



JOURNAL OF PHARMACEUTICAL SCIENCE AND BIOSCIENTIFIC RESEARCH (JPSBR)

(An International Peer Reviewed Pharmaceutical Journal that Encourages Innovation and Creativities)

Study on Consumer Behaviour Towards Nutraceuticals in Different Groups of Patients in North Gujarat

Raj Raval,^{1*} Nishith K. Patel², Prashant Hiralal Shelar³

1. Research Scholar, Shri JTT University, Jhunjhunu Rajasthan, India

2. Professor, Department of Pharmaceutics, A-One Pharmacy College, Ahmedabad, Gujarat, India

3. Professor, Department of Management, Shri JTT University, Jhunjhunu Rajasthan, India

Article History:

Received 15 April 2023

Accepted 29 May 2023

Available online 05 July 2023

Citation:

Raval R., Patel N. K., Shelar P. H. Study on Consumer Behaviour Towards Nutraceuticals in Different Groups of Patients in North Gujarat *J Pharm Sci Bioscientific Res.* 2023. 11(5): 144-151

ABSTRACT:

The use of nutraceuticals as a complementary approach to conventional medicine is gaining popularity, but there is limited research on consumer behavior towards nutraceuticals, particularly in the Indian context. This study aims to explore consumer behavior towards nutraceuticals in different groups of patients in North Gujarat. The study will be conducted at the pharmacy level, where patients purchase nutraceuticals. The study will utilize a cross-sectional survey design, and data will be collected through a self-administered questionnaire. The questionnaire will include questions on demographic characteristics, knowledge and attitudes towards nutraceuticals, purchasing patterns, and perceived effectiveness. Data will be analysed using descriptive and inferential statistics. The findings of this study will provide insights into consumer behavior towards nutraceuticals in North Gujarat and contribute to the development of appropriate strategies for promoting the use of nutraceuticals as a complementary approach to conventional medicine. The study's results may be of interest to healthcare professionals, policymakers, and the general public interested in the use of nutraceuticals in the management of chronic illnesses and overall health improvement.

KEY WORDS: Nutraceuticals, Consumer behavior, Pharmacy, Patient groups, North Gujarat Dietary supplements, Health and wellness

*For Correspondence:

Raj Raval

Research Scholar, Shri JTT University,
Jhunjhunu Rajasthan, India.

(www.jpsbr.org)

INTRODUCTION ^[1-6]

Because of recent developments in the pharmaceutical industry and the researcher's previous knowledge in that area, it was decided that more investigation should be conducted into this particular subject. When compared to the market for everyday consumer goods, the market for pharmaceuticals is marked by far less price competition due to the fact that all pharmacies offer prescription medications at the same price. As a result of the flow of generic versions of brand-name pharmaceuticals onto the market, consumers now have more choices than they ever have before. The primary reason for this is that generic versions of drugs are significantly more reasonably priced than their brand-name equivalents. As a result of this, the customers of pharmacies and their purchase patterns in

connection to pharmacies and other OTC (over-the-counter) pharmaceuticals with comparable pricing are the primary subjects of this inquiry. Specifically, this investigation is focusing on customers' shopping habits. Because of their widespread availability and significant advertising among the general public, the scope of the study is restricted to examining just certain nutraceutical products and over-the-counter medicines. The findings of the study not only assist in illuminating the 4Ps of marketing (product, placement, pricing, and promotion), but they also assist in illuminating the behaviours of customers who frequent modern pharmacies. The findings provide fresh insight into the operations of pharmacies as well as the demographics of the customers that frequent these establishments in the nation's capital.

