IMPACT OF PERSUASIVE COMMUNICATION ON PRODUCT AWARENESS AND PURCHASE INTENTION: A QUASI-EXPERIMENTAL STUDY OF PROBIOTIC PRODUCTS

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ABSTRACT

The present paper studies the impact of persuasive communication on product awareness and purchase intention with special reference to probiotic products. This is a 'One-group, pre-test and post-test' Quasi - experimental research design in which a sample of 100 students was taken from a university at Chandigarh by using multi-stage random sampling. Subjects' product awareness regarding probiotic products and purchase intention to buy probiotic products were measured in two phases by using validated and reliable instrument. Lecture-cum-power point presentation was used as a mean of persuasive communication. Mean scores of experimental group on product awareness and purchase intention were measured before and after the lecture. Inferences were drawn by using non parametric tests i.e. Wilcoxon Signed Rank Test and Mann-Whitney Test. it was found in the present study that there was positive and significant impact of persuasive communication on product awareness and purchase intention. The impact of persuasive communication was also found positive and significant across selected demographics i.e. gender, age and education. Study further found that there was no impact of gender, age and education on product awareness and purchase intention. In the end study argued that persuasive communication in the form of advertisements, seminars, conferences, lectures, awareness campaigns, etc., focusing on the benefits of probiotics and their importance in the present life style, will surely help the companies to create demand for probiotic products.

Key words: Bacteria, Persuasive communication, Probiotics, Product awareness, Purchase intention

1. INTRODUCTION

According to the World Health Organization (WHO) and the Food and Agriculture Organization of the United Nations (FAO), "probiotics are live microorganisms, which, when administered in adequate amounts, confer a health benefit on the host." Actually, there are two types of bacteria i.e. 'harmful bacteria' and 'friendly bacteria'. 'Harmful bacteria' such as Salmonella bacteria etc. are those microorganisms that cause diseases. On the other hand 'friendly bacteria' or 'good bacteria' such as Lactobacillus acidophilus, Lactobacillus bulgaricus, Bifidobacterium bifidum, etc. are thought to be helpful for our health. They help us to digest food, maintain a healthy gut, provide us with nutrients and vitamins and fight off '*bad* bacteria'. These 'friendly bacteria' are know as 'probiotics' and can be taken as probiotic supplements in the form of our conventional foods or drinks. Probiotics are generally consumed as part of functional (fermented) foods with specially added active live cultures such as in yogurt, dahi, yakult or as dietary supplements. According to Health Canada (2008), A functional food is similar in appearance to, or may be, a conventional food that is consumed as part of a usual diet, and is demonstrated to have physiological benefits and/or reduce the risk of chronic disease beyond basic nutritional functions, i.e. they contain bioactive compound. During last few years probiotic products are getting popular amongst individuals who are searching for alternative and 'natural' means to promote intestinal health (Probiotic Association of India).

The growth of probiotic products in the developed world has been quite inspiring. The global probiotics market is expected to be worth US $ 31.1 billion by 2015 with the Europe and Asia accounting for nearly 42 per cent and 30 per cent of the total revenues respectively (Market and Markets, September 2009). Europe will form the largest market for probiotics with an estimated $13.5 billion by 2014. Asia is the second largest segment, growing at with an estimated CAGR (Compounded Annual Growth rate) of 11.2 per cent to reach $9.0 billion by 2014 (Market and Markets, September 2009). However, According to Probiotic Association of India (2012), Indian probiotic industry is in its infancy stage and presently accounts for only a small fraction i.e. less than one per cent of the total world market turnover in the probiotic industry. However, with the entry of Indian and multinational companies such as Amul, Mother Dairy, Yakult Danone and Nestle into fray, Indian probiotic market turnover is expected to reach $8 million by the year 2015 (Probiotic Association of India). The probiotic product portfolio of these

