

A STUDY ON CONSUMERS KNOWLEDGE ABOUT THE USE OF NUTRACEUTICALS

Dissertation submitted to



The IIHMR University , Jaipur

For the partial fulfilment for the award of the degree of

Master of Business Administration (MBA)

in

Pharmaceutical Management

by

Shruti Dudhande

Under the Supervision and Guidance of

Dr. Sandeep Narula

Associate Professor

School of Pharmaceutical Management

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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **A STUDY ON CONSUMERS KNOWLEDGE ABOUT THE USE OF NUTRACEUTICALS** is the bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

Shruti Dudhande

Date: 29 June 2021

CERTIFICATE

This is to certify that **SHRUTI DUDHANDE** in partial fulfillment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur has successfully completed her/his internship at **ZEON LIFESCIENCES LTD.** during March 22, 2021 to June 19, 2021.

Place: Noida , U.P

Date: 29June2021

Mr. YogeshShah

(Chief Business Officer – Global)

CERTIFICATE

This is to certify that dissertation titled **A STUDY ON CONSUMERS KNOWLEDGE ABOUT THE USE OF NUTRACEUTICALS** is a record of the research work undertaken by **Shruti Dudhande** in partial fulfillment of the requirements for the award of the degree of MBA (Pharmaceutical Management) from the IIHMR University, Jaipur under my guidance and supervision and his/her approach to the research study has been sincere, scientific, and analytical.

Dr. Sandeep Narula
IIHMR University, Jaipur
Date :

Dr. Saurabh Kumar
IIHMR University, Jaipur
Date :

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ABSTRACT :

The goal of this study was to find out how much patients knew about the use of nutraceuticals. 200 patients will receive a self-administered questionnaire.

Every aspect of nutraceuticals, such as its use, communication to patients, positive and negative consequences, and the patient's awareness of nutraceuticals, is covered in the questionnaire.

Because people's behavior is shifting from curative to preventive, nutraceuticals have become an essential aspect of the pharmaceutical and nutritional industries. The global market for nutraceuticals is growing at a breakneck pace. It is due to the increased use of natural products in various diseases, such as cancer chemotherapy, liver and autoimmune diseases. However, there are various challenges with the usage of nutraceuticals in developing nations such as India, including patient education of nutraceuticals and physician counselling.

Almost every physician's prescription includes nutraceuticals products such as vitamins, but many of these physicians are unaware of the exact dosing method and potential harm effects of nutraceuticals overdose. As a result, proper steps should be taken to make nutraceuticals healthier and more beneficial to people, such as providing information to both people who use nutraceuticals and training.

The nutraceuticals market in India is predicted to more than double to 6.1 billion dollars by 2020 as consumers grow more health-conscious. Initially, India lacked regulatory rules for the approval and monitoring of nutraceuticals¹, though the Food Safety and Standards Authority of India (FSSAI) has created draught regulations for nutraceuticals in India.

Nutraceuticals are defined as (a) vitamins and minerals, (b) amino acids, (c) plants or botanicals, (d) animal origin substances, and (e) nutraceuticals as defined in Schedule IX of these regulations, which may be used in the manufacture of food containing nutraceuticals without regard to any modifications for one or more of these nutrients required by the regulations intended use of the product.

INTRODUCTION:

A nutraceutical is a nutrient that has been graded and standardized pharmaceutically. Nutraceuticals are not a regulatory category in the United States; they are governed by the FDA as dietary supplements and food additives under the Federal Food, Drug, and Cosmetic Act.

Nutraceuticals is an abbreviation for Nutrients and Pharmaceuticals. According to AAFCO 1996, a nutrient is "a feed constituent in a form and at a level that will help, support a human being's or animal's life," whereas a nutraceutical is "any non-toxic food component with scientifically proven health advantages, such as illness prevention and therapy. "Isolated or purified food items are sold in medicinal forms that are not generally connected with food. The physiological benefit of a nutraceutical is that it protects against chronic diseases.

There are considerable product quality difficulties on the global market. Nutraceuticals can be marketed as having organic or exotic ingredients. However, there is a risk that the safety and efficacy of these drugs will be jeopardized due to a lack of regulations. Companies that are attempting to gain a competitive advantage are lowering the quality of their products.

According to the Dietary Supplement Health and Education Act of 1994 in the United States, a dietary augment is a product taken by mouth that contains a "dietary element" intended to supplement the diet. Vitamins, minerals, herbs or other botanicals, amino acids, enzymes, organ tissues, and glandular substances are all present as "dietary ingredients" in these products.

Tablets, capsules, soft gels, gel caps, liquids, and powders are some of the several types of dietary supplements available. Dietary supplements do not require FDA approval prior to marketing, however firms must now register with the FDA and adhere to cGMPs. Dietary supplements may be sold to help the body's structure or function., with some restrictions. This must include a label that reads: The FDA has not yet evaluated these assertions. This product is not intended for use in diagnosing, treating, preventing, or mitigating any disease. In the United States, the nutraceutical and functional food markets are worth \$250 billion, while the medication business is around \$150 billion. Each year, over 1000 new items enter the market, with approximately 29,000 dietary supplements

accessible in the United States.

