The questionnaire was a closed ended one with questions relating to the knowledge, attitude and practice of the usage of probiotics. Questions on the side effects, mechanism and future aspect in use of probiotics etc were also included in the questionnaire. The subjects who were present at the time of distribution of the questionnaire were included. Prior to the start of the study permission was obtained from the department of Public Health Dentistry. Inform consent was obtained from each of the study subjects.

Calibration- the questionnaire was pretested before starting the study on 40 subjects (ten in each category). Based on the difficulties faced by them the questionnaire was modified subsequently.

Statistical Analysis- Data analysis was carried out using SPSS version 11.5. Frequency descriptive was used. The alpha error was set at 5% and the p value at 0.05. Chi Square test was used to analyze the association of the awareness on the probiotic use across gender and across various occupations.

RESULTS

Table 1 shows the number of participants who answered either “yes” or “no” for the above mentioned questions. Out of 300 participants, 73 dentists, 62 doctors, 29 nurses and 49 other health care workers answered “yes” whereas 2 dentists, 13 doctors, 46 nurses and 26 other health care workers answered “no” for the first question. For the second question 9 dentists, 24 doctors, 24 nurses and 36 other health care workers answered “yes” whereas 66 dentists, 51 doctors, 51 nurses and 39 other health care workers answered “no”.

Table 1: Knowledge Regarding Probiotic Use

		Dentist		Doctor		Nurse		Other health care workers		Total
		N	(%)	N	(%)	N	(%)	N	(%)	N(%)
Do you think it is useful for the patients	Yes	73	34.3%	62	29.1%	29	13.6%	49	23.0%	300(100%)
	No	2	2.3%	13	14.9%	46	52.9%	26	29.9%	300(100%)
Do you think probiotics have any side effects	Yes	9	9.7%	24	25.8%	24	25.8%	36	38.7%	300(100%)
	No	66	31.9%	51	24.6%	51	24.6%	39	18.8%	300(100%)
Have you used any probiotics before	Yes	54	34.6%	52	33.3%	15	9.6%	35	22.4%	300(100%)
	No	21	14.6%	23	16.0%	60	41.7%	40	21.9%	300(100%)
Are you aware of probiotic marketed products	Yes	63	34.4%	57	31.1%	23	12.6%	40	21.9%	300(100%)
	No	12	10.3%	18	15.4%	52	44.4%	35	29.9%	300(100%)
Do you think that probiotics can alter the condition or outcome of any therapy	Yes	61	30.8%	62	31.3%	31	15.7%	44	22.2%	300(100%)
	No	14	13.7%	13	12.7%	44	43.1%	31	30.4%	300(100%)

For the third question 54 dentists, 52 doctors, 15 nurses and 35 other health care workers answered “yes” whereas 63 dentists, 57 doctors, 23 nurses and 40 other health care workers answered “no”. For the fourth question 63 dentists, 57 doctors, 23 nurses and 40 other health care workers answered “yes” whereas 12 dentist, 18 doctors, 52 nurses and 35 other health care workers answered “no”. For the fifth question 61 dentist, 62 doctors, 31 nurses and 44 other health care workers answered “yes” whereas 14 dentists, 13 doctors, 44 nurses and 31 other health care workers answered “no”.

Figure 1 shows the professionals opinion on the prescription of probiotics. The number of participants who answered for this question were distributed on the bases of their occupation. This graph shows that out of 59 dentists 50

prescribed once in a week whereas 7 dentists prescribed “2-5times” and 2 dentists prescribed “>5 times”. Out of 59 doctors 18 prescribed once in a week, 36 “2-5times “and 5 of them prescribed “>5 times”. Only 4 nurses prescribed once in a week. out of 71 health care providers 59 of them prescribed probiotics once in a week, 8 of them prescribed “2-5 times” and 4 of them have prescribed more them 5 times.

Figure 2 shows professionals opinion on the contents of probiotics. It shows that out of 95 participants 9 dentists, 16 doctors, 47 nurses and 23 other health care providers said that probiotics are processed drugs whereas 66 dentists, 59 doctors, 28 nurses and 52 health care providers said that they contain live micro organisms.

