



Effect of Consumers' Immunity Consciousness on Monthly Consumption of Immunity Booster Products

Dr. Poonam Arora¹ | Swati Mehta² | Dr. Nidhi Arora³

¹Asst. Professor, St. Kabir Institute of Professional Studies,

²Adjunct Instructor, Raritan Valley Community College,

³Chief AI Officer, Inferenz Tech Pvt. Ltd.

To Cite this Article

Dr. Poonam Arora, Swati Mehta and Dr. Nidhi Arora. Effect of Consumers' Immunity Consciousness on Monthly Consumption of Immunity Booster Products. *International Journal for Modern Trends in Science and Technology* 2021, 7 pp. 147-154. <https://doi.org/10.46501/IJMTST0709023>

Article Info

Received: 13 August 2021; Accepted: 11 September 2021; Published: 16 September 2021

ABSTRACT

Recent times have witnessed a considerable inclination of consumers towards the ongoing trend pointing to buy immunity products. This trend is seen to gear up during last few years. Availability of a wide range of immunity booster products has given a lot of choices to the customers to purchase. One of the important reasons that people have started exploring health products is because of their belief that healthy eating habits will boost their immunity, can provide health benefits and can also protect them from any virus infections. An in-depth analysis has been done over a sample of 208 respondents from various age groups under working and non-working categories to determine their awareness and inclination to buy immunity-based products. Statistical analysis carried out over the collected data shows that working people are more immunity conscious than the non-working people because they consume more immunity products monthly than non-working people. The amount spent by working people towards the purchase of immunity products is more than non-working people which proves their health consciousness.

KEYWORDS: Statistical Analysis, Immunity Products, Immunity-based Products, Immunity Booster, Immunity Consciousness, New Normal.

1. INTRODUCTION

In the prevailing situation, a huge number of people world-wide have been affected by the virus since late 2019. This has a huge impact in the lives of billions of people. The fear around the situation has brought a lot of changes in the perception of people towards everything whether it is education, work, shopping or eating out. Furthermore, there have been many behavioural changes in the psyche of the masses. They have not only become more health conscious, but also have become smarter and mindful in the selection of buying things from the market. Social media, television

and radio has played an important role in creating awareness among consumers to consume healthy food and immunity booster products to maintain the overall immunity and well-being of people in the country. A human immune system is complex and robust, but it is affected by changes in the environment to a great extent. The adverse effects of environment can be brought down by following a healthy lifestyle. This involves eating nutritious food, practising hygienic habits, walking and exercising regularly, maintaining good emotional and mental health and having adequate sleep. All those who were earlier not even aware of

sanitizer, have now started carrying it as an important element of their routine belongings before stepping out of the house.

Immunity booster products help supplement immune system improve immune response to fight against the potential illnesses. Although there are various ways to boost up the human immune system by consuming healthy foods and following proper diet, but there has been more awareness among consumers recently to improve their immunity by taking immunity booster products. These products can vary from ayurvedic products to homemade immunity foods like herbal tea, multigrain chapati, citrus juices, chyawanprash or over the counter supplements in the form of vitamins, proteins and multi vitamins tablets. Superfoods have become a popular term which refers to food products which offer health benefits. There are various food components and ingredients which are found to have possible antimicrobial functions, anti-inflammatory properties, and potential antiviral actions (Watson& Preedy, 2016).

There is a sudden rise in the demand of immunity-based products due to awareness and change in buying behaviour of consumers. As a consequence, there is an indicative spike in purchase of products around health, wellness and hygiene, in addition to healthy and nutritious food products. Looking at the demand of immunity booster products, many companies have started to offer these items in value packs also. Awareness amongst consumers on health and hygiene has gained ground across people of all age groups. Household hygiene products have also seen an exponential rise across India and their penetration in people's routine life has increased significantly. Besides nutritious food which offer health-benefits, immunity-boosting products are now on the top of consumer demand.