According to The Foundation for Innovative Medicine (1992), the definition of a nutraceutical is "any substance that may be considered a food or part of a meal that has medical or health advantages, including the prevention and treatment of disease." The term "nutraceutical" refers to "any substance that may be considered a food or part of a meal that has medical or health advantages." It is possible that the term "nutraceuticals" refers to both "functional foods" (Hasler et al., 2004) and "dietary supplements" (DS), according to the definitions provided by the American Dietetic Association and the United States Food and Drug Administration, respectively (U.S. Food and Drug Administration, 2015). This is because there is no universally accepted definition of the term "nutraceuticals." According to the most recent national poll conducted on the subject, between the years 1999 and 2012, 52% of people living in the United States utilised DS. There has been a parabolic surge in the number of DS models that are available for purchase in the United States, going from 4,000 in 1994 to 55,000 in 2012, which resulted in sales of USD32 billion in 2012. This rise can be traced back to the year 1994. There are a lot of parallels to be drawn between the patterns of usage of DS in Korea, the United Kingdom, and the rest of Europe. Based on a significant amount of research (both clinical and observational), researchers have come to the conclusion that nutraceuticals, despite their widespread use, do not deliver any major improvements to one's health. The National Institutes of Health (NIH) has provided funding for a large number of studies that have investigated the efficacy of various dietary supplements, such as selenium and vitamin E for the treatment of cancer, multivitamins for the treatment of depression, and echinacea for the treatment of the common cold. There was mounting evidence that DSs were dangerous, such as how high dosages of beta-carotene supplementation enhanced the risk of lung cancer in smokers and how the use of antioxidants was connected to a higher mortality rate. Another example is how the use of antioxidants was linked to a higher mortality rate. Researchers have come to the conclusion that the continued use of DSs by consumers can be attributed to a combination of factors. These factors include a lack of familiarity with the available clinical evidence, lax regulations regarding the sale of nutraceuticals and the use of health claims in advertising, and an inefficient consultation process involving healthcare professionals who do not have access to such data. Patients' continuous utilisation of DSs may also be attributable to ineffective consultation with healthcare

professionals who have access to the most recent available clinical evidence.

Gandhinagar, Banaskantha, Sabarkantha, Aravalli, Mehsana, and Patan are some of the districts that are included in the geographical region known as North Gujarat. In addition, the districts that make up (the northern portion of the state of Gujarat in India) are considered to be a component of this region.

MATERIALS AND METHODS [7-14]

Researchers and enterprises are facing mounting demands to create and execute innovative approaches to nourishment manufacturing in order to provide sustenance for the expanding global populace (FAO, 2016). To alleviate the adverse impacts of the increasing food requirement on the ecosystem, it is crucial to incorporate state-of-the-art technological advancements into food manufacturing processes.

The notion of "contemporary machinery nourishment" has broadened due to these advancements. An "original meal" is characterized in EU legislation as: (1) a freshly created, inventive meal; (2) a meal made using modern technologies and manufacturing methods; or (3) a meal that is or has been conventionally consumed outside of the EU but is not extensively eaten within the EU McElhatton and Sobral, 2012; The European Parliament and the Council of the European Union, 2015). Nonetheless, this explanation is solely precise inside the European Union, and what could be perceived as ground-breaking inside the EU might not be deemed as such in other regions. Due to this, accurately delineating "new cuisine" is difficult.

Considering these advancements, it's crucial to comprehend the sentiments of consumers towards these commodities, presumably in different regions of the globe, with a particular emphasis on financial aspects such as their readiness to shell out money for goods falling under this classification. The eagerness to spend on a thing is a financial signal of the extent to which individuals value or admire that thing. Alternative valuation methods such as experimental auctions, discrete choice experiments, and contingent valuation have been employed to ascertain willingness-to-pay (WTP) for both attributes and entire goods. The outcomes of an evaluation of purchasers' willingness to pay can guide the creation of fresh commodity cost arrangements and offer perception into buyers' inclinations. WTP is additionally employed to assess the worth that consumers assign to diverse

commodities, amenities, and characteristics, rendering it pertinent to an extensive array of fields.

The investigation in this section regarding innovative cuisine aims to recognize the primary factors that impact willingness to pay. Works that concentrated on buying inclinations without assessing the willingness to spend or works that explored purely financial matters were not assessed.

Methodology and Data

The search was conducted on Scopus, Web of Science, and Science Direct to find articles related to the present review. The search terms used were "new cuisine," "readiness to spend," and "buyer." No documented researches encompassed this duration, so it remained unregulated. The main objective of this inquiry was to collect all relevant factual research on the financial influence of novel food items. The exploration of the data repositories produced a sum of 193 entities.

The subsequent criteria were employed during our evaluation procedure:

Publications, dissertations, and papers from academic sources.

Printed materials in the authors' mother tongues of Anglo-Saxon, Italiano, and Castellano.

Publications featuring the terms "new cuisine," "original," "synthetic," "grown," and "readiness to spend" in the heading or summary. Following the preliminary selection, 18 documents were left for additional evaluation.

