

International Journal of Business Forecasting and Marketing Intelligence

ISSN online: 1744-6643 - ISSN print: 1744-6635

<https://www.inderscience.com/ijbfmi>

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Sohela Malik, Nidhi Tandon

DOI: [10.1504/IJBFMI.2023.10063073](https://doi.org/10.1504/IJBFMI.2023.10063073)

Article History:

Received:	20 June 2023
Last revised:	23 June 2023
Accepted:	26 June 2023
Published online:	02 December 2024

Study of consumers' buying pattern of dietary supplements

Sohela Malik* and Nidhi Tandon

School of Commerce,
Manav Rachna International Institute of
Research and Studies (Deemed to be University),
Faridabad, India
Email: maliksohela@gmail.com
Email: nidhitandon.soc@mriu.edu.in
*Corresponding author

Abstract: Today's competitive world forces an individual to live a stressful life which leads to no other option but to compromise with their healthy habits. So, in order to cope up with this situation, individuals are moving towards dietary supplements. Dietary supplements are characterised as any health product that is largely expected to enhance the eating regimen when taken in form of any tablet, capsules, etc. This research talks about the increasing intake of dietary supplements among the population of age group above 18 years and the factors that affect their purchase. With the corona virus pandemic, a few patterns have speed up, while shopper needs have changed in accordance with the emergency. Customers in India have started putting their wellbeing first and this research demonstrates that respondents focus harder on a nutritious eating routine.

Keywords: consumer buying behaviour; dietary supplements; nutraceutical industry; corona virus pandemic.

Reference to this paper should be made as follows: Malik, S. and Tandon, N. (2025) 'Study of consumers' buying pattern of dietary supplements', *Int. J. Business Forecasting and Marketing Intelligence*, Vol. 10, No. 1, pp.22–36.

Biographical notes: Sohela Malik is a student of Master of Commerce at the Manav Rachna International Institute of Research and Studies. Her area of interest are consumer behaviour, branding. She published papers in national journals and presented papers in national seminar.

Nidhi Tandon is an Associate Professor at the Manav Rachna International Institute of Research and Studies in the area of management. She has experience of 18 years. Her areas of interest are consumer behaviour, branding, advertising and entrepreneurship. She has published papers in national journals and also presented papers in national conferences. She is a trained faculty of entrepreneurship under Pradhan Mantri Yuva Yojana, Ministry of Skill and Development, India.

1 Introduction

Customer perception refers to the beliefs, opinions and feelings of customers towards any brand. It is significant as it helps in building customer loyalty and increases the retention rate as well as it builds brand reputation and creates awareness.

With the increasing need to cope up with the changing scenario, more focus is diverted towards maintaining a healthy diet and a healthy routine. As a result the health industry in India is growing at fast pace.

Changing consumer pattern, disposition, information and way of life are giving lift to health Industry. According to the report on dietary supplements market the main aim of dietary supplements is to make up for the nutritional deficiency in an individual that may arise due to various factors.

Dietary supplement is a grouping of fundamental supplements that are either taken out from food sources or are misleadingly incorporated. The significant capability of dietary enhancements is to satisfy the wholesome prerequisites of the human body and is normally polished off as a pill, container, tablet, or fluid.

Dietary supplement in regard of nutrition is a simple word which implies any outside food item should be provided to an individual or a patient according to doctor or dietician's suggestion. In some cases dietary enhancements are commanded remedially. Further, these are treated for better enemies of oxidations or bulk development for the exercise centre attendees.

These days, in view of the serious contamination of the regular climate and everyday pressure, poor states have been reached in regards to wellbeing around the world. Therefore, and in request to increment human body opposition, the global market was attacked with an immense proposal of food supplements, likewise called dietary or nourishing enhancements, which can help consumers to get the lacking supplements required in a decent diet.

Consumers must know that food supplements are not intended to replace a healthy meal. Even the best supplement is not a substitute for good nutrition.