There are numerous ways in which people have started to build and improve their immune system. There is a great deal of acceptance of home-made remedies in people due to their low-fat dietary-based immunity properties. On one hand, where some people have started taking turmeric milk, herbal tea, energy drink and various such home-made products on daily basis, while on the other hand, some people have started focussing on a balanced diet consisting of a range of vitamins and minerals, combined with habits

like taking adequate sleep and exercise, being mindful of the stress, to effectively fight infection and diseases. Some consumers are consuming little portions of wellness shots comprising of concentrates of ginger, wheatgrass, apple cider vinegar, citrus juices etc. which are believed to have myriad of health benefits. A number of consumers are making efforts to include fibres, protein, vitamin D, calcium, nuts/seeds, and whole grains in their diet while others are adding antioxidants, omega-3s, green tea, and probiotics to their diets. This is the reason why immunity booster products have been found to almost fly off from the shelves these days. It has been perceived that a large number of consumers have shown inclination towards the purchase of immunity products. This demands an in-depth analysis to determine the category of consumers who are particularly more health conscious; those who go out for work or daily household purchase or those who rarely step out of the house. Hence, the objective of this work is to understand the inclination of consumers towards the purchase of immunity products. In addition, the immunity consciousness of consumers is studied to determine over different age groups and between working and non-working categories of customers.

STRUCTURE OF PAPER

The paper is organized as follows: In Section 1, introduction of the paper is provided along with the paper structure, important terms and objectives. Section 2 sets the brief background about the similar work carried out by other researchers in past. Section 3 focuses on the research methodology used to achieve the objectives with the discussion on findings of statistical analysis. Section 4 concludes the paper with acknowledgement and references.

2.RELATED WORK

In recent few years, there has been a paradigm shift in consumers' behaviour as they are moving towards more conscious consumption and a preference towards health-based products while purchasing (Hariharan, 2020). Accenture surveyed 2,500 consumers in India between March and June 2020 and reported that 90% of consumers are making lasting changes to how they live, take self-care and consume health-based products and there seems to be no going back to the same

consumption pattern (Wright & Blackburn, 2020). 85% of consumers in India are now shopping more health-consciously and are focusing more on limiting food wastes and their personal hygiene habits are also changing with 48% of consumers increasing purchases of self-care products (Wright & Blackburn, 2020). This pattern of change in food habits and consumption is observed pan India. The food consumption habits of people went a sea change where they are spending mainly and essentially on healthy food (Kumar & Abdin, 2021). So, the health cautious approach has influenced the whole community leading to a phenomenal change in consumer buying behavior towards healthy and immunity-based products (Varade & Makhija, 2020).

Consumer behavior covering food consumption and eating preferences are rapidly changing and is affected by the increasing health concerns of people. 60% of the consumers are found to be more cautious about hygiene, personal safety, and food purchases because of which their eating habits have been altered. 52% of consumers reported to prefer only health cautious products (Kuna & Kata, 2020). Self-care is an integral part of taking care of one's own health. It's a practice that individuals and people in family follow to attain good health (WHO, 2009). It is considered as a primary action for self-care which is part of preventive and curative care. To attain good health, lot of efforts like taking timely action, eating nutritious foods and maintaining self-care is important. Intake of nutritious food rich in Vitamin C, D and E helps maintain good health. Zinc, selenium and the omega 3 fatty acids are also proved to have well-established immunomodulatory effects on human body leading to increase in immunity (Shakoor, Feehan, Dhaheri, Ali, Platat, Ismail, & Stojanovska, 2020).