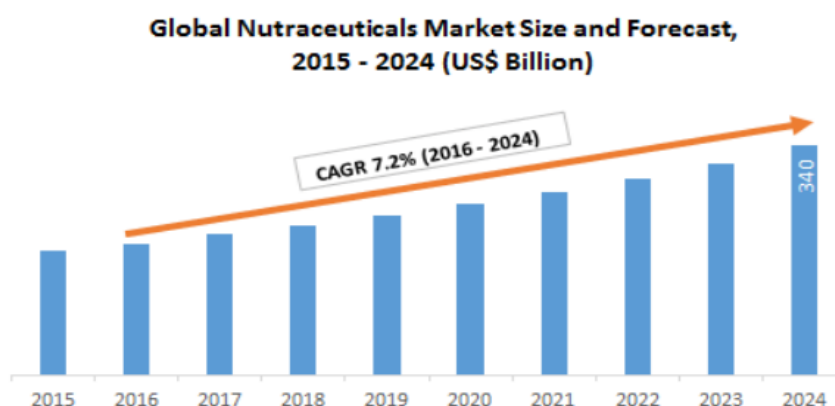


Figure 2: Global nutraceuticals market size and forecast

A forecast has been made about totals nutraceuticals revenue growth from 2015 to 2024 which is expected to increase by 7.2%. This forecast is for only few regions in world including USA, Europe and Gulf countries

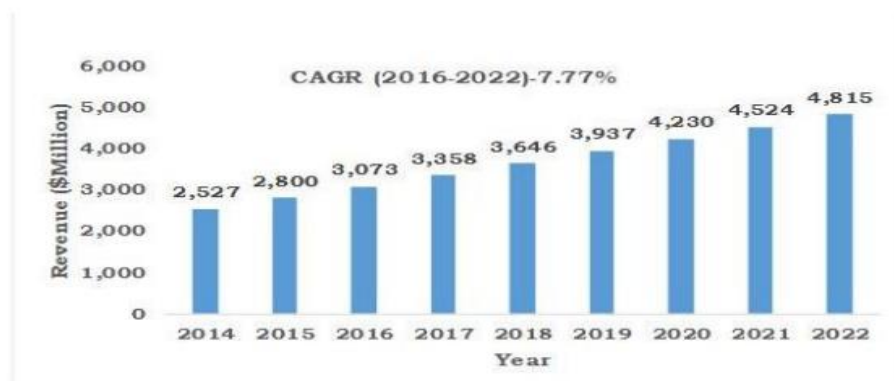
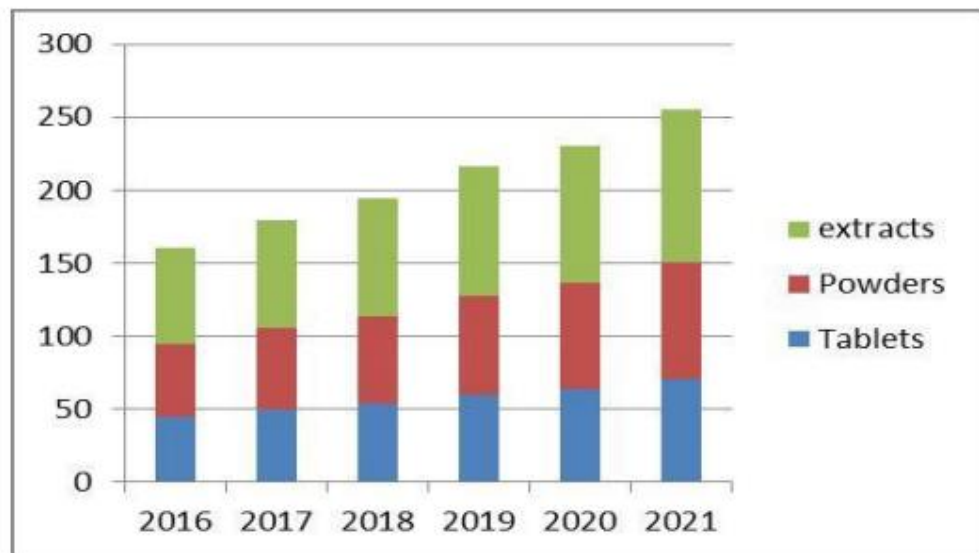


Figure 3: Revenue collected by nutraceuticals industries from 2014 to 2022

Another forecast has been made about totals nutraceuticals revenue growth from 2014 to 2022 which is expected to increase, this forecast has been made revenue in million dollars form which are expected to be 4815 million dollars in sub-continent till 2022.



This graph is forecasting about the trend of pharmaceuticals industry towards the raw material. It can be seen there is an increase trend of natural extract among the peoples. It can be seen that till 21 this trend will be increase by 7.2%

Consumers also lack knowledge regarding dietary supplements issues. This has led to high consumption of unsuitable dietary supplements, which provide many risks to their health. Consumers have a high tendency to consume dietary supplements without further consultation with their healthcare experts. This will indeed lead the consumers to get the wrong nutrients for their health. Dietary supplement fraud has been proven to have deteriorating effects on the health and lives of consumers.

Literature Review :

This study aims to evaluate various literatures on customer satisfaction with relation to nutritional supplements, as well as provide studies conducted on the topic of nutritional supplements and consumer satisfaction.

(Abhishek Mishra, Vol 5, Issue 5, 2016.) As customers become more health-conscious, the Indian nutraceuticals market is expected to expand to 6.1 billion dollars by 2020. Initially, India lacked any regulatory rules for the licencing or monitoring of nutraceuticals, despite the fact that the Food Safety and Standards Authority of India (FSSAI) has drafted a draught regulation that would be considered for nutraceuticals in India.

(Nur Amelia Syakira Abdul Aziz, 2020) Consumers are also uninformed about the issues of dietary supplements. This has resulted in a large use of improper dietary supplements, which pose a number of health hazards. Consumers have a significant proclivity for taking dietary supplements without first consulting their healthcare providers. Customers will undoubtedly receive the incorrect nutrients for their health as a result of this. Dietary supplement fraud has been shown to have negative consequences for consumers' health and life. As a result, the following goals were pursued in this research: I to ascertain customer attitudes regarding fraudulent dietary supplements; and ii) to ascertain the elements that influence consumer attitudes toward fraudulent dietary supplements.

(Bailey, 2013) Consumers are growing increasingly worried about their health, and they are taking dietary supplements on a regular basis to stay healthy. Due to the increased interest in maintaining health and preventing disease among consumers, a variety of dietary supplements have been developed.

(Kingsburry, 2013) We said that we enrolled 987 patients in our study on the utilisation of nutraceuticals in osteoarthritis (55.9 percent female, mean age 61.5 years, 71.0 percent white). Initially, 68.2 percent said they regularly used a traditional analgesic or nutraceutical for joint discomfort (for more than half of the previous month).