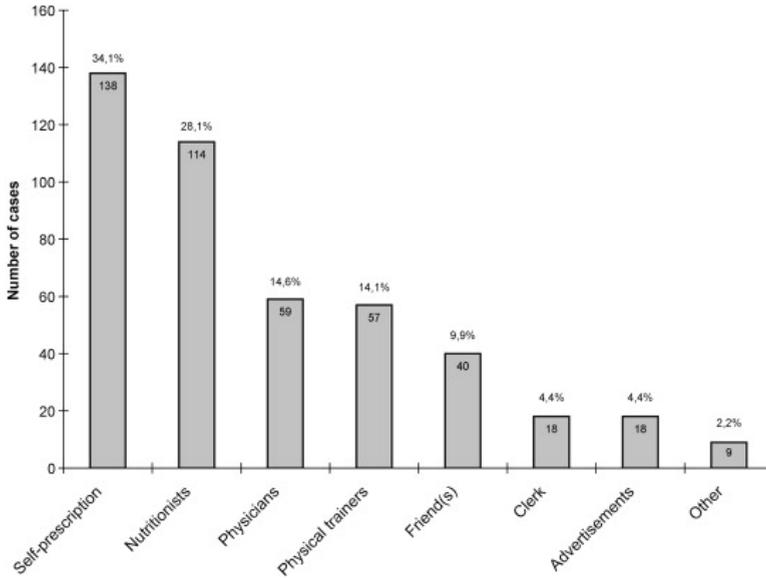
While dietary enhancements cannot replace smart dieting propensities, they can give sufficient measures of fundamental supplements when utilised dependably. Dietary enhancements can assume an imperative part in a sound way of life.

According to a study by Chauhan et al. (2017) consumers have additionally uncovered that relatives, companions and the specialists' recommendation are the most powerful wellspring of data for DFS items; the study also revealed that tablets and capsules are the most favoured type of DFS among consumers.

As per Belo Horizonte, Minas Gerais, 2007, 74% of the gyms claimed to have a dietician on staff, more than half of participants (55%) took supplements without consulting a professional first. The consumers claimed to have taken supplements on their own prescription, at the recommendation of a friend or store employee, or as a result of marketing.

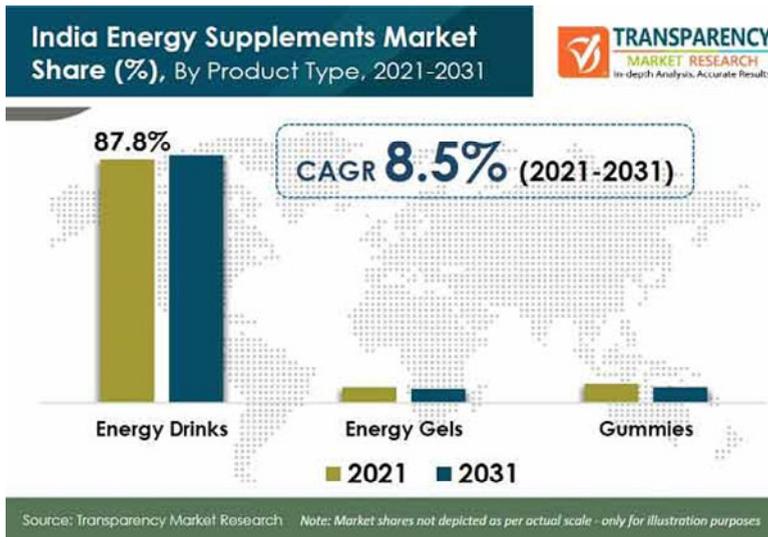
Transparency Market Research recently released a study on the market for energy supplements in India that includes industry research and an opportunity evaluation for 2021–2031. The market for energy supplements in India is anticipated to produce over 660 million dollars in total revenue in 2021 and US\$1.5 billion by the end of the forecast period.

Figure 1 Intake of supplements influenced



Source: <https://pubmed.ncbi.nlm.nih.gov/20004078/>

Figure 2 India’s supplements market share (see online version for colours)



Source: <https://www.transparencymarketresearch.com/sample/sample.php>

1.1 Types of dietary enhancements

- Proteins and peptides, unsaturated fats and fibre.
- Nutrients and minerals.
- Herbals – algal concentrates, phytochemicals ayurveda concentrates, and plant concentrates.