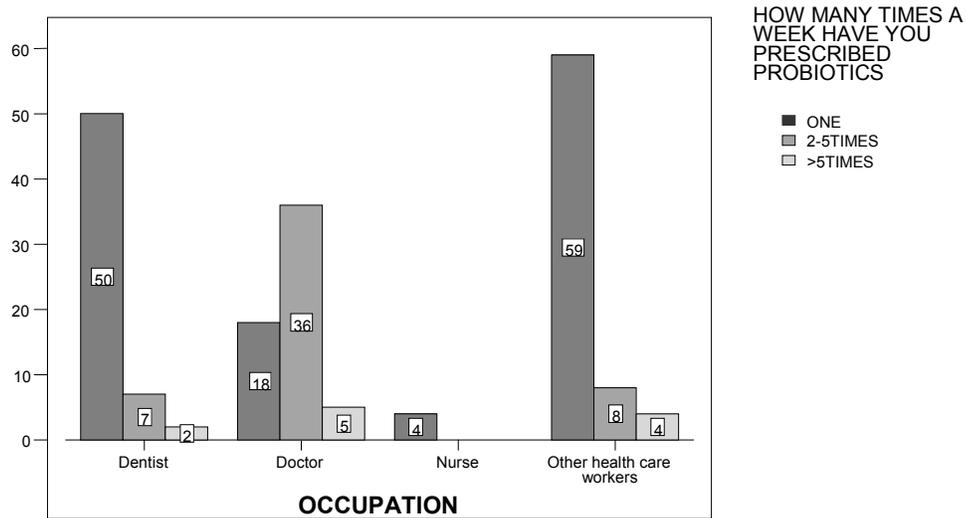


Figure 1: Professionals opinion on the prescription of probiotics

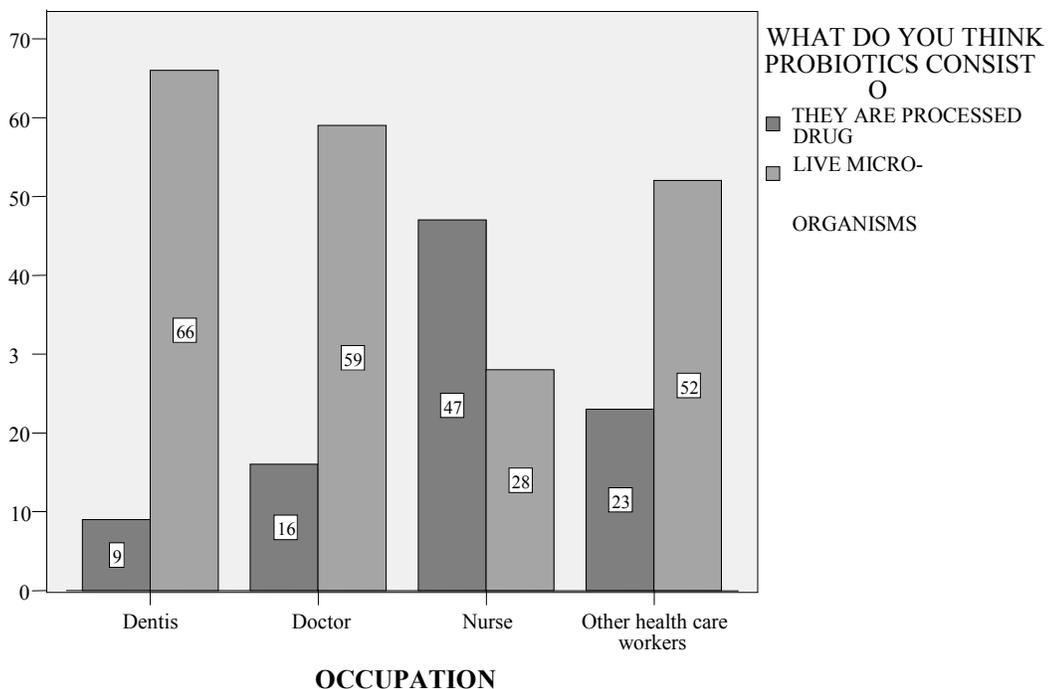


Figure 2 professionals opinion on the contents of probiotics

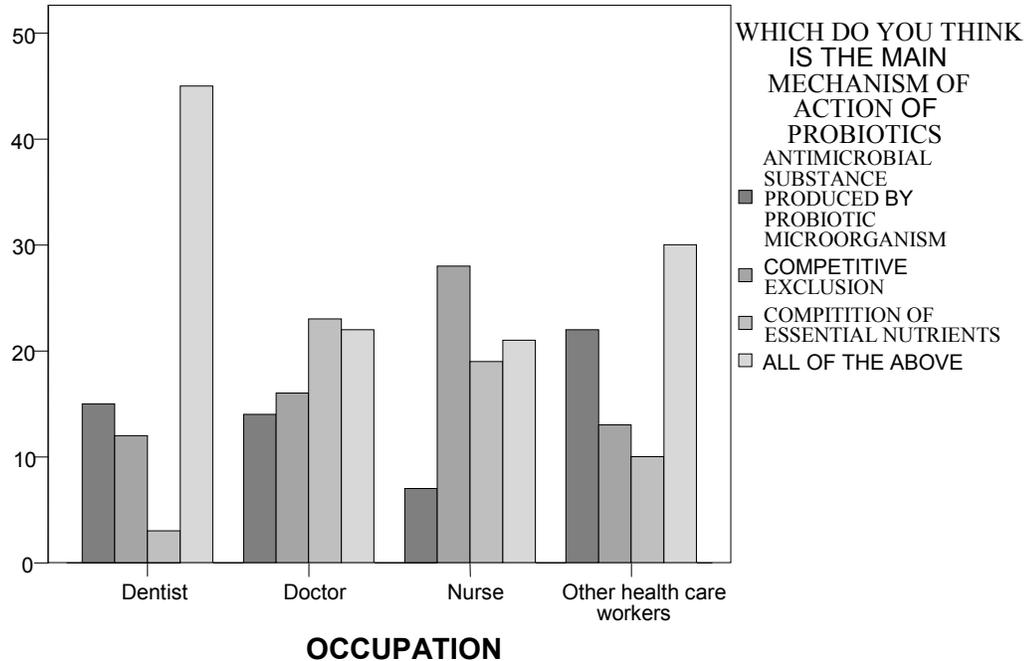


Figure 3: Professionals opinion on the mechanism of action of probiotics

Figure 3 shows professionals opinion on the mechanism of action of probiotics. The above graph shows that out of 75 participants under each category 15 dentist 14 physicians 7 nurses and 22 other health care providers think that the main mechanism of action of probiotics is associated with antimicrobial substance produced by the microorganisms, 12 dentist 16 doctors 28 nurses and 13 other health care workers say it's based on competitive exclusion, 3 dentist 23 physicians 19 nurses and 10 other health care providers think that they work on competition of essential nutrients whereas 45 dentist 22 physicians 21 nurses and 30 other health care providers had a common opinion that they work on all the above mechanisms.

For the selected questions mentioned in table II chi square value was calculated and only those questions which had significant p values were considered. Hence through the above statistical analysis which was performed on the data collected through questionnaires this study demonstrated that, out of 300 participants 134 males and 73 females are aware about this product "probiotics". This shows that males are more aware about this product than females. Whereas 118 males and 86 females believed that probiotics can also help in dental therapeutics. And 119 males and 81 females think that probiotics have a strong future in prevention of cancer. Through this we inferred that males are more aware about this product than females.

DISCUSSION

This study showed that out of 75 participants under each category, only 74 dentist 64 physicians 15 nurses 54 other health care providers were aware about the term "probiotics" which shows that mostly nurses were not familiar with this term. 64, 60, 52 and 39 respondents under each category

believed in the myth that micro organisms cause disease, further intake of same organisms cant worsen the condition whereas 64, 62, 31 and 49 respondents under each category agreed to the fact that probiotics are useful for dental therapeutics as clinical trials have shown that probiotics may control dental caries in children due to their inhibitory action against cariogenic streptococci but very Less evidences exists on their role in periodontal disease or oral yeast infections. 55, 62, 26 and 52 of them said that they have prescribed probiotics. 54, 54, 37 and 55 of them think that probiotics hold a good future in the treatment of cancer as studies have shown that they have good response in the treatment of colon cancer. Whereas 60, 55, 31 and 45 of them think that probiotics can also be given in patients with multi drug resistance. 