(. Kramer & .D.chen, 2012) Pakistan has been discovered to be endowed with a rich source of wild plants (around 6,000 species), the majority of which are thought to have medicinal value. Almost 80% of these plants are found in NWFP and AJK. Only 400 to 600 plant species are currently used in herbal medicines in the country. Unfortunately, there isn't much information available on the market potential and trading opportunities of the majority of herbal Plants.

(M.Whitman & Marge, 2001.) Nutraceuticals are biological therapies that are used to improve wellbeing, prevent malignant processes, and regulate symptoms, according to the study. The Dietary Supplement and Health Education Act of 1994 was passed, and the use of complementary and alternative nutraceuticals skyrocketed. Changes in eating habits and worries about the appropriateness of consumer food are among the reasons for using these goods.

(Zubeck & Bishop, 2012.) According to research, good nutrition is becoming more of a concern as the world's population grows, necessitating the development of sustainable sources of nutritional content. Algae are highly sought after for usage in nutraceuticals and nutritional supplements due to the varied nutritious components they can produce and concentrate, as well as their easy and rapid growing features.

(Timothy, 2012.) Nutritional nutrients may exhibit positive effects on pathophysiological processes in osteoarthritis through a variety of molecular mechanisms, according to the study. Examples of these processes include oxidative damage, cartilage matrix breakdown and repair, and chondrocyte function and reactions in the surrounding bone. One of the micronutrients for which there is some preliminary evidence of benefit is vitamin acid.

(Antanio. & G.Sarrias, 2013) Nutritional nutrients may exhibit positive effects on pathophysiological processes in osteoarthritis through a variety of molecular mechanisms, according to the study. Such mechanisms include oxidative damage, cartilage matrix breakdown and repair, and chondrocyte activity and responses in surrounding bone. Vitaminic acid is one of the micronutrients for which preliminary evidence of benefit exists. Nutraceuticals are sold in a range of shapes, sizes, compositions, and applications, making their definition vague and their use unregulated and underfunded.

(Sarris & Jerome, 2016.) Nutraceuticals, or standardised pharmaceutical-grade nutrients, have the potential to modify various neurochemical pathways linked in depression, according to research. SAME, methylfolate, omega-3, and vitamin D supplementation with antidepressants has been shown to lessen depression symptoms.

(Pandey & Manisha, 2010) Although nutraceuticals have great potential for improving human health and disease prevention, researchers discovered that health professionals, nutritionists, and regulatory toxicologists should work together strategically to plan appropriate regulation for mankind's ultimate health and therapeutic benefit.

To scientifically confirm nutraceuticals in various medical diseases, long-term clinical research are required. Another topic that should be considered is the interaction of nutraceuticals with diet and medications. The impact of different processing methods on

nutraceutical biological availability and effectiveness is still unknown.

(Bangar & Bhaskar, 2014.) According to research, the nutraceutical functional food business in the United States is worth \$250 billion dollars, while the pharmaceuticals market is about \$150 billion dollars. Each year, over 1000 new items enter the market, with approximately 29,000 dietary supplements accessible in the United States

OBJECTIVES :

The objectives of the study includes investigation of following parameters

- To assess the baseline level of awareness of functional foods and nutraceuticals among the Consumers
- Impact on health while the use of nutraceuticals

RESEARCH METHODOLOGY

Significance of Study : As little work is done in this regard in this study gives us useful data about the knowledge of nutraceuticals among Consumers in India. This study provides useful data regarding more common prevailing diseases due to malnutrition and also helps to take preventive measures to avoid complications which were occurred frequently. As comparison of this study and previous studies are done to assess the knowledge and use of nutraceuticals among the Consumers. Besides that data is assessed with regard to age, sex and socioeconomic status. In this study we evaluate the positive and negative impact of nutraceuticals us. The study also determine the compliance of consumers toward prescribed regimens. This study also gives valuable information about thinking and attitude of community towards nutraceuticals during illness.

METHODOLOGY :

Study design: Consumer knowledge of the use of nutraceuticals in major Indian cities was determined using a cross-sectional survey approach.

Research population: The data is collected from all cities . The people of these cities were used for the aim of this study, which looked into consumer awareness. A limited number of persons were addressed in our study.

Study tool: For the purpose of study a pre-designed questionnaire was prepared and used to get the data regarding the use of nutraceuticals from patient.

Study Sample : The size of this study was 200 patients using nutraceuticals

Type of research: Primary & Secondary Research

Data Collection: Secondary data has been collected from journals, PubMed, research articles and reference books.

Duration – 3 months

Inclusion and Exclusion Criteria:

The study was done on Teenagers , adult and elder consumers regard of gender and both male and female are also included in this study. Exclusion of subjects were taken place if they don't know about the nutraceuticals, unconsciousness condition or any other condition and those who could not actively participate in this study based on researcher's.