Because of the limited amount of data, diverse range of products, approaches, and objectives discussed in the documents, and the vague definition of the term "innovative cuisine," we decided not to perform a methodical examination. The documents are arranged into divisions that concentrate on topography, commodity type, and production technique.

The investigation consisted of an assessment of the most significant results. The diagram demonstrates that even though the regulation of novel foods by the EU can be traced back to 1997, most of the articles we selected regarding this subject were exclusively released in 2019 and 2020. Due to alterations in society and regulations from the EU, this figure is anticipated to increase in the future. It is evident that most of the selected research has been conducted in either Europe (particularly Italy) or the Americas (primarily the United States). A broad range of merchandise types were examined throughout the analyzed studies. The majority of the investigation

examined the response of individuals to cooked items and animal flesh that are predominantly composed of insect-based proteins and improved with practical supplements. As per Leonard and Vasagar's (2014) report, a small to moderate percentage of people worldwide experience allergic reactions to wheat, ranging from 0.5% to 9%. Despite this, the increasing desire for bread products aligns with this pattern.

Enthusiasm for cud-chewing domesticated animals (sheep and cattle) reflects estimates that worldwide meat consumption will increase from 2005/2007 levels to 2050 levels of 28 kg in developing nations and from 1980 levels to 2050 levels of 80 to 91 kg in affluent countries. The production of sustenance for creatures presently represents 80% of the usage of farming land, and domesticated animals are held responsible for a greater amount of discharges of greenhouse gases than any other industry). Consequently, embracing a predominantly herbivorous diet is perceived as a strategy for diminishing worldwide climate change. The subsequent segments offer a summary of the articles' findings, dissecting the sentiments of consumers towards experimenting with novel products and the factors that impact their readiness to shell out money for them.

RESULTS AND DISCUSSIONS [15-20]

Association between gender and Purchase intention factor.

Table 1 Association between gender and Purchase intention factor.

Sr. No.	Gender	Frequency	%	Purchase intension Frequency		
				Low	Moderate	High
1	Male	236	59	52	137	47
2	Female	164	41	34	98	31
	Total	400	100	86	235	78

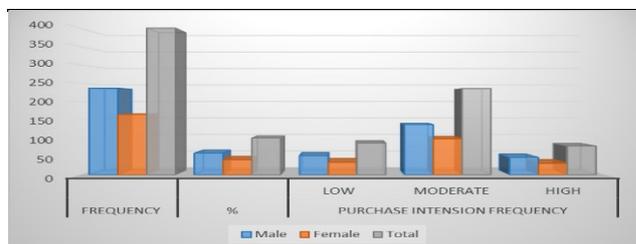


Figure 1 Association between gender and Purchase intention factor.

Association between age group and Purchase intention factor.

Table 2 Association between age group and Purchase intention factor

Sr. No.	Age	Frequency	Percentage	Purchase intention		
				Frequency		
				Low	Moderate	High
1	Below 20	100	25	15	65	20
2	21-40	101	25.25	26	56	19
3	41-60	103	25.75	31	46	26
4	Above 60	96	24	13	56	27
Total		400	100	86	223	92

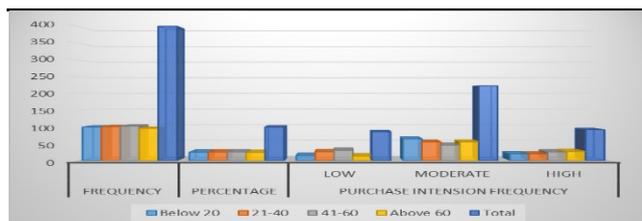


Figure 2 Association between age group and Purchase intention factor

Association between educational level and Purchase intention factor.

Table 3 Association between educational level and Purchase intention factor.