1.2 Brief description of preferred dietary supplements

- Calcium and vitamin D – Helps to maintain bone strength and prevent bone loss.
- Folic acid – Abnormalities during birth are reduced all because of folic acid.
- People with heart diseases are benefited from Omega-3 fatty acids found in fish oils.
- People having age-related macular degeneration may experience a reduction in additional vision loss by taking an AREDS formula, which contains the vitamins C and E, zinc, copper, lutein, and zeaxanthin (AMD).
- Creatine – It is an organic substance that serves as an energy reservoir (creatine phosphate).
- Creatine supplements are used in the field of exercise training to boost the capacity for intense workout and increase muscle mass.
- Whey protein – It is a protein in powdered form extracted from whey, that is the fluid left over after cheddar is produced using cow's milk. Whey protein powder is used to increment protein in the eating regimen and is being read up for conceivable medical advantages.

1.3 Changes in consumer perception post pandemic

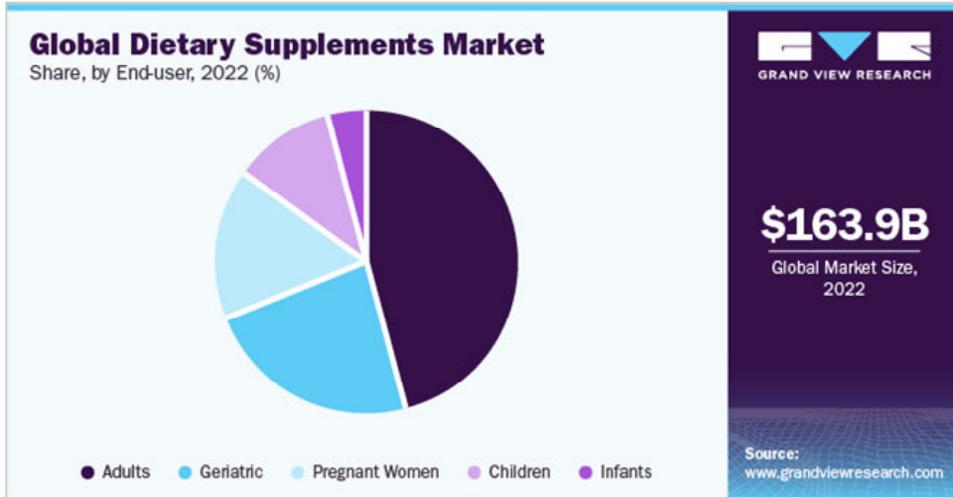
Interest for wellbeing and health items as well as cleaning and sterilisation items flooded quickly in the outcome of the pandemic in India.

The health industry witnessed a boom in year 2020 as a result of COVID-19 pandemic outbreak. The COVID-19 pandemic added to the discovery of different shopping propensities and changed reasoning in the personalities of the customers. The pandemic raised the concern of the people towards their health which increased the intake of a nutritious diet including dietary supplements. The buy made by the customer is related with his values, propensities and accepted practices. With the approach of the corona virus illness, the thought processes in purchasing changed suddenly; customers were driven emotionally by a feeling of control, customers were immediately driven by observational apprehension. Perceiving that wellbeing is really significant, therapists accept that buyers have become a lot more mindful and cautious in purchasing and picking stores.

According to a report by IMARC, in 2021, the Indian market for dietary supplements had a value of INR376.3 billion. IMARC gathering projects that the concerned market would go up to INR847.9 billion around year 2027, with a CAGR that refers to compound annual growth rate of 14% from 2022 to 2027.

By end-user, adults held the lion's share of the market in 2022, accounting for 46% of total revenue. This growth in health consciousness among working professionals and athletes on the need of keeping a balanced diet is driving up demand for dietary supplements to maintain overall health. Adults are required to use more dietary supplements as a result of changing lifestyles and busy work schedules that are causing nutritional inadequacies.

Figure 3 Global dietary supplements market (see online version for colours)



Source: <https://www.grandviewresearch.com/industry-analysis/dietary-supplements-market>

Growing knowledge of children's and newborns' nutritional needs is anticipated to increase demand for dietary supplements. Over the course of the forecast period, rising consumer expenditure on baby nutrition and rising per capita income in developing nations are anticipated to boost the market.