Food choices is one of the important factors of staying fit and healthy for people who prioritize health, adopt healthy practices related to food and diet activities (Dwivedi, Dwivedi & Goswami, 2017). People with low immunity are usually more vulnerable to attack from foreign viruses but if the immune system is strong, it protects the body from any potential illnesses. Functional foods and the available ingredients help make the immune system stronger. Immune boosting food ingredients limits the effect of viruses and pollution on human system (Miroso, Blake, Cong &

Bremer 2020). Various herbs and micronutrients rich in vitamins C, D and E are also reported to promote the health and makes human system stronger (Arshad, Khan, Sadiq, Khalid, Hussain, Yasmin & Rehana, 2000). Consumption of proper food containing required vitamins help fight against viral infections. Food rich in vitamins, fatty acids and minerals taken in significant amount can increase immunity and body potential (Thirumdas, Kothakota, Pandiselvam, Bahrami, & Barba, 2021).

Food variants rich in vitamins boosts the human immune system. These immune boosters help in making the human system strong and healthy. Immune boosters help in increasing the number of white blood cells in body which fights against microbes causing diseases (Geetha et.al, 2012). There is a recent awakening towards products building health and immunity. Maintaining good health keeps the immune system strong and helps fight the body with outside viruses and diseases. Even with the consumption of plenty of water and minerals like magnesium and Zinc, human body can prevent any foreign infection (Arshad et.al, 2020). Up to 80 percent of the population in Asian and African countries depend primarily on traditional methods and natural sources for taking care of their health (WHO, 2010).

Among various immunity booster products, natural source products are used very frequently. A recent study by business today revealed that the sale of natural products has grown in past few months as customers are purchasing them through e-commerce platforms. The sale of the turmeric, simply called haldi has increased by over 40 per cent. Along with it, there is a surge in sales in honey, fruit juices and chyawanprash too (Shashidhar, 2021).

People also have started consuming Ayurveda herbs and supplements. Herbs like Tulsi, Marich, Sunthi, and Dalchini are the most commonly used and easily available in every household. Homemade brews can be made from all these herbs to increase immunity (Gautam, Gautam, Chhetri & Bhattarai, 2020). The sales of chyawanprash, an ayurvedic product has increased by 283 per cent and the sales of honey has surged by 39 per cent in last few months. Also, along with the increased usage of homemade brews, people consume more juices which now forms 30% of consumers' shopping bill (Shashidhar, 2021). Ayush Kwath due to

its immune-increasing properties is considered to be effective in immuno-regulation for controlling viral infections. Ayurveda herbs are seen to have rich sources to fight against the immuno-pathogenesis process of viral diseases (Gautam, et.al, 2020). Numerous studies have found out that fruits and vegetables contain immune boosting ingredients like carotenoids and flavonoids making them naturally immune boosting foods which provide numerous health benefits alleviating the immune health of an individual (Mirosa et.al, 2020).

An upsurge has been observed in India towards Over-The-Counter (OTC) purchase of health supplements. The reason behind this is health consciousness of people. The segment of OTC supplements is profusely growing at the rate of 15% (Verma, 2009). Even the plant-based foods play a vital role in promoting the immunity of people. To help boost the immunity and to promote beneficial bacteria in the body, the plant-based foods are very crucial (Arshad et.al, 2020). The literature reveals that to enhance the immunity, consumers are more cautiously buying and purchasing healthy products that enhances the immunity of an individual (Thirumdas, et.al, 2021). Due to recent awareness in the last few years regarding staying healthy has impacted the changes in food consumption of people leading to a paradigm shift in consumer buying behavior. People are preferring various kinds of products rich in vitamins and minerals ranging from ayurvedic to natural sources to OTC supplements.

3. RESEARCH METHODOLOGY

Healthy habits including choice of immunity booster products is crucial to strengthen body's defense system that in turn leads to a healthy life over long term and reduces the risk of external infections. To determine immunity consciousness and register preference of consumers towards immunity products, a well-structured questionnaire is prepared and a survey is conducted over respondents of Gujarat. Using the Cochran's formula, the sample size used is 208. The data collection followed non-probability convenience sampling from consumers with varied occupations belonging to different age groups.

This work attempts to determine the customer preference towards different immunity product categories. The aim is to study the immunity consciousness of consumers in terms of the number of immunity products people consume and the amount they spend monthly on purchase of these immunity products. The study has two independent variables which are age group and working status of people. Four hypotheses are formed on the basis of the study survey and chi square test is applied in SPSS to check the dependence of variables.