Sr. No.	Education qualification	Frequency	Percentage	Purchase intention		
				Frequency		
				Low	Moderate	High
1	Elementary school	80	20	22	46	11
2	High school	92	23	19	55	17
3	Diploma	89	22.25	23	49	17
4	Under graduation degree	100	25	14	58	28
5	Post-Gradation	39	9.75	9	23	8
Total		400	100	87	231	81

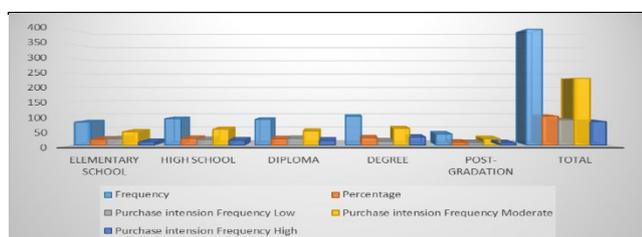


Figure 3 Association between educational level and Purchase intention factor

Association between occupation and Purchase intention factor.

Table 4 Association between occupation and Purchase intention factor.

Sr. No.	Occupation	Frequency	Percentage	Purchase intention		
				Frequency		
				Low	Moderate	High
1	Entrepreneur	109	25.6	31	63	15
2	Government employee	114	29.5	24	68	22
3	Professionals	50	11.8	8	33	10
4	Private employee	127	33.1	33	70	24
Total		400	100	95	234	71

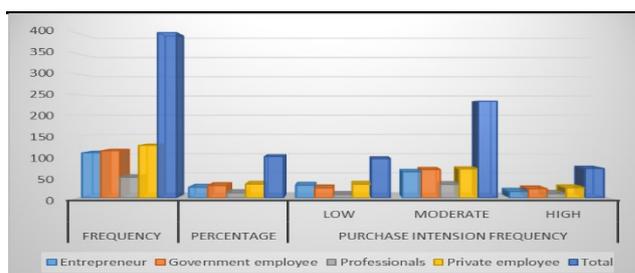


Figure 4 Association between occupation and Purchase intention factor

Association between monthly income and Purchase intention factor.

Table 5 Association between monthly income and Purchase intention factor.

Sr. No.	Monthly income	Frequency	Percentage	Purchase intention		
				Frequency		
				Low	Moderate	High
1	50000-100000	99	24.75	28	57	14
2	100001-150000	104	26	15	60	29
3	150001-200000	103	25.75	31	46	26
4	Above 200000	94	23.5	24	52	18
Total		400	100	98	216	87

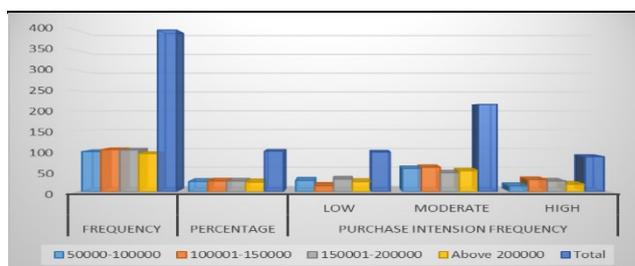


Figure 5 Association between monthly income and Purchase intention factor

Association between marital status and Purchase intention factor.

Table 6 Association between marital status and Purchase intention factor.

Sr. No.	Marital status	Frequency	Percentage	Purchase intention Frequency		
				Low	Moderate	High
1	Unmarried	173	43.25	26	112	35
2	Married	227	56.75	48	136	43
	Total	400	100	74	249	78

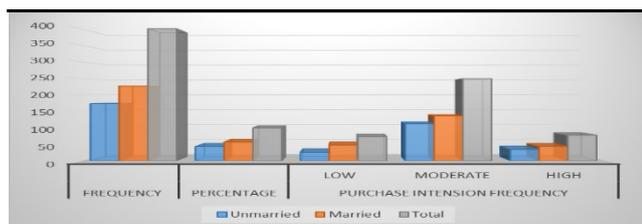


Figure 6 Association between marital status and Purchase intention factor

Association between Tenure of purchase and Purchase intention factor.

Table 7 Association between Tenure of purchase and Purchase intention factor

Sr. No.	Tenure of purchase	Frequency	Percentage	Purchase intention Frequency		
				Low	Moderate	High
1	0-2 years	142	35.5	30	85	27
2	3-5 years	133	33.25	20	86	27
3	6-8 years	125	31.25	33	69	24
	Total	400	100	82	240	77

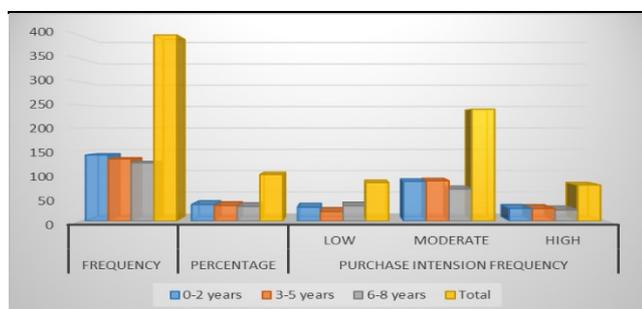


Figure 7 Association between Tenure of purchase and Purchase intention factor

Association between frequency of Purchase and Purchase intention factor.