Taking into consideration the moderately high power of supplement use, health enhancements might contribute in an impressive way towards the everyday supplement consumption. Tremendous degree inescapability studies are expected to evaluate the confirmations, check its adequacy and relationship with prosperity and ailment in any general population.

Until moderately as of late, there was restricted logical exploration on dietary enhancements thus little was had some significant awareness of them. Nonetheless, the predominance of supplement use has expanded decisively throughout recent years, and they have turned into a question of buyer interest. Simultaneously, the utilisation of cutting edge logical techniques to investigate issues including dietary enhancements has progressed quickly.

There are numerous systems for filling supplement holes in dietary admissions. They remember nourishment instruction for fitting food decisions, stronghold and improvement that add supplements to staple food sources, hereditary designing that builds the supplement content of an item itself either by hereditary designing/biotechnology, biofortification including regular reproducing, and the utilisation of supplement containing dietary enhancements.

Dietary enhancements give concentrated wellsprings of bioactives that are low or ailing in certain people's customary dietary admissions. The enhancements can be utilised specifically by those whose diets have holes in them.

Dietary enhancements are not drugs and they do not fix infection, however they are directed by the US Food and Medication Organization (FDA).

Customers ought to have a good sense of reassurance that dietary enhancement makers are liable for guaranteeing the security of their items, and should keep various guidelines intended to guarantee quality in the assembling and marking of their items.

2 Literature review

According to Anastasiadou et al. (2020), the fear of COVID-19 caused consumers to adopt an 'emergency behaviour' where they stockpile their items and make large purchases. Furthermore, they discover that buyers prioritise particular products when faced with uncertainty and worry.

The pandemic had a significant impact on people's mental health in addition to any milder or more serious effects on their physical health. In this regard, many people have gone through depressive, lonesome, anxiety, fear, panic, stress, trauma, and suicide thoughts (Fiorillo and Gorwood, 2020).

In Carranza et al. (2020), customers' knowledge of the instability of life with the onset of an unknown disease that they could not manage themselves was the primary reason of bare shelves in stores and an excessive stockpiling of longer-lasting food and hygiene products at the start of the pandemic.

According to earlier research by Li et al. (2022), knowledge is a decisive aspect that influences how people buy food and is essential when buying organic products in particular.

Chiba and Tanemura (2022) revealed in his paper that close to half of the customers take dietary enhancements as a self care practice, while 14.7% of customers utilised dietary enhancements and professionally prescribed drugs correspondingly. Jeurissen et al. (2018) also concluded in his paper that in the Netherlands, it is assessed that 10% of men and 17% of ladies use home grown dietary enhancements. From the above studies we can say that women are more likely to use dietary supplements are compared to men. As per a publication by ASA& Partners (February 2015) the nutraceutical industry of India is around USD2.2 million and is largely engaged in southern territories of the country. Changing purchaser mindfulness and way of life might push this industry to develop at 20% to USD6.1 billion by 2019–2020. As shown in the study by Cheah and Poh (2014) that is drawn on a broadly delegate informational collection of Malaysia; the current investigation has discovered that the utilisation of wellbeing products can be impacted by age, pay, orientation, nationality, training the area of home, work qualities. From this study we can infer that consumption of dietary supplements depends on various factors such as age, income, location of individuals, etc. As per a significant report, levels 1 and 2 urban areas, wellbeing counts around 9.4% portion of any Indian consumer's wallet and is indicating development in most recent couple of years. Significant classifications where they spend are wellbeing supplements, wellbeing beverages, specialists and expert's charges, medications, clinical protection, ordinary check-ups and so forth. The above study revealed that people spend around 9.4% of their

earnings on wellbeing products be it health supplements, dietician's fees, medical check-ups, etc.

Further Vijai and Nivetha (2020) in their review COVID-19 (corona virus) effect of purchaser purchasing conduct with extraordinary reference to Chennai City revealed that consumers purchased more food items grown from the ground and spent more cash on wellbeing and cleanliness items. They likewise found that the emergency impacted the brand inclination, shopping conduct and buying choice of the customers. The above studies indicate that consumption of dietary supplements has increased overtime especially post pandemic, people prefer to spend more cash on these items.