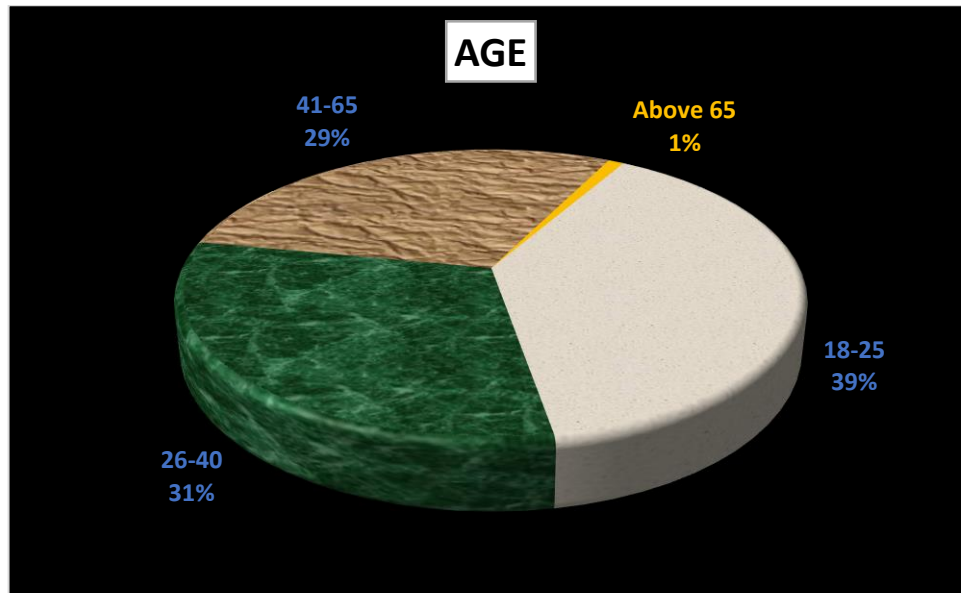
Method : A systematic questionnaire was utilised to collect data for the assessment of patients' and health care professionals' understanding of the usage of nutraceuticals. In India, a cross-sectional survey was conducted. During the month of April, May, June by student of IIHMR University college of Pharmaceutical Management. there was a lot of discussion among patients and health care professionals about the usage of nutraceuticals. The people involved in this study were children, adults and elders. A pre-designed questionnaire was used for the conduct of study. Knowledge of patients about the use of nutraceuticals were the outcome variables of our study.

Data was collected from the Normal Consumers as well as Patients with Minor symptom my attempt was to ensure the validity of data. The variables are age, gender.

Study tool for the purpose of study a pre-designed questionnaire was prepared and used to get the data regarding the use of nutraceuticals in Consumers. Consumers demographic characteristics and awareness of nutraceuticals including general knowledge and its proper use. The questionnaire consists of questions on knowledge of nutraceuticals in patients. Questions related to patient compliance during the use of nutraceuticals. The impact of nutraceuticals on consumer's health. It consists of such other questions which are related to proper use and their impact on health and what conditions may lead to the use of nutraceuticals.

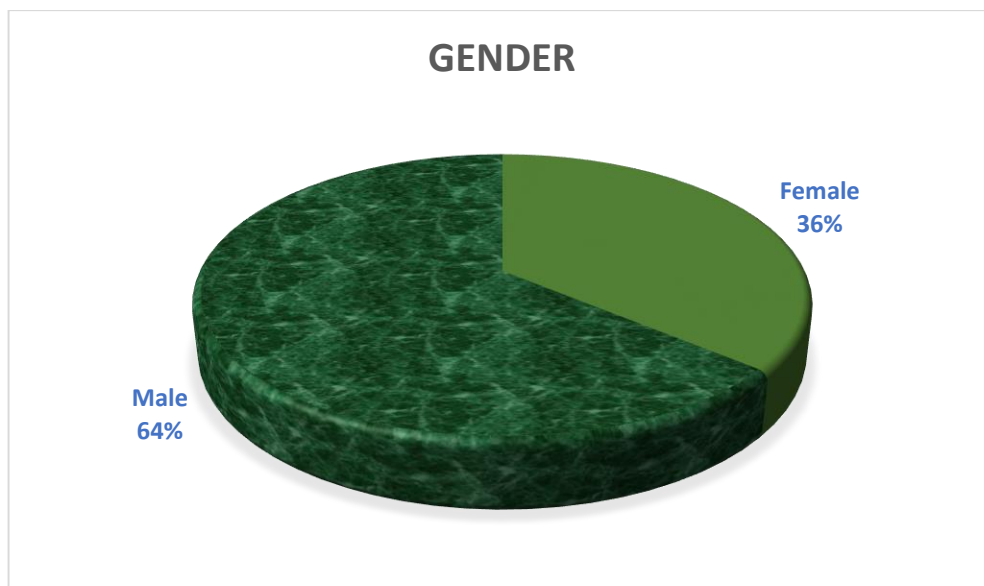
Analysis :

1. Age



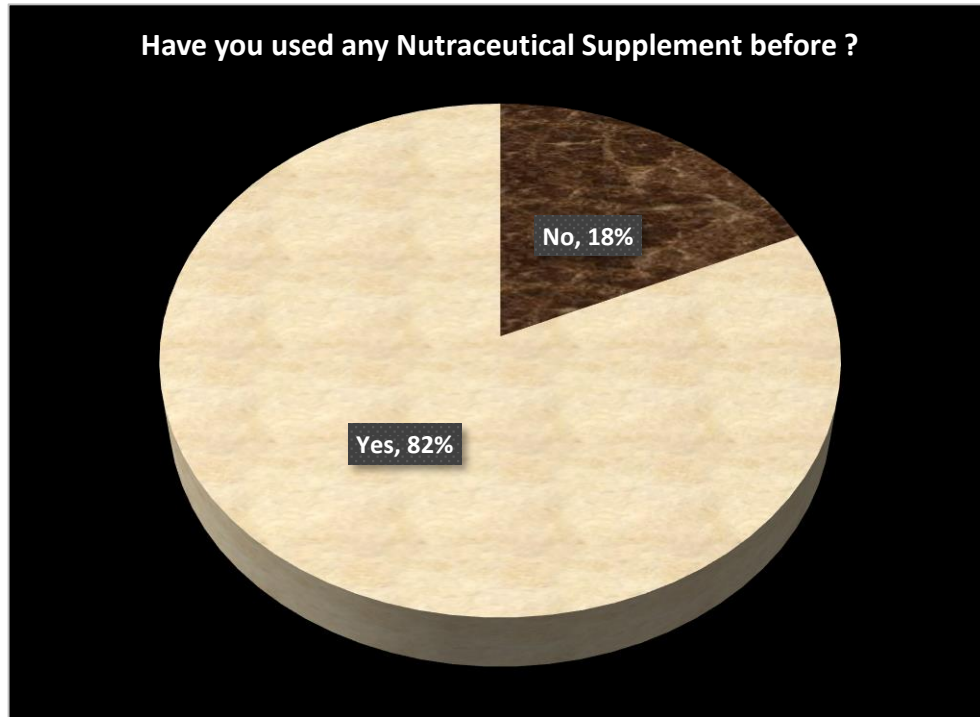
We collected data from different cities in India for our project Assessment of patient and health care professional awareness about the usage of nutraceuticals. Different groups of people were selected among which 39% are teenager, 60% are adults and 1% are elders

2. Gender



We collected data from different cities in India for our project Assessment of patient and health care professional awareness about the usage of nutraceuticals. The data we collected comprises 64% males and 36% females.