Table 8 Association between frequency of Purchase and Purchase intention factor.

Sr. No.	Frequency of Purchase (Past Six Months)	Frequency	%	Purchase intention Frequency		
				Low	Moderate	High
1	2-3 times a week or more often	94	23.9	21	55	19
2	Once a week	92	22.6	19	55	17
3	Once in two weeks	114	28.7	17	74	23
4	Once a month	100	24.8	22	58	20
	Total	400	100	79	242	79

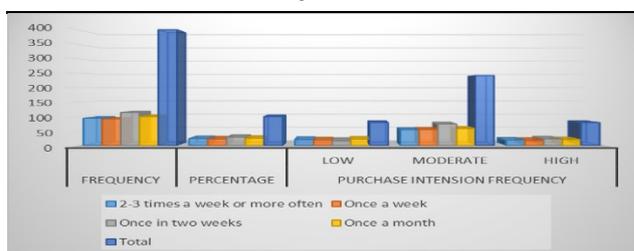


Figure 8 Association between frequency of Purchase and Purchase intention factor

Association between duration of consumption and Purchase intention factor.

Table 9 Association between duration of consumption and Purchase intention factor.

Sr. No.	Duration of consumption	Frequency	%	Purchase intention Frequency		
				Low	Moderate	High
1	More than 2 years	81	20.25	17	49	15
2	1-2 years	95	23.75	25	52	18
3	6-12 months	84	21	12	49	24
4	5-6 months	76	19	16	46	14
5	Around 1-5 months	64	16	13	38	12
	Total	400	100	83	234	84

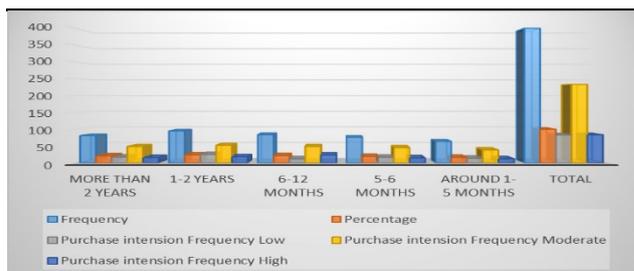


Figure 9 Association between duration of consumption and Purchase intention factor

Association between consumption of Nutraceutical products by the family members and Purchase intention factor.

Table 10 Association between consumption of Nutraceutical products by the family members and Purchase intention factor.

Sr. No.	Consuming members	Frequency	%	Purchase intention Frequency		
				Low	Moderate	High
1	All the family members	94	23.5	26	55	13
2	Father/Mother (parents)	92	23	19	55	17
3	Brother/Sister	111	27.75	24	64	22
4	Husband/wife/kids	103	25.75	15	67	21
	Total	400	100	86	241	73

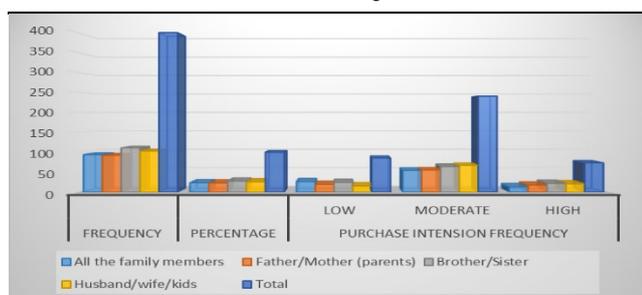


Figure 10 Association between consumption of Nutraceutical products by the family members and Purchase intention factor

Association between mode of awareness and Purchase intention factor.