Mohanty and Jena (2020) in their study on the Impact of COVID-19 on consumer buying behaviour found that customers were spending more money on food and health products. They had to deal with issues including rising prices for commodities and the absence of some items from the market. Their spending habits grew throughout the epidemic because of altered consumer purchasing patterns.

Mazzilli et al. (2021) revealed in his paper that a medical services proficient, as suggested by numerous wellbeing foundations, ought to be counselled before starting any series of dietary supplements in order to diminish various risks or problems related with wrong utilisation of the dietary supplements.

Further Sayyida et al. (2021) in their examination the effect of the corona virus pandemic on retail buyer conduct found that the worldwide pandemic because of corona virus constrained many individuals to depend on the computerised media to get item data prior to purchasing. The web-based retail deals information from the created nations like USA, UK, Germany, Canada, France and that's what Latin America shows, when contrasted with the disconnected deals in actual stores, online retail deals are a lot of lower which contribute not a solitary 33% of the all out deals in the pandemic period.

Valavanidis (2016) revealed that dietary enhancements (DS) can be under sure circumstances gainful to human wellbeing, however should not supplant total and adjusted everyday dinners of food varieties. Self-medicine of DS ought to be stayed away from and patients, more seasoned individuals, pregnant ladies, youthful and individuals with inabilities ought to be educated and exhorted by their primary care physicians or drug specialists for dietary supplementation. We can conclude from the above study that dietary supplements are important however they cannot entirely compensate for the actual nutrients that we get from a healthy diet. As revealed by Lenssen et al. (2021) the expected dangers and advantages of natural dietary enhancements can help the shopper for making an educated choice and deciding whether to take the item or not. Retail shop is the one such channel to acquire data, where home grown dietary enhancements can be bought by the consumer. Van Dijk (2011) indicated in his paper that in order to do the personal risk-benefit analysis, shoppers should first turn out to be very much educated and afterward utilise this data to pursue a sound choice upon the utilisation of a dietary enhancement. Buyers ought to hence be made mindful of both the advantages and dangers of the item.

Murti et al. (2013) broke down the investigation of suitability of the value administration to foster customer fulfilment and in the process emphatically affecting social aims in medical care administrations. We analyse that client satisfaction is very important for the clinical organisations in order to flourish and build image in the society. Further Mosadeghrad (2014) added that the creation of participation among the medical services supplier and the patient in a strong climate is called as quality in medical services.

3 Scope of the study

The changing scenario post pandemic has increased the scope of this study. The health industry is growing at a faster pace due to the increasing concern of individuals towards their health and diet especially post COVID-19 which results in increasing intake of dietary supplements. The nutraceutical industry has gained an upper edge and enables a researcher to study the changing perception of consumers. This study will help in analysing the buying pattern of the consumers which will further help the health industry to make up the concerned marketing strategies and further which will also help the economy to flourish.

4 Objectives of study

The following objective has been framed considering the above literature review:

- To identify the buying pattern of consumers towards dietary/health supplements.

5 Research methodology

A descriptive method of research was adopted for which a questionnaire was designed for the purpose of data collection for this study. Data was collected by an interviewer controlled questionnaire where the respondents were required to answer the questions that indicate their level of agreement and disagreement. A convenience sample of 200 was used taking South Delhi as the sample area. The sample consists of 112 female and 90 male.

6 Data analysis and interpretation

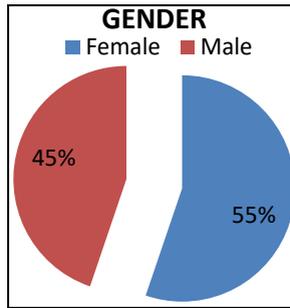
6.1 Gender of the respondents

As per the given Figure 4, out of 202 respondents 55% are females, i.e., 112 and 45% are male, i.e., 90. So we can say that women are more likely to purchase dietary supplements and are more conscious about their health as compared to men.

Table 1 Gender of the respondents

<i>Gender</i>	<i>Number</i>
Female	112
Male	90
Total	202

Figure 4 Gender of the respondents (see online version for colours)



According to a study by Jeurissen et al. (2018) he also concluded in his paper that in the Netherlands, it is assessed that 10% of men and 17% of ladies use home grown dietary enhancements. From the above studies we can say that women are more likely to use dietary supplements are compared to men.