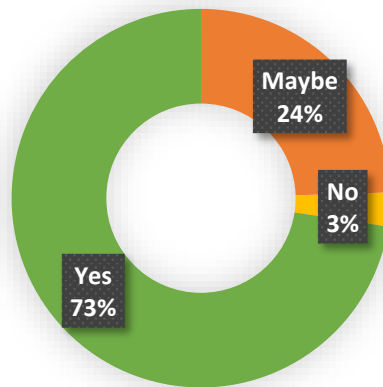
3. Have you used any Nutraceutical Supplements before?



In the above figure question was among the 200 individual that have they ever tried or used Health Supplement / Nutraceutical Supplement and from the study we got to know that 82% of them have tried nutraceutical products whereas 18% of individual have never tried .

4. Do you think that Nutraceutical are good for your health?

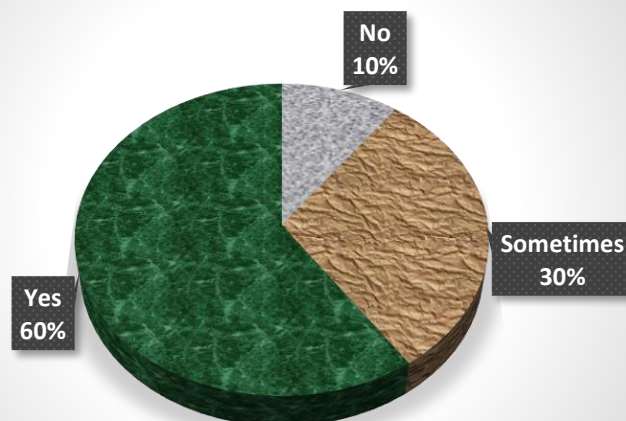
Are Nutraceutical are good for your Health



We collected data from different cities in India for our project Assessment of patient and health care professional awareness about the usage of nutraceuticals. Among all customers 73% Think that nutraceutical are good while 24% said maybe because they are aware about what nutraceuticals are and may be heard from friends or Relatives and 3 % Said no they are not good

5. Do you take recommendations of Physician while using Nutraceuticals?

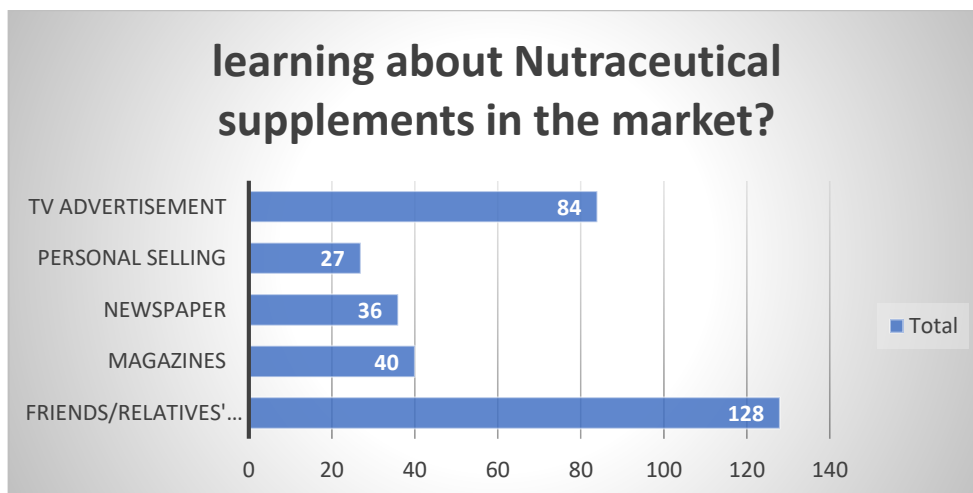
Do you take recommendations of Physician while using Nutraceuticals



In our study Assessment of knowledge of consumer about the use of nutraceuticals we gathered data from different cities of India. We found that 60% patient follow take recommendation from doctors whereas, 30% Consumers sometimes ask doctor regarding

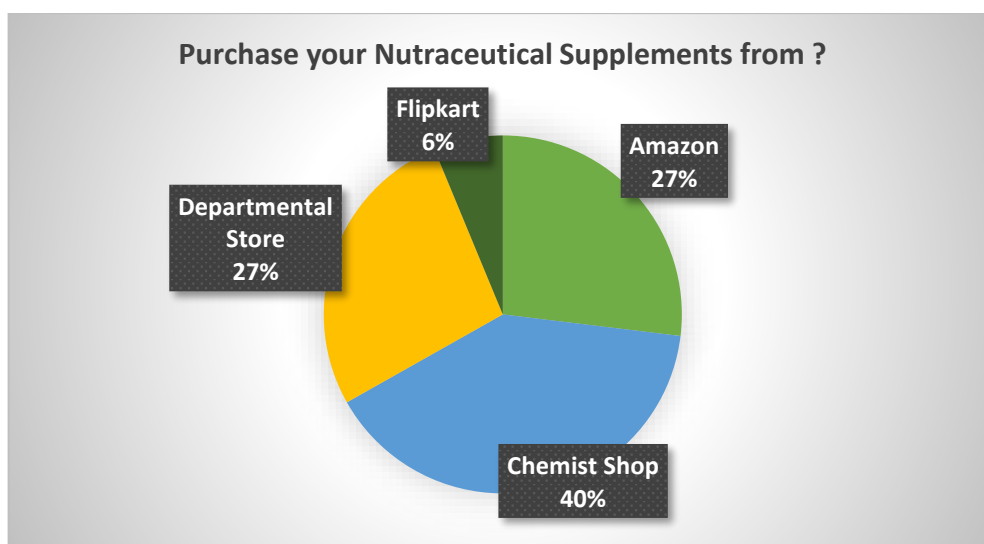
he health supplement and remaining 10% do not take recommendations from doctor before using nutraceuticals

6. From where did you learn about Nutraceutical Supplements in the Market?



In our study Assessment of knowledge of consumer towards the use of nutraceuticals we gathered data from different cities of India. We found that out of 200 consumers 128 said they take recommendations from friends or relatives regarding the product & 84 consumer said they get to know about product from TV advertisement .