The first hypothesis is:

H₀₁: Immunity consciousness based on the money spent on the immunity product (per person per month) is independent of working status.

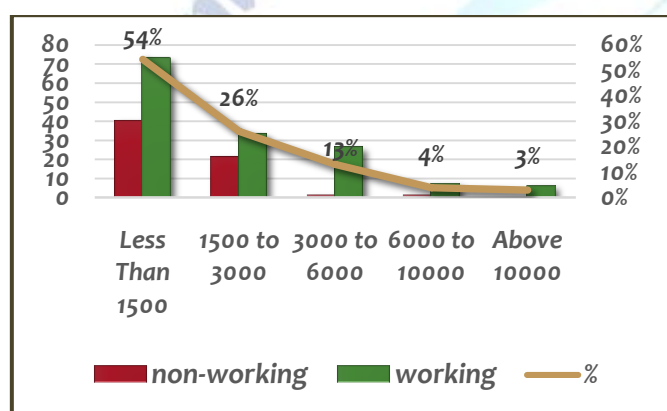
Table1: Chi Square Result for Immunity Consciousness based on Money Spent on Working Status

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	88.854a	4	.000
Likelihood Ratio	113.975	4	.000
Linear-by-Linear Association	2.425	1	.119
N of Valid Cases	208		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.48.

Out of 145 working respondents, more than 100 agreed of spending more than ₹3000 per month, while only 40 in the non- working category responded of spending more than ₹3000 per person per month. Test value of chi square in Table 1 is 0.000 which says that the alternate hypothesis is accepted which means immunity consciousness of consumers is dependent on their working status. Cross tab analysis says that a person being working or non-working affects the immunity consciousness. Working category of people covering professionals and business acumen people spend more money on immunity products to be healthier. While non-working people comprising of students, housewives and retired people spend less on purchase of immunity products.

Working class people are spending more in comparison with non-working category of people. Expenditure distribution, as shown in Figure 1. 'in less than 1500' expenditure category, the number of working people is approximately 50% more than non-working people. 26% of working respondents are spending between '₹1500- ₹3000' per month which is more than non-working class, following the similar trend to other expenditure categories. To top it all, 'Above 10000' expenditure category, has no non-working respondents. This clearly supports the hypothesis result that the working status affects the immunity consciousness in terms of amount spent on immunity products.



The second hypothesis is:

H₀₂: Immunity consciousness based on the number of immunity products taken is independent of working status.

Table 2: Chi Square Result for Immunity Consciousness based on Number of Immunity Products Consumption on Working Status

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.271a	2	.026
Likelihood Ratio	7.719	2	.021
Linear-by-Linear Association	7.217	1	.007
N of Valid Cases	208		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.03.

Test value of the variables here in Table 2 is 0.026 which is smaller than the level of significance. Hence, the alternate hypothesis is accepted which means

immunity consciousness of consumers is dependent on their working status. Cross tab analysis says that out of 145 working people, more than 130 people consume at least 3 products and even more than that to stay healthy and boost self-immunity while only 19 non-working people consume more than 3 products. This proves that immunity consciousness is dependent on people venturing out for work or for those who are staying at home.

As shown in Figure 2a, working respondents are consuming a greater number of products in comparison to the other category. 71 working respondents as compared to 43 non-working are falling in 'less than 3' product category. Number of working people is much higher in '3 to 5' product category as compared with the other class of people. In comparison to working people, negligible non-working people are taking more than 5 immunity products to build a stronger immune system.

As shown in the Figure 2b, number of family members taking immunity products is more for the working people as compared to the family with non-working people. 59 respondents out 145 (41%) the working category have 2 to 4 family members consuming immunity products. Comparable results can be seen for respondents having more than 4 family members. For non-working category these results are observed to be much lower in comparison.