Table 11 Association between mode of awareness and Purchase intention factor

Sr. No.	Mode of Awareness	Frequency	%	Purchase intention Frequency		
				Low	Moderate	High
1	Product advertisement in TV, newspaper, internet, or in other media	103	25.75	23	60	21
2	Product description (label) on the packaging	102	25.5	15	66	20

3	Family, relatives, friends	90	22.5	23	50	17
4	Scientific journal/article/magazine	80	20	24	36	20
5	Medical doctor/pharmacy suggestion	25	6.25	5	15	5
	Total	400	100	91	227	83

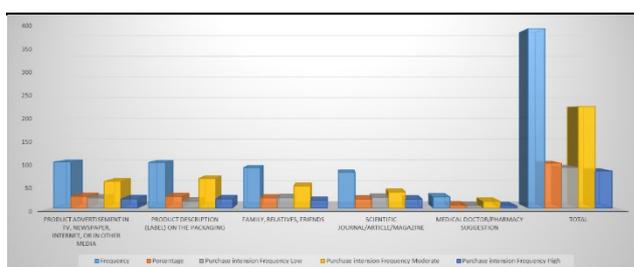


Figure 11 Association between mode of awareness and Purchase intention factor

DISCUSSION:

Based on the findings of the work on consumer behavior towards nutraceuticals in different groups of patients in North Gujarat, the following recommendations can be made:

Increase awareness: The study shows that awareness about nutraceuticals is low among consumers in North Gujarat. Therefore, there is a need for increased awareness through various channels, including product advertisements on TV, newspapers, and the internet, product descriptions on packaging, family, relatives, and friends, scientific journals, articles, and magazines, and medical doctor and pharmacy suggestions.

Improve product labeling: The study shows that consumers rely on the product description on the packaging when making purchase decisions. Therefore, there is a need for clear and accurate product labeling that includes detailed information about the ingredients, dosage, and potential side effects.

Offer discounts and promotions: The study shows that consumers are price-sensitive when it comes to purchasing nutraceuticals. Therefore, offering discounts and promotions can be an effective way to attract more consumers.

Provide more information: The study shows that consumers are interested in learning more about the health benefits of nutraceuticals. Therefore, manufacturers and retailers can provide more information about the scientific research behind the products and the specific health benefits that they offer.

Conduct more research: The study is limited in its scope and geographic location. Therefore, there is a need for further research to explore consumer behavior towards nutraceuticals in other regions of India and other countries. Overall, the findings of the study provide valuable insights for manufacturers and retailers of nutraceuticals in North Gujarat and other regions. By addressing the needs and preferences of consumers, these companies can increase their market share and contribute to the overall health and well-being of their customers.

In conclusion, the thesis titled "A Pharmacy Level Empirical Study on Consumer Behaviour Towards Nutraceuticals in Different Groups of Patients in North Gujarat" has provided important insights into the consumer behavior towards nutraceuticals in North Gujarat. The study has identified the factors that influence consumers' purchase decisions, including the type of nutraceutical product, the duration of consumption, the consumption of nutraceuticals by family members, and the mode of awareness. The study has also recommended ways to improve consumer awareness, product labeling, pricing strategies, and information provision, and called for more research to be conducted in this area. By following these recommendations, manufacturers and retailers can improve their marketing strategies and better meet the needs of their customers.

CONCLUSION

Overall, the study suggests that consumers in North Gujarat have a positive attitude towards nutraceutical products, and longer durations of consumption and family consumption are positively associated with higher purchase intentions. Pharmacy-level interventions to promote awareness and education about nutraceutical products, especially through media and packaging, could help enhance purchase intentions among consumers.

The research helps to understand current behaviour of public towards nutraceuticals.

The research helps to understand the current behaviour of pharmacy customers and gives an insight into the 4P's of marketing, product, place, price and promotion.

The results aid to understand the pharmaceutical market a little better and gaining knowledge of pharmacy customers in the capital region.

CONFLICT OF INTEREST

The authors have no conflict of interest.