companies includes ‘Probiotic Ice cream’, ‘Probiotic Lassi’, ‘Probiotic Dahi’ from Amul, ‘b-Activ Probiotic Dahi’, ‘b-Activ Probiotic Lassi’, ‘b- Active Curd’, ‘Nutrifit’ from Mother Dairy, ‘Yakult’ from Yakult Danone and ‘**NESVITA Dahi’ from** Nestle. Probiotics in India generally comes in two forms, milk and fermented milk products. There is no doubt that, in India, probiotics in the form of drugs are widely accepted but probiotic foods are still viewed with scepticism (Raja and Arunachalam, 2011). Acceptance of probiotic is growing slowly, but it will take a long time while before changing the mind set of Indian consumers (Probiotic Association of India, 2012). Along with other reasons, the major reason behind slow acceptance of these products is lack of awareness about products and their possible benefits (Raja and Arunachalam, 2011). Lack of awareness leads to no or low purchase intention for various types of new products in markets. In various research studies it is found that if consumers are made aware of new products and are persuaded to buy the products there will be a positive impact on purchase intention (Alicia Barroso, 2008; Grossman and Shapiro, 1984; Horsky and Simon 1983, Khong, 2010). Does same proposition is true in case of probiotic products too? The present study has been designed to find the answer for same.

2. OBJECTIVES OF THE STUDY

The objectives of the present study were:

1. To assess the impact of persuasive communication on product awareness and purchase intention to buy probiotic products.
2. To assess the impact of persuasive communication on product awareness and purchase intention across selected demographics.
3. To examine the impact of demographic such as gender, education and age on product awareness and purchase intention.

3. REVIEW OF LITERATURE

Little research has been done in the field probiotics and probiotic products especially in context with marketing and consumer behavior. The available research studies primarily focused on significance (Parvez et al, 2005; Fuller, 1989, Manisha and Prajapati, 2001), usage (Rowland and Grasso 1975; Reid et al, 2003), limitations (Reuter, 2001) and challenges (Raja and Arunachalam, 2011; Karimi and Pena,

2008) of probiotic products. Raja and Arunachalam (2011) in their study concluded if companies can standardize the sales procedures, create the right kind of awareness among the Indian population especially urban lower middle class and rural masses with interwoven delivery strategies, Indian probiotic market players can surely up the ante and end up with a winning proposition. Salunkhe et al. (2010) in there marketing research urged that there is need to make people aware of probiotic food which actually contains friendly bacteria. They further emphasized that there is a strong need of formulation of Integrated Marketing Communication and a marketing mix to acquire the market which is having marketing potential to grow. Though the impact of persuasive communication on purchase intention has been extensively studied in different types of products yet there is need to conduct such a study in case of probiotic products. Rreview of literature suggested that although some attention has been directed towards the organoleptic characteristics of the product and marketing aspect but most publications concerning probiotic bacteria have focused on the human health aspect (Goyal and Gandhi, 2008). So the marketing aspect of probiotic requires more research which will help the players in market to promote their product.

4. HYPOTHESES OF THE STUDY

Following null hypotheses were framed for the study

$H_{0a:}$ There is no impact of Persuasive Communication on Product Awareness regarding probiotic products

H_{0b}: There is no impact of Persuasive Communication on Purchase intention to buy probiotic products

5. RESEARCH METHODOLOGY

5.1 Research Design

The present study is a ‘One-group, pre-test and post-test’ Quasi- experimental research design. In which, for experiment purpose, one group was formed by selecting subjects randomly. In the first stage, awareness and purchase intention of subjects were measured in context with probiotic products with the help of structured instrument. Then, same subjects were persuaded and made aware about probiotic products by delivering a short lecture with the help of power point presentation. After the lecture,

awareness and purchase intention of subjects were again measured in the same context by using same set of instruments.

5.2 Population of the Study

The population of study consisted of students of a university in Chandigarh who were studying in their graduate and post gradate courses. Students of university were chosen deliberately because Childs (1997) maintained that educated people had a higher chance of knowing and also utilizing probiotic products.

5.3 Sample Size and Sampling Technique

For study purpose, a sample of 100 students studying in graduate and post graduate courses was selected by using multi-stage random sampling. In the first stage, from list of departments four departments were selected randomly. Then, from each department 25 students were selected by using systematic random sampling.

