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RESEARCH ARTICLE

Use of Probiotics amongst General Medical Practitioners: An Assesment

Urmimala Chaudhury[1], Swarnendu Chandra[2] and Rajarshi Banerjee[3*]

1. Brickwork India Private Limited, BannerghattaRoad, Bengaluru, Karnataka 560076.

2.Department of Botany, University of Calcutta, 35.Ballygunje Circular Road, Kolkata West Bengal 700019.

3. Department of Biotechnology, Haldia Institute of Technology, ICARE Complex, Haldia, Midnapore (East) 721657, India.

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Corresponding Author

rajarshi.rishi@gmail.com

Abstract

A reasonable number of general medical practitioners may be familiar with the use of probiotics and some of them very clearly aware about probiotics research going on worldwide. However it was a speculation that the medical practitioners were yet to grasp the concept of probiotics either as a health promoting food or as a prophylactic drug. To determine the extent of awareness of the use of probiotics amongst the general medical practitioners in the suburban regions of Kolkata and Haldia, India, a survey was carried out. The survey involved the use of an open ended and a closed ended questionnaire and 225 medical practitioners participated in the study. It was found out that 96% of the practitioners who were in practice for an average of 17.9 years recommended probiotics on a regular basis in several ailments like gastrointestinal disorders (59%), allergy (28%), vaginal infections (10%) or even in some other cases (3%). Though most of the practitioners were of the belief that probiotics conferred health benefits (96%) nevertheless few had some skeptic beliefs (16%) that probiotics may cause secondary infections or even allergy (18.56%) or even said that their patients had a morbid fear of consuming live live microorganisms (5%). Most preferred formulation of probiotics though remained oral capsules or in the form of milk based products. The practitioners opinionated that availability of literature on probiotics and its research in terms of website materials, information on clinical trials, laboratory experiments conducted were scarcely available to them as well as their patients. A strong need for wider circulation of such information is the need of time the study revealed.

INTRODUCTION

Probiotics, derived from the greek term "for life", the concept of which was first given by Nobel prize winning Russian physician Elie Metchnikoff, when he hypothesized that Bulgarian peasants lived longer and happily because they consumed fermented milk (Metchnikoff, 1965). Although, they have been used for centuries as natural components in health-promoting foods but it was without any proper scientific knowledge. The term **" Probiotics "** was first introduced as an antonym for 'antibiotics' in 1965 by Lilly and Stillwell, when it was described as growth promoting factors produced by microorganisms. Contrasting antibiotics, probiotics were defined as microbially derived factors that stimulate the growth of other microorganisms (Lilly & Stillwell, 1965).

Experts from the food and agricultural organization of the United Nations (FAO) and the World Health Organization (WHO) have defined Probiotics as "Live microorganisms which when administered in adequate amounts confer a

health benefit on the host". This definition should be used for Probiotics and should never be referred as any biotherapeutic agent (McFarland & Elmer, 1995).

Since then several probiotics have come a long way into commercialization and products are available in the market. Generally probiotics are consumed in the form of fermented food such as Yoghurt or any other such dietary supplement like drinks etc. The supplements are generally marketed in the form of capsules, liquids, tablets or even in certain food like forms. To prevent halistosis, oral candidiasis and tooth decay they are also marketed in the form of curd and chewing gums (Manipal et al., 2013).

Several randomized placebo-controlled, as well as other studies suggest that taking probiotics may reduce the incidence of diarrhea in patients receiving antibiotic treatment, vaginitis, regulate immunity, modify inflammatory response, inhibition of pathogen in bacterial colonization (Reid & Hammond, 2005; Reid & Bruce, 2003; Sharp et al., 2009; Marchand, 2015; Benjamin & Andreas, 2008; Stuart et al., 2012; Stephen & Elizabeth, 2011 and Reid et al., 2003).

While most of the research on probiotics concentrates on the mechanism on how the probiotic organisms mediate their beneficial effects little or no data is available on the prevalence of the prescription and consumption of such products amongst the consumers. Though there are several probiotic products available within India made available by several multinational companies like Lupin. Glenmark etc as well as national producers like Dr. Reddy's, Nestle, Amul etc. (Sharma et al., 2013) the preference of probiotics as a prophylactics drug or as a neutraceutical still lacks a wider market and preference amongst consumers.