REFERENCES

1. Arumugam V, Veerakumar AM, Rajendran D. Study on consumer behavior towards nutraceutical products with reference to rural consumers. *International Journal of Management, IT and Engineering*. 2015;5(5):162-178.
2. Chowdhury S, Pandey S, Kumari S, Bharti P, Bharti B. Perception and purchasing behavior of nutraceutical products among consumers in Delhi: A cross-sectional study. *Journal of Family Medicine and Primary Care*. 2019;8(9):2929-2934. doi: 10.4103/jfmpc.jfmpc_526_19
3. Dixit A, Azad J, Sharma RK, et al. Consumer's attitude and behavior towards nutraceutical products: An exploratory study. *International Journal of Health Care Quality Assurance*. 2016;29(3):276-285. doi: 10.1108/ijhcqa-06-2015-0068
4. Gaur S, Kumar S, Kumar V. Consumer behavior towards nutraceuticals products in India: A study of the national capital region. *International Journal of Pharma and Bio Sciences*. 2014;5(4):784-793.
5. Joshi PK, Mehta N, Verma AK, Singh M. A study on consumer behavior towards nutraceutical products in Indian market. *International Journal of Research in Management, Science and Technology*. 2014;2(1):42-48.
6. Lai SK, Wong KF, Cheung TT, Wong TW. Nutraceuticals and Hong Kong consumers: Implications for the future of nutraceuticals as medical food. *Food and Nutrition Sciences*. 2012;3(12):1682-1689. doi: 10.4236/fns.2012.312219
7. Leikova K, Lovric M, Husnjak Z, Polancec DS. Nutraceuticals in Croatia: Consumption habits and knowledge of consumers. *Nutrients*. 2018;10(10):1562. doi: 10.3390/nu10101562
8. Shikha S, Seema B. Consumer awareness and behavior towards nutraceutical products in India. *Journal of Food Science and Technology*. 2015;52(12):8081-8088. doi: 10.1007/s13197-015-1917-y
9. Singh AK, Kumar V, Kumar A, Kumar R. Consumer behavior and perception towards nutraceutical products in India. *Journal of Pharmacognosy and Phytochemistry*. 2017;6(3):628-632.
10. Yadav S, Khetarpaul N, Chauhan BM. Consumer behaviour towards nutraceuticals and functional foods: A review. *Journal of Food Science and Technology*. 2012;49(2):173-183. doi: 10.1007/s13197-011-0296-x
11. Patel RM, Patel JK, Patel BG. Awareness of Nutraceuticals among Patients with Chronic Diseases in North Gujarat Region. *Journal of Drug Delivery and Therapeutics*. 2019;9(1-s):265-269.
12. Shah N, Parikh N, Patel J. A Study on Nutraceuticals in Cardiovascular Diseases at North Gujarat Region. *Research Journal of Pharmacy and Technology*. 2019;12(9):4217-4220.

13. Patel R, Patel J, Patel B. A Comparative Study on Awareness of Nutraceuticals among Patients with Chronic Diseases in North Gujarat Region. *World Journal of Pharmaceutical Research*. 2019;8(8):258-269.
14. Parikh N, Shah N, Patel J. A Study on Consumer Behavior towards Nutraceuticals in North Gujarat Region. *Asian Journal of Pharmacy and Pharmacology*. 2019;5(3):447-452.
15. Patel J, Patel R, Patel B. Knowledge and Attitude of Patients towards Nutraceuticals in North Gujarat Region. *Indian Journal of Public Health Research & Development*. 2019;10(12):360-364
16. Shah N, Parikh N, Patel J. Evaluation of Efficacy and Safety of Nutraceuticals in Patients with Metabolic Disorders: A Study in North Gujarat Region. *International Journal of Pharmaceutical Sciences and Research*. 2019;10(6):2993-2999.
17. Patel R, Patel J, Patel B. Analysis of the Factors Affecting the Purchase of Nutraceuticals by Patients in North Gujarat Region. *Journal of Young Pharmacists*. 2019;11(2):157-160.
18. Parikh N, Shah N, Patel J. A Study on the Awareness and Use of Nutraceuticals in Diabetes Patients in North Gujarat Region. *Journal of Basic and Clinical Pharmacy*. 2020;11(2):1-7.
19. Patel B, Patel J, Patel R. A Comparative Study on Consumer Behavior towards Nutraceuticals among Different Age Groups in North Gujarat Region. *Indian Journal of Pharmaceutical Education and Research*. 2020;54(S2):S201-S207.
20. Shah N, Parikh N, Patel J. A Study on the Effectiveness of Nutraceuticals in the Management of Osteoporosis: A Survey in North Gujarat Region. *Journal of Drug Delivery and Therapeutics*. 2020;10(3-s):128-134.