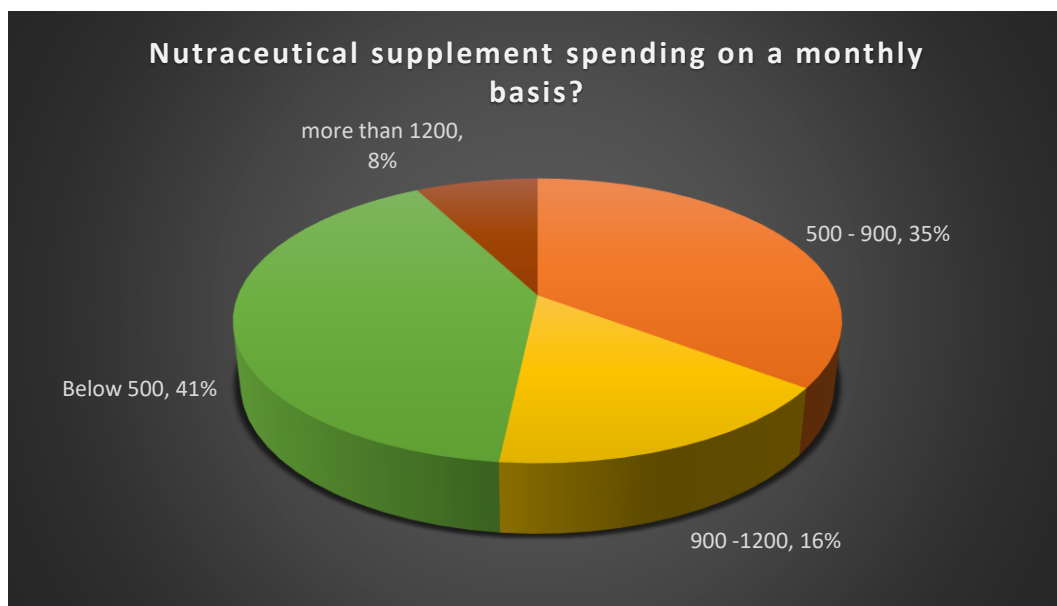
7. From Where do you purchase your Nutraceutical Supplements ?



In our study Assessment of knowledge of consumer towards the use of nutraceuticals we gathered data from different cities of India. We found that 40% consumers buy their

nutraceutical products from Chemist shop , 27% of them buy from Departmental store &Amazon whereas 6% of them buy from Flipkart.

8. How much do you spend on Nutraceutical Supplements on a monthly basis?



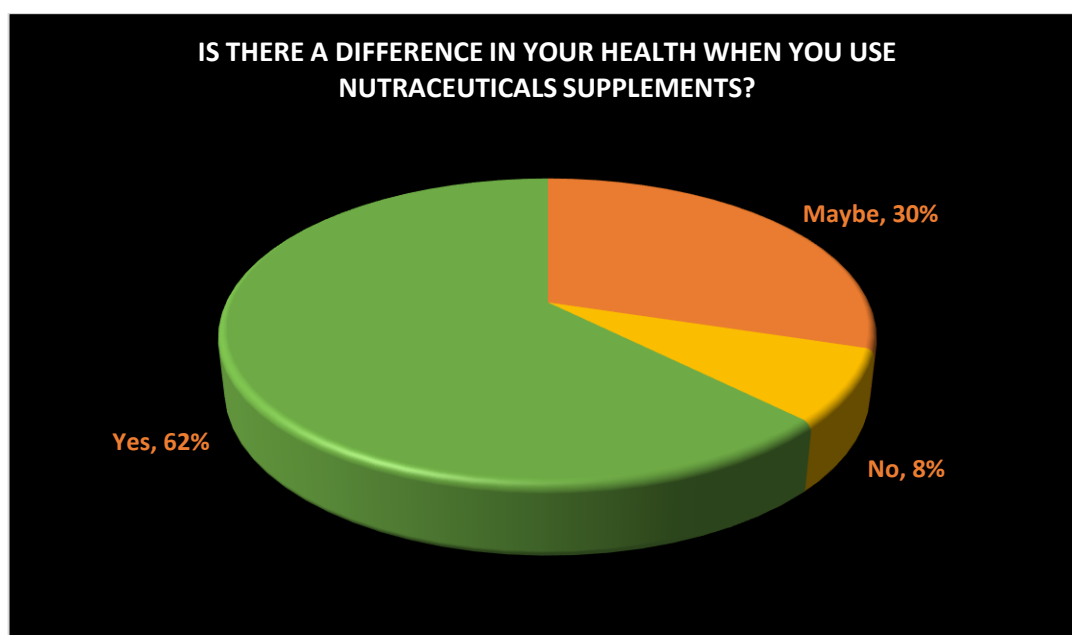
In our study Assessment of knowledge of consumer towards the use of nutraceuticals we gathered data from different cities of India. We found that 41% consumers pay below 500 and 35% pay between 500-900 & 16% of consumers pay between 500-900 and 8 % of them pay more than 1200.