In order to determine the extent of awareness on the use of probiotics and to determine whether physicians recommend probiotics to their patients to prevent disease such as gastroenteritis, allergy, vaginal infection etc., the following study explores a sample of qualified medical practitioners in the local niche.

Materials and Methods:

A detailed omnibus survey was carried out amongst the General Medical Practitioners. A form of survey questionnaires was employed; closed ended structured questionnaires and open-ended questionnaires.

General Practitioners (GP) were identified within the suburban regions of Kolkata, India ($22^0$34'N $88^0$22'E) and Haldia (22.03^0N 88.06^0E). A survey questionnaire was compiled (consisting of open and closed ended questions) was handed in person to the GP; they were asked to fill it up in an unbiased manner and later collected.

To maintain anonymity, names of the subjects were not collected; rather each subject was assigned a study number in order to facilitate analysis. Each subject was asked to provide age sex and years of experience in practice along with average number of patients encountered every day.

Data analysis was carried out using MS excel to carry out descriptive analyses and perform appropriate parametric and non parametric tests to reveal inferences.

Results:

A questionnaire consisting of both open ended and closed ended questions were given to the participants and the questions were administered at their place of work. The closed-ended questionnaires were administered to each participant at the place of work and these addressed number of years in practice, familiarity and recommendation of probiotics, aware of any probiotic research in India, knowledge of availability of any probiotic product, access to postgraduate medical journals etc. Questions were asked, on whether the respondents would participate in a clinical trial, and the need for information on probiotics. The respondents were asked to indicate what sort of evidence that would convince them on the benefits of probiotics and where they would like to read it. Also using the 'Likert scale', participants were asked to 'strongly agree or approve', 'agree/approve', 'disagree/disapprove', 'strongly disagree/ disapprove' or answer 'don't know', to questions on approval of proven probiotics. The questionnaire to the same respondents contained some open-ended questions. Following definition of probiotics and providing clinical conditions in which probiotics can be used, to the participants, it asked the participants to freely list any concerns or fears they may have in relation to probiotic products.

A random sampling technique was employed throughout the survey period. The respondents were all qualified registered medical practitioners from West Bengal. The responding practitioners were in practice for 8 years to 28 years (mean 17.94 years). A total of 225 general medical practitioners participated in the study.

The survey conducted amongst doctors revealed that the prescriptions of probiotic drugs (96%) were done simultaneously along with probiotics (Figure 1). The study showed (Figure. 3) maximum usage in case of gastroenteritis (59%) followed by vaginal (10%), allergy (28%) as well as gestation period prophylaxis or as a post maternity prophylactic drug (3%). Though certain isolated cases revealed that certain doctors did not believe that

such a usage was mandatorily advantageous. Of the survey only 4% absconded from the use of such prophylactic drug. Scarce skepticism still exists on probiotic usage; the study revealed. 4.12% subjects were skeptic on such a question. The skepticism was backed up by a fear of acquiring infections on its consumption`, by certain subjects (Figure. 2). Nevertheless, this skeptic belief was contradicted with the confirmation of health benefits as well as patients' positive response (Figure 1 questions 2 and 3; Figure 5).

A similar kind of survey conducted by Schultz et.al (Jan, 2011) in New Zealand and they too revealed the facts that majority of the patient's considered taking probiotics but on the prescription of the practitioner, however , the general practitioners exhibited a lack of knowledge in the use and indications for probiotics therapy. This was due to a general lack of concern regarding potential side effects (Schultz et al., 2011).

Another such survey conducted by Chin-Lee et al on the patients' experience and use of probiotics with an overall of 162 surveys, concluded that though most of the consumers (57-59%) are in the regular use of probiotics more precisely to maintain 'good gastrointestinal health' but very many of them actually reported (59%) of the use to their health care providers (Chin-Lee et al., 2014).

While most of the GP were aware of probiotics (95.88%) products (Figure 1 question 5); but most of them were unaware of any research on probiotics(Figure 1, question 6), laboratory experiments conducted about/on probiotics (Figure 1, question 7) or even clinical trials about probiotics(Figure 1, question 8).

Doctors though they were aware and regularly prescribe probiotics; facts about advanced research on probiotic is a matter of knowledge lacunae amongst the doctors as the study revealed (only 57% were found to be aware!).

Ensminger (2011) concluded from her studies that 55.6% physicians reported of using probiotics in clinical practice. But the physicians do agree on the fact that more clinical evidences to support the beneficial effects of probiotics are needed to support and expand the use of probiotics. Physicians believe that more evidence based research is needed to support the use of probiotics in clinical practice.