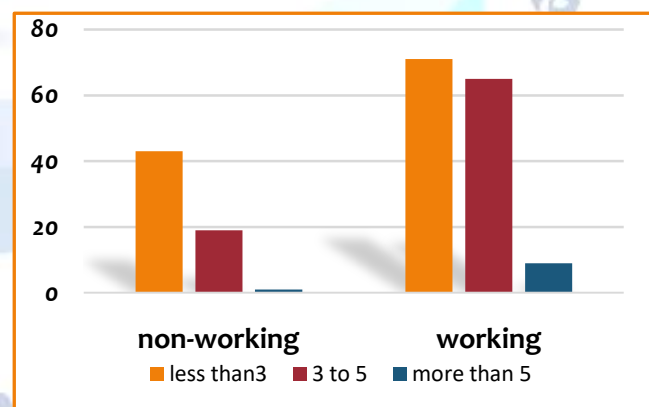


Figure 2a: Immunity Products Consumption by Each Employment Status

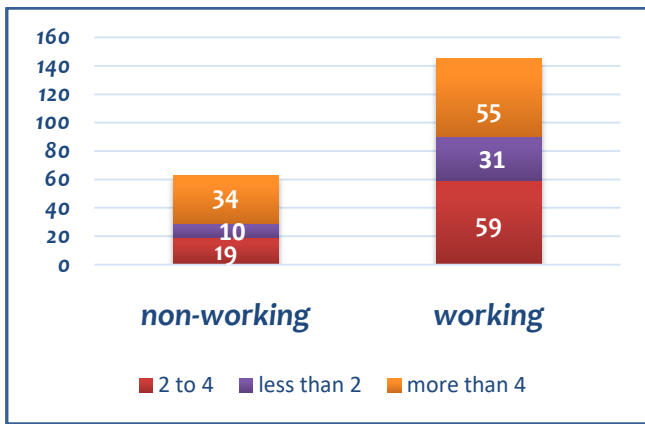


Figure 2b: Number of Family Members taking Immunity Booster Products for Each Employment Status

The next hypothesis is:

H₀₃: Immunity consciousness based on the money spent on the immunity products (per person per month) is independent of age.

Table 3: Chi Square Result for Immunity Consciousness based on Money Spent by Age Group

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.154a	4	.708
Likelihood Ratio	2.122	4	.713
Linear-by-Linear Association	.088	1	.767
N of Valid Cases	208		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 10.10.

Pearson chi square value in table 3 is 0.708 which is greater than the level of significance and hence, the null hypothesis is accepted which means immunity consciousness based on the money spent on the immunity products (per person per month) is independent of age. So, age is not a factor which affects immunity consciousness among consumers.

Last hypothesis is:

H₀₄: Immunity consciousness based on the number of immunity products taken is independent of age.

Table 4: Chi Square Result for Immunity Consciousness based on Number of Immunity Products Consumption by Age Group

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.669a	2	.059
Likelihood Ratio	5.658	2	.059
Linear-by-Linear Association	5.410	1	.020
N of Valid Cases	208		

a. 1 cells (16.7%) have expected count less than 5. The minimum expected count is 3.61.

Test value here in Table 4 is greater than level of tolerance and so the null hypothesis is accepted which means immunity consciousness based on the number of immunity products taken is independent of age. Analysis says that age is not the deciding factor for consumers' bent towards the consumption of products.

Respondents were surveyed to know the type of immunity products they prefer. As Figure 4 depicts, around 45% of respondents prefer OTC supplements like multivitamin capsules containing vitamin A, C and D, omega 3s or zinc for a stronger immune system. 24% of the people consume ayurvedic supplements like chyawanprash, ratnaprash, amla, giloy, tulsi etc for a healthier system while 17% of the respondents rely on homemade brews like kadhas and kwaths. Rest of the 14% rely on products from natural sources to strengthen the system.