9. When it comes to purchasing nutraceutical supplements, what factors affect your decision?



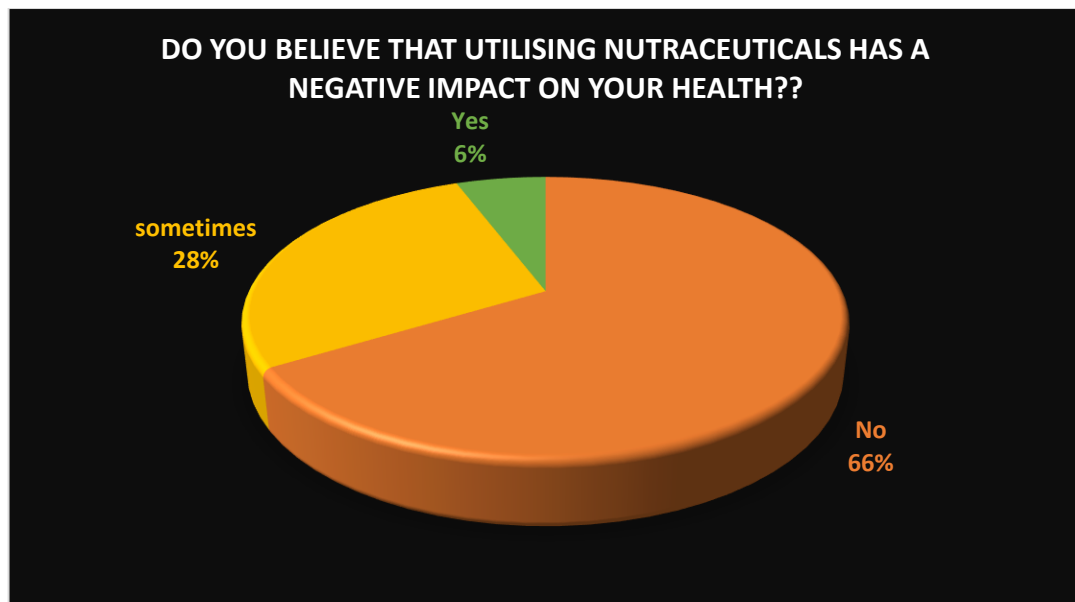
In our study Assessment of knowledge of consumer towards the use of nutraceuticals we gathered data from different cities of India. The consumers where asked when it comes to buying Health / Nutraceutical Supplement which all aspects tends to influence their buying behaviour. We found that out of 200 consumers 95 responded by the recommendation of friends & family 76 of them said the brand seen in advertisement and the remaining gave because of the attractive packaging

10. Is there a difference in your health when you use nutraceuticals supplements?



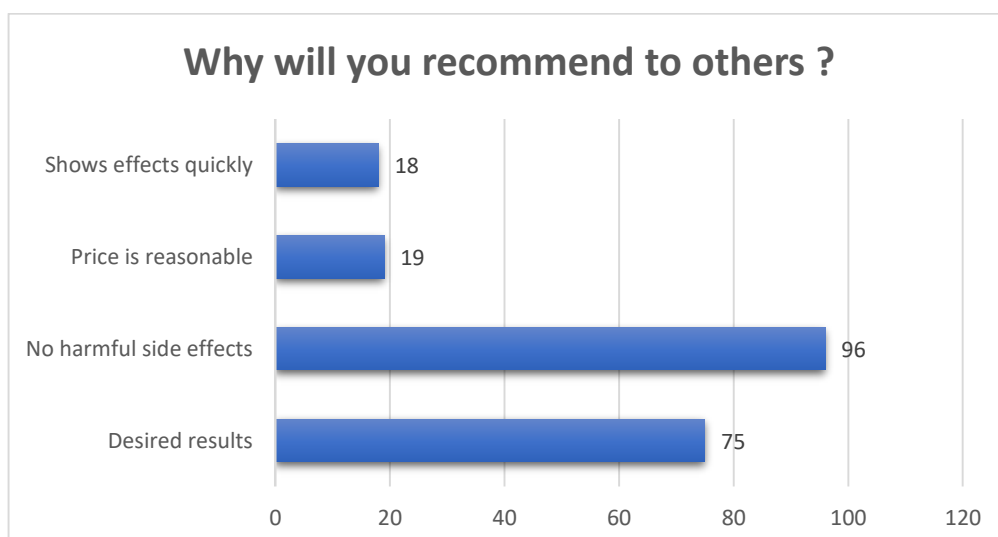
In our study Assessment of knowledge of Consumers about the use of nutraceuticals we gathered data from different cities of India . About 62% People feel better impact on their health while using nutraceuticals, 30% People don't feel any significant impact on their health and 8% People feel that nutraceuticals are bad for their health while using nutraceutical.

11. Do you believe that utilizing Nutraceuticals has a negative impact on your health?



In our study Assessment of knowledge of Consumers about the use of nutraceuticals we gathered data from different cities of India . About 66% People feel there is no bad impact on their health while using nutraceuticals, 28% People don't feel any significant bad impact on their health and 6% People feel that nutraceuticals are bad for their health while using nutraceutical.

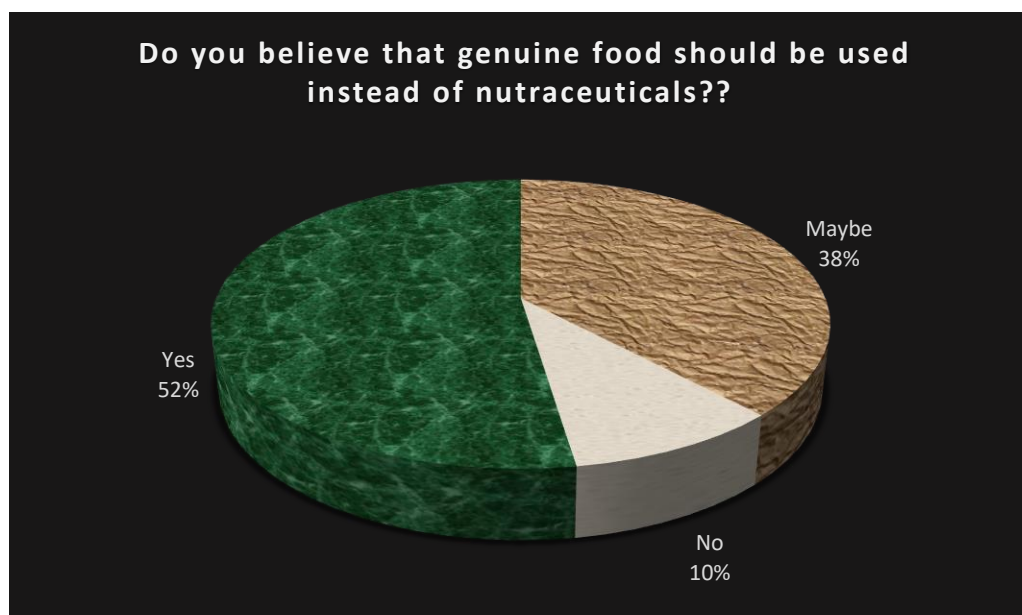
12. Why will you recommend to others ?