According to the GP most patients preferred consuming probiotic formulations in the form of Oral Capsules (63%), but yoghurts (19%) and milk based products (7%) and other forms (11%) are equally accepted (Figure. 4). Of course the patients' response on the beneficial effects of probiotics was quite overwhelming. They were pretty enthusiastic on the use of probiotic as prophylactic formulations as the response towards the use of probiotics revealed (Figure. 5).

However, when the GP and consequently few of their patients were enquired about the availability of literature on probiotics the response was not that encouraging. Only 63% spoke of availability of website materials on probiotics (Figure. 6). The responses as 'not available' (31%) or 'very less available' (6%) may be due to the lack of access of modern communication media to these rural or semi-urban practitioners. Moreover, most of the materials available are in english and hence the GP as well as the patients find it very difficult comprehending the available materials. Thus, gradually they loose interest in the available materials. Floating of probiotics associated literature in the local language on the air or circulation of reading materials in the local language may possibly increase the awareness on the potential use and benefits of probiotics. Hence, as suggested by most of the GP, marketing of probiotics and its products should be made aggressive, while a few GP did agree on its marketing to be proactive (22%) and inclusive (9%) too. The availability and affordability of probiotics and its associated products should be made readily available (Figure 1, question 9). The price of probiotics and such products should be well within the reach of the common mass. Most of the GP who participated in the study are of the opinion that before the launch of any such product; a strict vigilance on the quality and safety of the product should be made. NAFDAC requirements and registration of the product should be made mandatory before they are made available for consumption (Figure. 1, question 10).

A study conducted by Sunayana et al. (2013) revealed that most of the physicians, dentists and other health care providers constituting 69% of the studied subjects were aware of the beneficial effects of probiotics but most of the practicing nurses were not much aware of the benefits, mechanisms and future aspects of the probiotic products. However, Chitra (2013) warned on the judicial use of probiotics precisely in cases of premature infants, patients with immune deficiency and patients who undergo dental manipulations or dental surgical procedures. She reports of bacteremia and sepsis due to injudicious probiotic usage.

Reid and Hammond (2005) in his study concluded that limited but good evidence supports the role of certain probiotics in medical practice. A consumer pressure will undoubtedly stimulate further interest in probiotics and family doctors need to be informed about them such that they can advise their patients appropriately.

This mere study calls for an urgent need in creating an awareness of the usage of probiotics. Advanced researches that are being conducted worldwide should be brought to the tables of the health practitioners and within the Indian subcontinent preferably translated in the local languages.

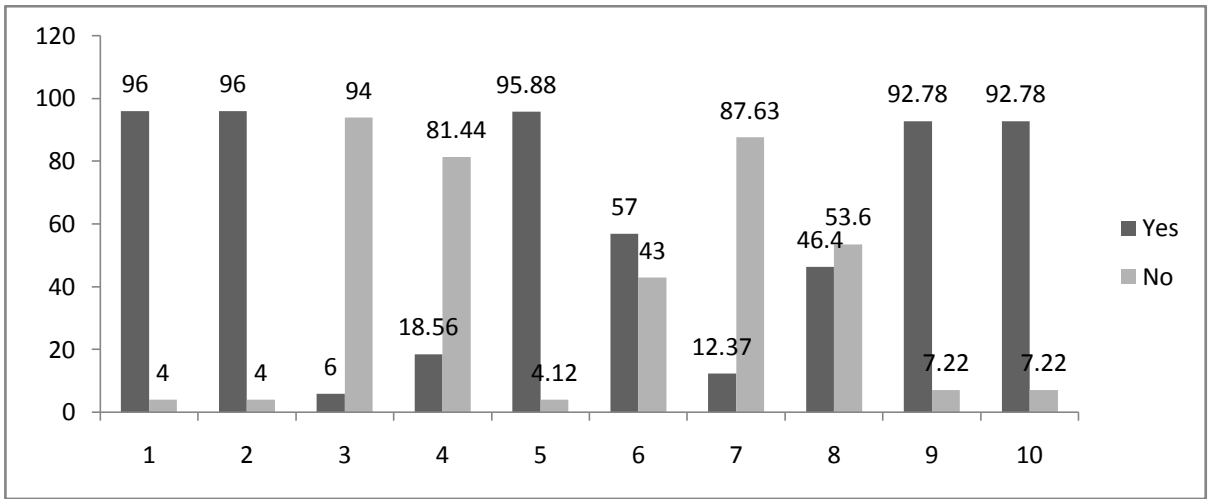

Figure 1: Opinion of some questions surveyed amongst GP (Numbers on X axis denote the following questions):