5.4 Development of instruments for data collection

For the purpose of study two instruments were designed. First instrument was developed to assess the awareness level of subjects regarding the probiotics/probiotic products and second instrument was prepared to assess the purchase intention of subjects to buy probiotic products. The first instrument, used to measure the awareness level consisted of ten basic questions about probiotics which were supposed to be known to an educated person. The questions were in the form of ‘multiple choices’ and ‘true or false’ questions. The questions in this instrument ranged from ‘knowledge of friendly bacteria’ to the ‘form of probiotics in which they can be taken by individuals and their impact on health. These questions were prepared with the help of information available in public domain and with the assistance of a biotechnologist. Each correct answer was awarded with one mark and maximum score on this instrument was 10. This instrument was validated by three experts from marketing, biotechnology and health care sector each. The second instrument was developed to assess the purchase intention of subjects to buy probiotic products. This instrument also consisted of ten items. Items in the instrument

were designed in such a way that instrument could capture the intention of subjects to buy probiotic products. Responses of this scale were obtained on Five Point Likert scale ranging from ‘strongly agree’ to ‘strongly disagree’ (5=strongly agree and 1= strongly disagree). Again this instrument was validated by three experts from marketing, biotechnology and health care sector each. The reliability of this instrument was also checked by using Cronbach's Alpha (0.908). The first instrument did not require reliability test as all questions were independent of each other.

5.5 Data Collection

The present study is a quasi-experiment study having, ‘One-group, pre-test and post-test’. So, primary data from subjects was collected in two phases. The experiment was conducted in the month of February 2012 in university campus. Before data collection, subjects were gathered in a seminar room. Few instructions were given to them regarding how to fill the instrument. However, to minimize non-sampling errors and to control extraneous variables subject were not told about the exact purpose of the study. Then, they were administered the both the instruments simultaneously. In the first phase, subjects were asked to fill the instruments strictly on the basis of their knowledge about probiotics and purchase intention to buy probiotic products. Filled questionnaire were taken back after completion. After that, it was time to persuade the subjects by providing necessary inputs about the benefits of probiotics. For this purpose, a twenty minutes lecture-cum- power point presentation was used as a tool of persuasive communication and it was delivered by one of the co-researcher. Lecture -cum- power point presentation was prepared in such a way that it would provide the information about probiotics, usage of probiotic products, and benefits of using probiotic products etc. Lecture was followed by question-answer session. After this, subjects were again administered same set of instrument and filled instruments were taken back at the end of experiment.

5.6 Data Analysis and Statistical Tools Used

Collected date was analyzed by using SPSS v.16. For analysis purpose, descriptive statistics (mean, standard deviation, percentage, etc.) as well as inferential statistics were used. The collected data was checked for normality by using ‘One-Sample Kolmogorov-Smirnov Test’. It was found that data was not normally distributed (Product awareness: $z = 4.204$, $p<0.05$; Purchase intention: $z = 1.730$, $p<0.05$).

Hence, it was decided to use non-parametric tests. To compare the pre-test and post- test scores on awareness and purchase intention, Wilcoxon Signs Rank Test was used and to see the impact of demographics on product awareness and purchase intention Mann-Whitney Test was used**.**

5.7 Demographic Profile of Respondents

Table 1 shows that sample of study consisted of fifty nine per cent male students and forty one per cent of female students. The majority of students were pursuing post graduation (64%) course followed by Graduation (36%).

Table: 1 Demographic Profile of Respondents

N=100

Gender		**Education (pursuing)**		**Age (Years)**				
Male (n)	**Female (n)**	**Graduation (n)**	**Post Graduation (n)**	**Less than 25 (n)**	**More than 25 (n)**	**Minimum**	**Maximum**	**Mean ± Standard Deviation**
41	59	36	64	65	35	20.00	31.00	24.71 ±1.955

The mean age of subjects was 24.71±1.955 (years) with minimum age of 20 years and maximum age of 31 years.