In our study Assessment of knowledge of Consumers about the use of nutraceuticals we gathered data from different cities of India. out of 200 Consumers 96 responded there is no side effect and they can see the desired result after some time whereas some said

because it shows effect quickly and price is reasonable . This is the reason why consumers would recommend to others .

13. Do you believe that genuine food should be used instead of nutraceuticals?



As we all know that real food is always better than nutraceutical so in this 52% said yes they consider that real food is better than nutraceutical supplements whereas 38% said maybe because we all are workaholic and there is less time to take intake right amount of nutrient so they prefer taking supplements .

DISCUSSION

We performed this study in order to check the awareness and knowledge about the nutraceutical among the Consumers in various cities of India. We studied that nutraceuticals are the fastest growing sector in medicine industry. As we found nutraceuticals are replacing the contemporary concept of medication, various natural products are being extracted and discovered for several. Actually the nutraceuticals are helping the health sector to transit from curative to preventive therapy. But there are many issues that are needed to resolve regard to the use, studies about their efficacy, quantitative techniques to determine the proper dose, the information and awareness among the people. Our study includes process of collection of data from 64% male & 36% female in these cities which show that the use of nutraceutical is more common among Males than females because the males face the problems such as Low Testosterone level ,less sperm . Some take steroids & Protein powder intake in Men is more as compared to

women and other problem like this.

Observations were made during this study that infers that the Consumers were having knowledge about the nutraceuticals, some patients are even unaware about the word nutraceutical .

About 42% even don't know either nutraceuticals are good or bad for their health. And 10% patients found bad impact on their health while using nutraceuticals.. The overdose of these supplements can cause very severe impact on their health. According to the facts that nutraceutical industry is growing exponentially, India lacks the regulations about the spread and use of nutraceuticals. Our custom and health law lacks the steps to control the spread and provision of information to the Consumers . Nutraceuticals are being manufactured without performing basic preclinical studies. The data about the efficacy and toxicity is limited. Manufactures don 't provides basic literature about their products.

CONCLUSION

Nutraceuticals are being prescribed at various organizations by almost every physician, but the major issue in the prescribing is the prescriber as well as the patients to whom these nutraceuticals are being prescribed as they don't have the proper information about nutraceuticals, so these prescriptions are less convincing. So there is a need to increase awareness about nutraceuticals at every level in health care system as well as among the Consumers. The present challenges need a systemic and well-coordinated approach between both private and public health care systems for better outcomes and growth. As the nutraceutical industry among other allopathic industry is growing exponentially, so there should be a system for consumers to check the Pharmacoeconomics and efficacy of nutraceuticals, so there should be a way to hunt for further cost effective alternatives.

The above observations were made to check the knowledge in consumers about the use of nutraceuticals for that purpose, an educated group from society was chosen for their knowledge about the use, need, proper information and source of nutraceuticals, so it was found that Nutraceutical expertise is moderate. As a result, appropriate actions should be done to raise awareness about the usage of nutraceuticals.

RESULTS

We conduct research about the study of knowledge about consumers regarding the use of nutraceuticals in different cities of India.. The Results obtained from this research are as following:

These results obtained after inquiring the patients concluded that 82% patients have clear information regarding the nutraceuticals, there are 62% people that think nutraceuticals are beneficial for their health, there are 60% patients that follow the recommendation of physicians, 62% of patient have gained better impact using nutraceuticals, 14% of patients think that nutraceuticals affect badly to their health.52% Consumers prefer real food rather than Supplements .

Annexure -1 Questionnaire

1. Age

- 18-25
- 26-40
- 41-65
- Above 65

2. Gender

- Male
- Female

3. How you used any Nutraceutical Supplements before ?

- Yes
- No

4. Do you think that Nutraceuticals are good for your health ?

- Chemist
- Flipkart
- Amazon
- Departmental Store
-

5. Do you take recommendations of Physician while using Nutraceuticals?

- Yes
- No
- Sometimes

6. From where did you learn about new Nutraceutical Supplements in the Market?

- Personal selling
- TV advertisement
- Magazines
- Newspaper
- Online
- Friends/Relatives Recommendations

7. From Where do you purchase your Nutraceuticals Supplements ?

- Chemist Shop
- Flipkart
- Amazon
- Departmental Store

8. How much do you spend on your Nutraceutical Supplements on a monthly basis?

- Below 500
- 500-900
- 900-1200
- More than1200

9. When it comes to purchasing nutraceutical supplements, what factors affect your decision?

- Special offer or promotion
- Well known brand name Brand seen in Advertisement
- Recommended by friends / Relatives
- Advise from In-Store Consultant
- Attractive packaging
- others

10. Is there a difference in your health when you use Nutraceutical supplement?

- Yes
- No
- Maybe

11. Do you believe that utilizing nutraceutical has a negative impact on your health?

- Yes
- No

12. Why will you recommend to others ?

- Desired results
- Price is reasonable
- Shows effects quickly

- No harmful side effects

13. Do you believe that genuine food should be used instead of Nutraceuticals ?

- Yes
- No
- Maybe

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