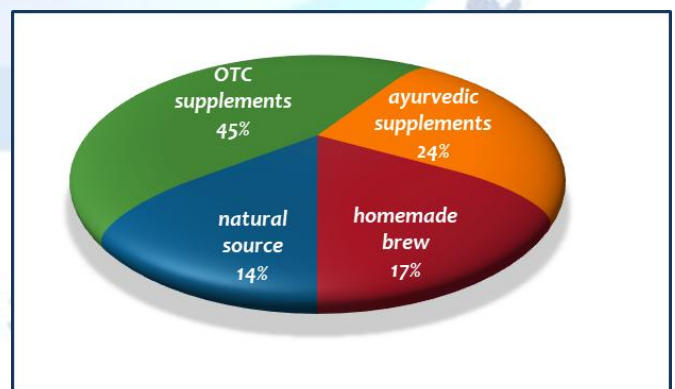


Figure:4 Category wise Immune Boosting Products Consumption

To study the key influencers affecting money spent per month on immunity booster products for various expenditure range, Power BI dashboards are used.

Analysis is undertaken for every expenditure category to bring out meaningful results.

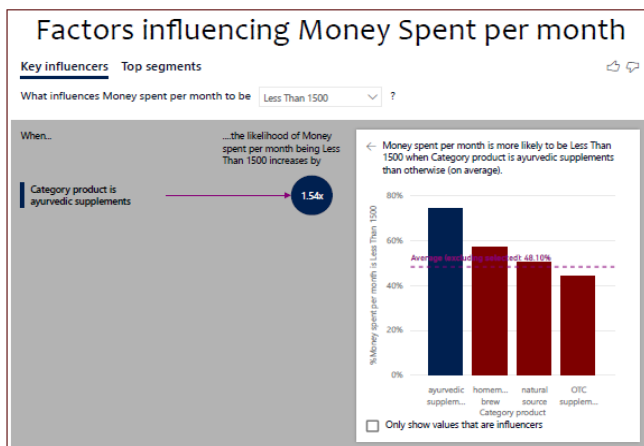
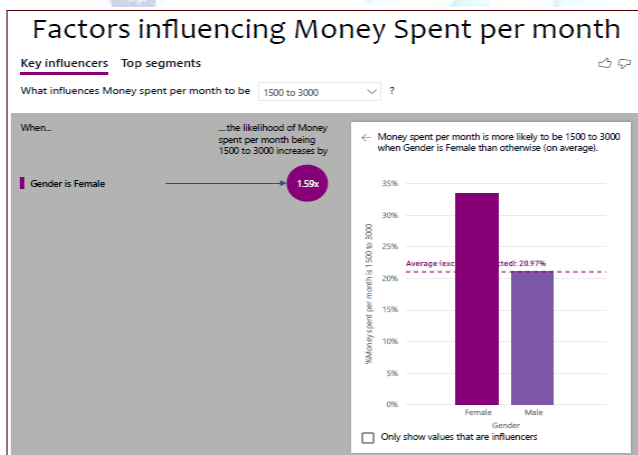


Figure :5a Factors Influencing Money Spent per Month (category less than 1500)



As shown in Figure 5a, in the Less than ₹1500 expenditure category, expenditure on supplements is 1.54 times more likely to be on ayurvedic supplements than any other products. The chart also represents the supplement category wise percentages spent for this expenditure category with ayurvedic supplements being the highest at 74%. Also Figure 5b shows that by the key influencer visualization for expenditure category ₹1500 to 3000, the spender is 1.59 times more likely to be female than male.