1	Ever recommended probiotics?
2	Do probiotics confer health benefits in general?
3	Do probiotics confer health benefits on patients?
4	Allergic reactions may occur?
5	Aware of proven probiotic product?
6	Aware of research on probiotics?
7	Aware about laboratory experiments about probiotics?
8	Aware of clinical trials in probiotics?
9	Probiotics are readiliy available and affordable?
10	Do probiotic products need NAFDAC requirement for registration?

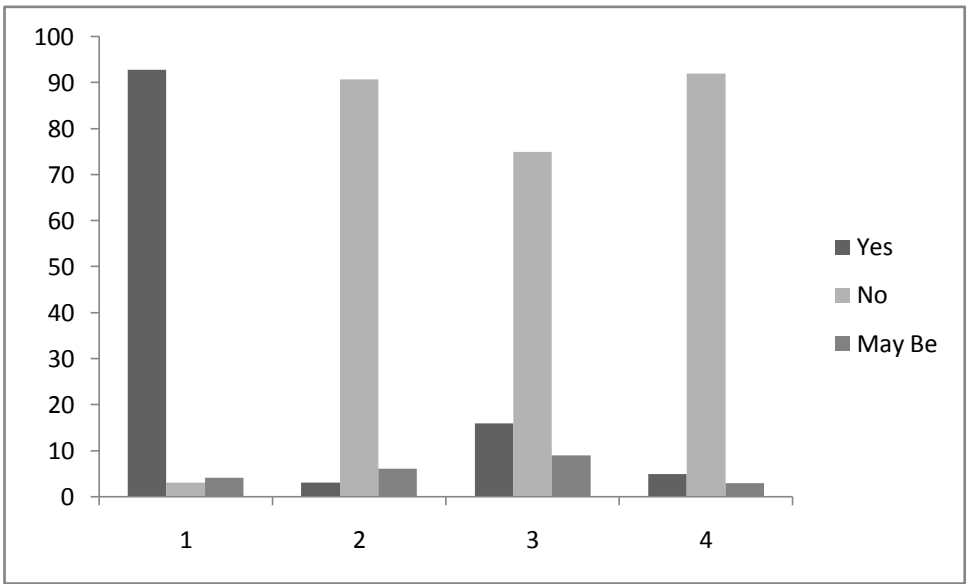

Figure 2; Opinion about safety of probiotics (Numbers on X axis denote the following questions):

1	Are probiotics safe?
2	Risk of infection on using probiotics?
3	Probiotics cause secondary infection?
4	Have morbid fear of using live microorganisms?