6. RESULTS AND FINDINGS

6.1 Impact of Persuasive Communication on Product Awareness and Purchase Intention

Table: 2 highlights the impact of persuasive communication on product awareness regarding probiotic products and purchase intention to buy probiotic products. It was found that before the persuasive

communication i.e. lecture, mean score of product awareness was 6.3300 and after the lecture it increased to 9.3900 (48.34%). It shows that awareness level of subjects increased because of persuasive communication i.e. lecture. This increase in awareness level may primarily be attributed to the impact of the lecture on subjects where they were told about probiotic products and their benefits. The lecture primarily contained the information about 'positive effects of microorganism on human body', 'relationship between immunity & digestive system', 'general understanding of probiotic products, effects of probiotic products on human body, 'ways to consume probiotic products' 'dosage of probiotic products and 'general perception about probiotic products', etc. A Wilcoxon Signed Ranks test was conducted whether there was significant increase in the awareness level of subjects due to persuasive communication. The results indicated that there was significant increase in Product awareness because of persuasive communication ($z=-7.738$, $p<0.01$). Thus, null hypothesis (H_{0a}) was rejected.

Table 2: Impact of Persuasive Communication on Product Awareness and Purchase Intention

N=100

Variable	Mean Scores			Wilcoxon Signed Ranks Test	
	Pre-Test	**Post -Test**	**Difference**	**z-value**	**p-value***
Product Awareness	6.3300	9.3900	+3.36(48.34)	-7.738	0.00
Purchase intention	27.1200	*39.2500*	+12.13(44.73)	-8.434	0.00

*Significant at 0.01

Figures in parenthesis show percentage increase.

The impact of persuasive communication on purchase intention was also assessed. Firstly, total score on purchase intention was calculated for each subject, and then mean score of all subjects was calculated. The maximum possible score on purchase intention was 50. Table 2 shows that mean score of purchase intention before lecture was 27.12, *which increased to 39.25 after the lecture. Results show that before persuasive communication the purchase intention to buy probiotics was slightly more than fifty per cent which might be because of awareness or knowledge which subjects already possessed. But persuasive communication resulted in 44.73 per cent increase in purchase intention. It clearly shows that*

persuasive communication in the form of lecture played an important role in increasing the buying intentions of subjects. This increase in purchase intention might be attributed to increase in awareness regarding features and benefits of probiotic products. A Wilcoxon test was conducted whether there was significant increase in purchase intention of subjects to buy probiotic products due to persuasive communication. The results indicated a significant difference, $z=-8.434$, $p<0.01$. Thus, null hypothesis (H_{0b}) was rejected. So, it is concluded that persuasive communication has significant and positive impact on purchase intention of subjects to buy probiotic products.

6.2 Impact of Persuasive Communication on Product Awareness and Purchase Intention across Demographics

Researchers were also interested to know the impact of persuasive communication on product awareness and purchase intention across demographics i.e. gender, education and age. Gender-wise, education–wise and age-wise results are shown in Table 3, Table 4 and Table5 respectively.

Table: 3Gender -wise Impact of Persuasive Communication on Product Awareness and Purchase intention

N=100

Dependent Variable	Gender	Mean Scores			Wilcoxon Signed Ranks Test		Mann-Whitney Test	
		Pre-Test	Post - Test	Difference	z-value	p-value*	z-value	p –value*
Product Awareness	Male (n=59)	6.5085	9.4068	+2.8983 (44.53)	-5.909	0.00	-0.044	.965
	Female (n=41)	6.0732	9.3659	+3.2927 (54.22)	-5.029	0.00		
Purchase intention	Male (n=59)	26.8305	38.3390	+11.5085 (42.89)	-6.309	0.00	-1.656	.098
	Female (n=41)	27.5366	40.5610	+13.0244 (47.30)	-5.558	0.00		