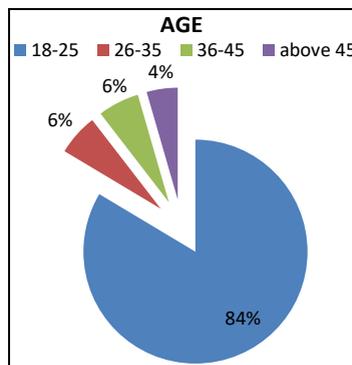
6.2 Age of the respondents

As per the data, 84% of the total respondents belongs to the age bracket of 18–25 years, 6% to the age bracket of 26–35 years, 6% to the age bracket of 36–45 years and the remaining 4% of the respondents belongs to the age group of above 45 years. We can say that people under the age group of 18–25 years are more conscious about their health and prefer the intake of dietary supplements.

Table 2 Age of the respondents

Age	Number
18–25	168
26–35	12
36–45	12
Above 45	10
Total	202

Figure 5 Age of the respondents (see online version for colours)



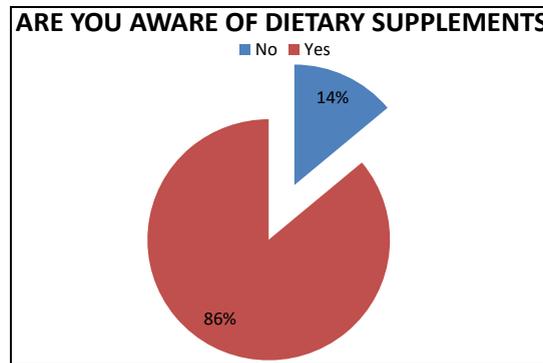
6.3 Awareness among the respondents about the dietary supplements

According to Figure 6, 86% of the respondents are aware about dietary supplements whereas 14% of the respondents are not aware about the same. So we can infer that still there are people who are not aware about the dietary supplements, hence more marketing should be done in order to create awareness among the people.

Table 3 Awareness about dietary supplements

<i>Are you aware of dietary supplements?</i>	<i>Number</i>
No	29
Yes	173
Total	202

Figure 6 Awareness about dietary supplements (see online version for colours)



6.4 Preference towards the intake of dietary supplements among the respondents

According to Figure 7, 49% of the respondents prefer the intake of dietary supplements whereas 51% of the respondents do not prefer the intake of the dietary supplements.

Table 4 Preference towards intake of dietary supplements

<i>Do you prefer intake of dietary supplements?</i>	<i>Number</i>
No	102
Yes	100
Total	202

From this we can analyse that although people are aware about the dietary supplements but most of them do not prefer the intake of dietary supplements as they are not sure of the increasing health benefits of these supplements.

According to a study by Pauwels et al. (2017) it can be summarised from the review that food supplements have no wellbeing dangers. So people should be encouraged more towards the intake of dietary supplements especially the elderly people as they lack many essential nutrients that cannot be fulfilled from their diet.

Table 5 Test results: 1

<i>DESCRIPTIVES</i>									
<i>Supplement intake</i>									
<i>Column 1</i>	<i>N</i>	<i>Mean</i>	<i>Std. deviation</i>	<i>Std. error</i>	<i>Lower bound</i>	<i>Upper bound</i>	<i>Minimum</i>	<i>Maximum</i>	
<i>95% CONFIDENCE INTERVAL FOR MEAN</i>									
1	169	1.5385	0.5	0.03846	1.4625	1.6144	1	2	
2	12	1.25	0.45227	0.13056	0.9626	1.5374	1	2	
3	12	1.4167	0.51493	0.14865	1.0895	1.7438	1	2	
4	9	1.3333	0.5	0.16667	0.949	1.7177	1	2	
<i>Total</i>	<i>202</i>	<i>1.505</i>	<i>0.50122</i>	<i>0.03527</i>	<i>1.4354</i>	<i>1.5745</i>	<i>1</i>	<i>2</i>	
<i>ANOVA</i>									
<i>Supplement intake</i>									
<i>Column 1</i>	<i>Sum of squares</i>	<i>DF</i>	<i>Mean square</i>	<i>F</i>	<i>SIG.</i>				
Between groups	1.328	3	0.443	1.783	0.152				
Within groups	49.167	198	0.248						
<i>Total</i>	<i>50.495</i>	<i>201</i>							