50, 28, 28 and 36 of them they think that probiotics should only be administered during disease free conditions only but studies have shown that they are helpful in treating the patient condition during diseased state which lead to reduction of the intestinal micro flora leading to condition like diahorrea. 63, 38, 24 and 36 of them think that probiotics have the capacity to ferment sugar which is not a good sign as it may lead to increase in pH of the saliva. 49, 52, 30 and 50 of them think that growth of probiotic micro flora will even continue after the intake probiotic medium is stopped which is not true as some studies have shown that as some of the clinical trials have shown that probiotics microorganism level can be found detectable immediately after the intake of the probiotic medium but they don't failed to demonstrate long term installations.¹⁰ Hence the result of the survey which was conducted to find out the level of awareness about the probiotics in dentist physicians nurses and other health care providers in Chennai showed that 69% of the participants are aware about probiotics and 68% of the respondents are aware

about the contents of probiotics and 62% of people are aware about probiotics marketed products. Still people need to be educated in terms of use of probiotics, contents future aspects of this upcoming product. This lack in awareness might be due to the gap in their education levels. Thus sources like media, newspapers articles should be used to increase the awareness on probiotics. It can also be done by improving the education level of these medical professionals as well as general public regarding the benefits effects of these probiotics. Some of the similar studies which were conducted in Nigeria regarding the awareness of probiotics in Nigerian clinicians showed that 95.2% of the clinicians were not aware of term "probiotics". Another similar survey was conducted in medical university students in USA which showed that 45% of the future doctor's nurse's dentist and lab diagnosticians were aware about this product whereas 55% of them are aware of this term but still lack in knowledge regarding this product.¹¹ When similar studies were conducted in north America, results showed that usage awareness of probiotics in 2010 was similar among general population as well as people with digestive health concern i.e. 73% and 82% respectively.¹²

CONCLUSION

The awareness of probiotics among dental professional was moderate but the overall usage of and prescription of probiotics was very limited. Hence further studies need to be conducted regarding the barriers to the usage of probiotics in dentistry.

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