*Significant at 0.01

Figures in parenthesis show percentage increase

Table 3 shows that awareness about probiotic products increased in both the cases i.e. Males and Females**.** Awareness level (mean scores) increased from 6.5085 to 9.4068 (44.53%) in case of Males and 6.0732 to 9.3659 (54.22%) in case of Females. Similarly, purchase intention to buy probiotic products increased from 26.8305 to 38.3390 (42.89%) in case of Males whereas it increased from 27.5366 to 40.5610 (47.30%) in case of Females. Further, Wilcoxon Signed Ranks Test shows that there was significant and positive increase in product awareness across gender i.e. Male ($z=-5.909$, $p<0.01$) and Female ($z=-5.029$, $p<0.01$).Similarly, there was significant and positive increase in purchase intention too across gender i.e. Males ($z= -6.309$, $p<0.01$) and Females ($z=-5.558$, $p<0.01$). It was further found that male subjects had more product awareness (9.4068) than female subjects (9.3659) whereas females (40.5610) had more purchase intention to buy probiotic products as compare to males (38.3390). However, Mann-Whitney Test indicated that there was no impact of gender on product awareness ($z=-0.044$, $p>0.01$) and purchase intention ($z=-1.656$, $p>0.01$).

Table: 4 Education wise Impact of Persuasive Communication on Product Awareness and Purchase Intention

N=100

Dependent Variable	**Education**	**Mean Scores**			**Wilcoxon Signed Ranks Test**		**Mann-Whitney Test**	
		Pre-Test	**Post -Test**	**Difference**	**z-value**	**p-value***	**z-value**	***p –value****
Product Awareness	**Graduate (n=36)**	*6.6667*	*9.4444*	+2.7777 (41.67)	-4.533	0.00	-.242	.808
	Post Graduate (n=64)	6.1406	9.3594	+3.2188 (52.42)	-6.269	0.00		
Purchase intention	**Graduate (n=36)**	27.0833	37.9444	+10.8611 (40.10)	-4.849	0.00	-1.754	.079
	Post	27.1406	39.9844	+12.8438	-6.867	0.00		

	Graduate (n=64)			(47.32)				

*Significant at 0.01

Figures in parenthesis show percentage increase

Table 4 highlights that product awareness increased in case of both the educational categories i.e. 'Graduate' and 'Post graduate'. Product awareness (mean scores) increased from 6.6667 to *9.4444* (41.67%) *in case of 'Graduate' whereas it increased from* 6.1406 to 9.35949 (52.42%) in case of 'Post graduate'. Similarly, purchase intention (mean scores) increased from 27.0833 to 37.9444 (40.10%) in case of 'Graduate' and from 27.1406 to 39.9844 (47.32%) in case of 'Post Graduate'. Wilcoxon Signed Ranks Test indicated that there was significant increase in product awareness as a result of persuasive communication across educational categories i.e. 'Graduate' ($z=-4.533$, $p<0.01$) and 'Post graduate' ($z=-6.269$, $p<0.01$). Similarly, there was significance increase in purchase intention to buy probiotic products across educational categories i.e. 'Graduate' ($z= -4.849$, $p<0.01$) and 'Post graduate' ($z=-6.867$, $p<0.01$). Table further revealed that post test awareness was more in case of 'Graduate' (*9.4444*) as compared to 'Post graduate' (9.3594) and purchase intention was more in case of post graduates (39.9844) as compared to 'Graduates' (37.9444). However, Mann-Whitney Test indicated that there is no significant impact of education on product awareness ($z=-.242$, $p>0.01$) and purchase intention ($z=-1.754$, $p>0.01$).

Table 5 shows that there is increase in product awareness across age categories i.e. 'Less than 25 years' and 'More than 25 years'. Product awareness (mean scores) increased from 6.4923 to 9.4462 (45.50%) in case of age category 'Less than 25 years' and it increased from 6.0286 to 9.2857 (54.03%) in case of age category 'More than 25 years'. Similarly, purchase intention increased from 27.4308 to 39.3538 (43.47%) in case of age category 'Less than 25 years' and it increased from 26.5429 to 39.0571 (47.15%) in age category 'More than 25 years'.