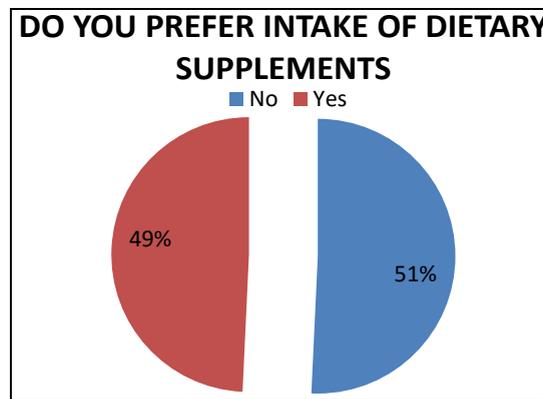
Table 6 Test results: 2

ONEWAY										
DESCRIPTIVES										
95% CONFIDENCE INTERVAL FOR MEAN										
DSINTAKE	Column1	N	Mean	Std. deviation	Std. error	Lower bound	Upper bound	Minimum	Maximum	
	1	90	1.3778	0.48755	0.05139	1.2757	1.4799	1	2.2222	
	2	112	1.6071	0.49058	0.04636	1.5153	1.699	1	2.2	
	Total	202	1.505	0.50122	0.03527	1.4354	1.5745	1	2.2	
ANOVA										
DSINTAKE	Column1	Sum of squares	DF	Mean square	F	SIG.				
	Between groups	2.625	1	2.625	10.968	0.001				
	Within groups	47.87	200	0.239						
	Total	50.495	201							

Hypothesis 1 After applying one way ANOVA the result says that between groups at $df = 3$ (degree of freedom), mean square is 0.443 which is near to 0 and significance = 0.152. It implies that age is one of the factors that influence the intake of dietary supplements. It can also be proved within groups as at $df = 198$ mean sq is 0.248 which is also near to 0 and shows positive result for null hypothesis.

Hypothesis 2 While checking dependency of intake of dietary supplements with gender of the respondents, the standard deviation in all the groups is less than or equal to $1/3$ rd of mean value, statistically it is true if $SD \leq 1/3$ rd of mean then test should be accepted and we can say that the intake of dietary supplements is dependent on the gender of the respondents.

Figure 7 Preference towards intake of dietary supplements (see online version for colours)



7 Limitations of the study

This study has its own limitations based on:

- location of study
- focus on selected attributes and factors.

8 Findings

- It was observed that although people are aware about dietary supplements, most of them do not prefer the intake.
- People are having neutral consent about the increasing health benefits of dietary supplements.
- Also it was observed that females are more conscious about their health as compared to men as women prefer the intake of dietary supplements more.

- People between age group of 18–25 years prefer to take dietary supplements more as compared to other age groups, however it is very important for the elderly people to intake such supplements due to the lack of fulfilment of the nutrition they get from their diet.
- People who are single prefer the intake of dietary supplements more than the married people.
- People prefer to take more of the natural supplements followed by vitamin D and calcium followed by the combination of vitamin D and calcium, creatine, whey protein, natural supplements (eggs, soya, etc.)

9 Conclusions

From this study we can infer that in a country like India, people are still not clear about the health benefits of dietary supplements although they are aware but people are having a neutral prospective regarding the health benefits as they are neither in favour nor against the health benefits of dietary supplements.

In order to create awareness among the people more and more marketing strategies should be adopted and various programs should be conducted by the health industry to create awareness amongst the people specially the youth about the increasing health benefits of the dietary supplements and increase the market share of the dietary supplements.

We observe that adults utilise nutritional supplements more frequently as a result of their tight job schedules and rapidly evolving lifestyles. Other variables influencing the future markets include the rise in chronic diseases like diabetes, heart disease, and obesity.

Also we see that with the emerging trends in the health industry, both producers and consumers have a bright future in this sector in India.

The only paths to success that are kept clear by businesses are those that follow moral business principles and adhere to the laws that govern the production and distribution of dietary supplements. While assuring the quality and safety of every consumer, let India expand its dietary supplement sector.

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