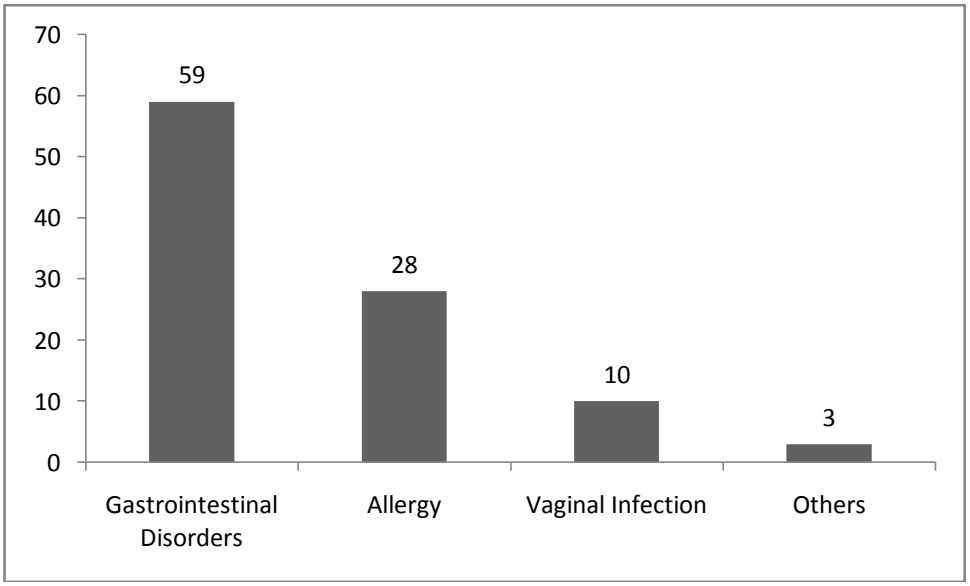

Figure 3: GP recommend probiotics in case of the following ailments

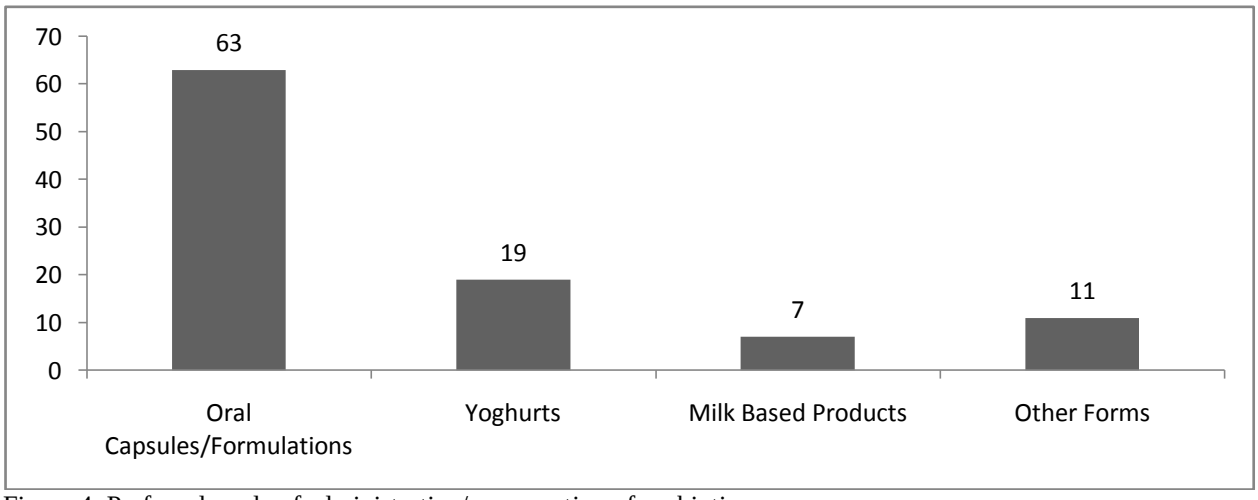

Figure 4: Preferred mode of administration/consumption of probiotics.