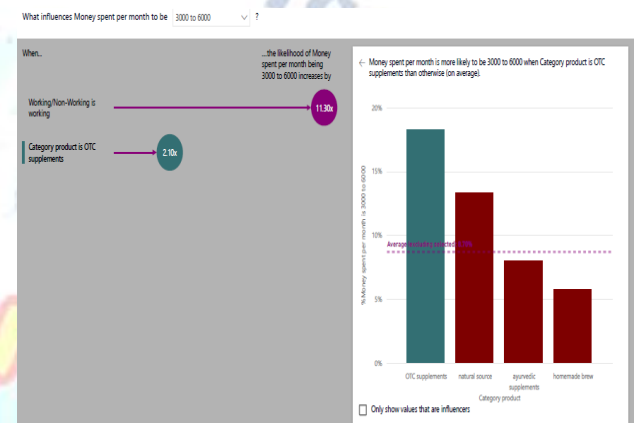
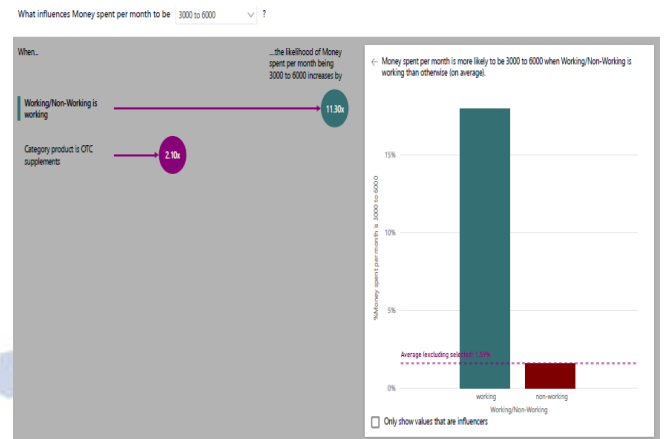


Figure:6 Factors Influencing Money Spent per Month (category 3000-6000)

As depicted by Figure 6, In the ₹3000 to 6000 expenditure category, if a person is working, he is 11.30 times more likely to be spending on immunity booster products than a non-working individual. The chart also represents the percentage of amount spent when the status is working or non-working for this category. In the second analysis in the same category of expenditure range, there is another influencer that is observed. For ₹3000 to 6000 category, the expenditure is 2.10 times more likely to be on OTC supplements than any other product. The chart also represents the supplement category wise percentages spent for this expenditure category with OTC supplements as the highest percentage. No distinct influencers are found for the expenditure category; between ₹6000 to 10000 per person per month. When the data for the expenditure category of more than ₹10,000 per month is analyzed, it is observed that for this category the gender is more likely to be male than female.

4.CONCLUSION

Boosting immunity is the need of the hour and people have understood it very well. Due to this reason, the demand for immunity-based products and ingredients has been accelerating lately. Knowing and accepting the fact that to protect themselves from the infections and viruses, a strong immune system plays a vital role. Hence, there is lot of inclination of consumers towards immunity-based products. Due to prevailing new normal, the purchase of food ingredients which enhance the immune system has affected a great deal of choices among consumers.

The findings of this research point to the fact that customers buying pattern has changed significantly due to the various kind of viruses and diseases and are willing to keep themselves healthy by consuming choices of health supplements. After conducting the analytical study, it is discovered that work status of people impacts immunity consciousness of people, whereas there is no impact of age on the same. It is also observed that among all the categories of immunity booster products, consumers prefer OTC supplements over the other categories, while natural sources are found to be least preferred by consumers. Analysis of per person per month expenditure of immunity products revealed that consumers with least monthly expenditure are more inclined towards ayurvedic supplements, whereas consumers around median monthly expenditure opt for OTC supplements than any other products. Hence, we conclude that people have understood that consumption of immunity-based products in routine life plays a significant role in regulating and boosting their immunity.