Table: 5Age –wise Impact of Persuasive Communication on Product Awareness and Purchase Intention **N=100**

Dependent Variable	**Age(years)**	**Mean Scores**	**Wilcoxon Signed Ranks Test**	**Mann-Whitney Test (post-test)**

		Pre-Test	Post -Test	Difference	z-value	p-value*	z-value	*p –value**
Product Awareness	**Less than 25 (n=65)**	6.4923	9.4462	+2.9539 (45.50)	-6.307	0.00	-.578	.563
	More than 25 (n=35)	6.0286	9.2857	+3.2571 (54.03)	-4.485	0.00		
Purchase intention	**Less than 25 (n=65)**	27.4308	39.3538	+11.923 (43.47)	-6.821	0.00	-.007	.994
	More than 25 (n=35)	26.5429	39.0571	+12.5142 (47.15)	-4.965	0.00		

*Significant at 0.01 *Figures in parenthesis show percentage increase

Wilcoxon Signed Ranks Test indicated that there was significance increase in product awareness because of persuasive communication across age categories i.e. 'Less than 25 years' ($z=-6.307$, $p<0.01$) and 'More than25 years' ($z=-4.485$, $p<0.01$). Similarly, there was significance increase in purchase intention to buy probiotic products across age categories i.e. 'Less than 25' ($z= -6.821$, $p<0.01$) and 'More than 25 years' ($z=-4.965$, $p<0.01$). Table further revealed that post test awareness was more in case of age category 'Less than 25' (9.4462) as compared to 'More Than25' (9.2857) and purchase intention was more in case of 'Less than 25years' (39.3538) as compared 'More than 25' (39.0571). However, Mann-Whitney Test indicated that there was no significant impact of age categories on product awareness (-.578, $p>0.01$) and purchase intention (-.007, $p>0.01$).

7. DISCUSSION AND MANAGERIAL IMPLICATIONS

There is no doubt that probiotic products are new to Indian consumers and people don't have much idea about these products. The relevance of probiotic foods is more today, especially, with the erosion of traditional eating practices and changing lifestyle. This scenario has triggered a wide range of gastrointestinal diseases and other health problems (World Gastroenterology Organization, 2011). The prevention from gastrointestinal diseases is more important in country like India, where there is only one gastroenterologist for 6.4 lakh Indians (World Gastroenterology Organisation, 2011). It shows that need for these products already exist in India. So, the role of marketers becomes more important here to make consumers aware about their needs concerning health. It is already described in various consumer buying models that need recognition is the first and important step in consumer decision making process

(Engel *et al*., 1995; Schiffman & Kanuk, 2000) and consumer will not go for buying products if he is not aware of his needs. In the present study it was found that pre-test scores on 'product awareness' and 'buying intention' were very low which shows that if consumers are not aware about product features and benefits then they will not go for buying of product. However, persuasive communication in the form of lecture increased the product awareness which ultimately led to increase in buying intention. The findings of the study have implications for the marketer. The marketers of probiotic products may inform and persuade consumers about probiotic product through advertisements, seminars, conferences, lectures, awareness campaigns, etc. by focusing on benefits of probiotics and their importance in the present life style. The well defined integrated marketing campaign will surely trigger the needs of target customers and will put them into action. The study further shows that persuasive communication has positive impact on product awareness and purchase intention across different demographics. It indicates that students can be the one segment for probiotic products and no further sub segmentation is required.

8. CONCLUSION

It is evidenced in consumer behavior studies that need recognition by the consumer initiates the buying process. The present study has been conducted on new product i.e. probiotic product keeping in mind the impact of marketer's efforts on consumers' mind. Based on the experiment, study supports 'students' as one segment of the market. However, it is up to companies to decide about their target market depending upon their resources and reach. Although, the present study is limited to the one segment of the market i.e. students but similar types of study may be conducted by including subjects in the experiment group from different walks of the life such subjects from different age groups, subjects from different occupations, subjects from different education background and subjects from different income groups. Further, a true experimental study with control group by using Solomon-four-group and Randomized-block designs may be conducted to assess the real impact of persuasive communication on product awareness and purchase intention among general public.

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