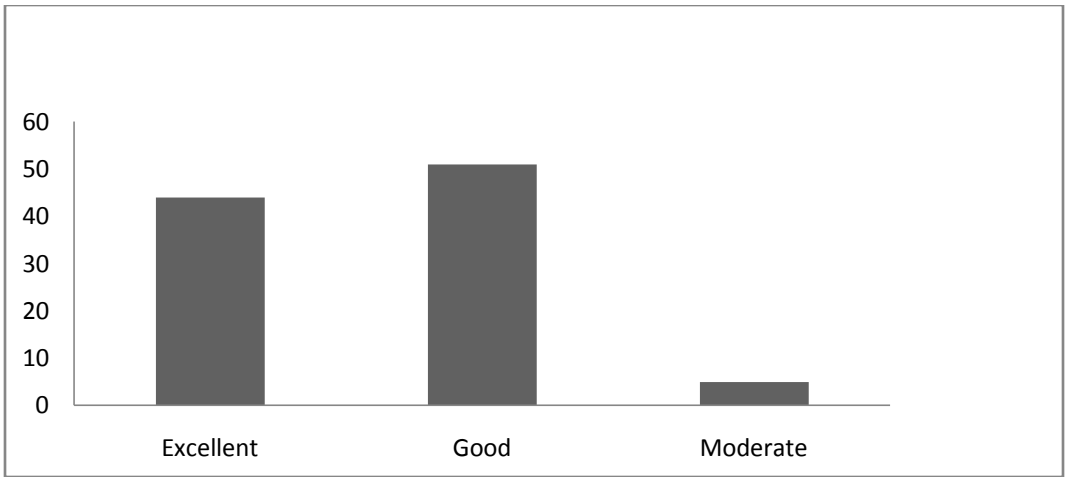

Figure 5: Patients' response towards probiotics

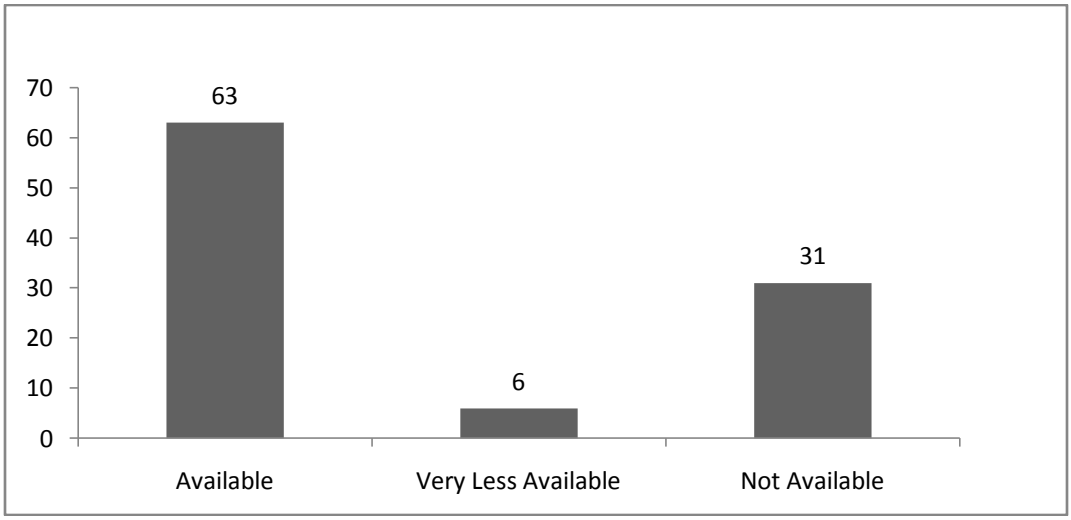

Figure 6: Availability of website material/ literature on probiotics

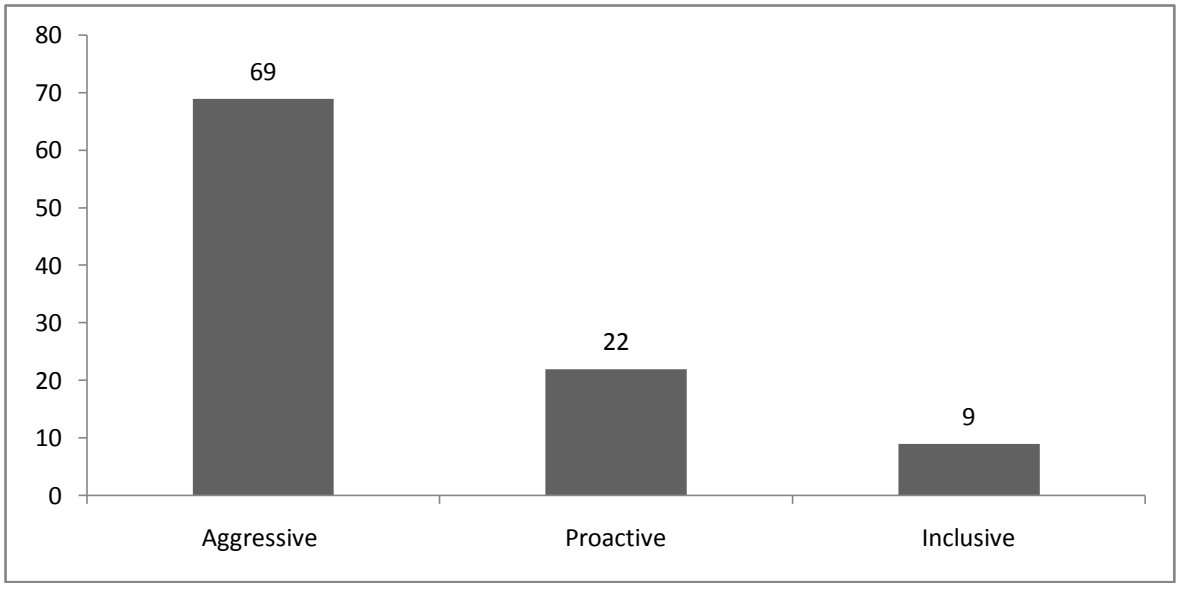

Figure 7: Need for marketing of probiotic products.

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Conflict of Inerest: The authors express that there are no conflict of interests.

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