REFERENCES

- [1] Arshad, M. S., Khan, U., Sadiq, A., Khalid, W., Hussain, M., Yasmeen, A., & Rehana, H. (2020). Coronavirus disease (COVID-19) and immunity booster green foods: A mini review. *Food Science & Nutrition*, 8(8), pp. 3971-3976
- [2] Dwivedi L., Dwivedi B.K., Goswami P.K., editors. Caraka Samhita of Maharshi Agnivesa with Ayurvedadipika Sanskrit commentary by Sri Cakrapanidatta, Tattvaprasasini Hindi commentary of Ayurvedadipika and on some places Hindi commentary of Jalpalkapataru of Gangadhar. 4th ed. Chowkhamba Krishnadas Academy; Varanasi: 2017
- [3] Gautam, S., Gautam, A., Chhetri, S., & Bhattarai, U. (2020). Immunity against COVID-19: potential role of ayush kwath. *Journal of Ayurveda and Integrative Medicine*.
- [4] Geetha et al, 2012, March 2012, *International Journal of Pharmaceutical Sciences Review and Research* 13(1), pp. 43-52.
- [5] Hariharan, S., 2020. Covid-19 leads to lasting changes in consumer behaviours in India: Study Available at: <<https://timesofindia.indiatimes.com/business/india-business/covid-19-promotes-lasting-changes-in-consumer-behaviours-in-india-accenture-study-finds/articleshow/77482136.cms>>, Retrieved on 7 July 2021.
- [6] Kumar, R., & Abdin, M. S. (2021). Impact of epidemics and pandemics on consumption pattern: evidence from Covid-19 pandemic in rural-urban India. *Asian Journal of Economics and Banking*.
- [7] Kuna, A., & Kata, L. (2020). Impact of Covid-19 on Food Purchasing, Eating Behaviors and Perceptions of Food Safety in Consumers of Telangana and Andhra Pradesh of India. *International Journal of Agriculture, Environment and Biotechnology*, 13(4), pp. 395-402.
- [8] Miroso, M., Kaye-Blake, W., Cong, L., & Bremer, P. (2020). Immune-boosting functional foods: A potential remedy for Chinese consumers living under polluted air. *Business and Management Studies*.
- [9] Shakoor, H., Feehan, J., Al Dhaheri, A. S., Ali, H. I., Platat, C., Ismail, L. C., ... & Stojanovska, L. (2020). Immune-boosting role of vitamins D, C, E, zinc, selenium and omega-3 fatty acids: Could they help against COVID-19? *Maturitas*.
- [10] Shashidhar, A., 2021. How Indian consumers are going the extra mile to build immunity Available at: <https://www.businesstoday.in/latest/corporate/story/bt-buzz-how-indian-consumers-are-going-the-extra-mile-to-build-immunity-268828-2020-07-31>, Retrieved on 7 July 2021
- [11] Thirumdas, R., Kothakota, A., Pandiselvam, R., Bahrami, A., & Barba, F. J. (2021). Role of food nutrients and supplementation in fighting against viral infections and boosting immunity: A review. *Trends in Food Science & Technology*.
- [12] Varade, H., & Makhija, S. (2020). Impact of COVID-19 pandemic situation on consumer buying behaviour in Indian market-a review. *International Journal for Research in Applied Science and Engineering Technology*, 8(5), pp. 2584-2589.
- [13] Verma, S. (2009). An empirical analysis of consumer's attitude towards OTC health supplements in India. *International Journal of Indian Culture and Business Management*, 2(1), pp. 1-10.
- [14] Watson, R.; Preedy, V. (2016) *Bioactive Foods in Promoting Health*, 2nd ed.; Fruits, Vegetables, and Herbs; Academic Press: Cambridge, MA, USA.
- [15] World Health Organization, Regional Office for South-East Asia, Self-care in the context of primary health care, WHO Regional Office for South-East Asia (2009), Available from: <https://apps.who.int/iris/handle/10665/206352> Google Scholar.
- [16] World Health Organization, Regional Office for South-East Asia. WHO Regional Office for South-East Asia; 2010. Traditional herbal remedies for primary health care. <https://apps.who.int/iris/handle/10665/206024>.
- [17] Wright, O., & Blackburn, E. (2020). How COVID-19 will permanently change consumer behavior (pp. 1-34). India: Accenture. Retrieved from https://www.accenture.com/_acnmedia/PDF-123/Accenture-COVID19-Pulse-Survey-Research-PoV.pdf.