

Changes in Life Style, Attitude and Consumption of Health Supplements during the Covid-19 lockdown

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Abstract

The SARS- Cov2 or corona virus has gripped the people of the entire world. Many people are suffering from various physical, physiological and psychological problems. This pandemic has become a harbinger of lot of changes in the people's life ranging from changes in the life style, behaviour, attitude as well as consumption of healthy foods. Consumption of healthy foods, regular exercise and measures for personal cleanliness and hygiene are suggested to protect oneself from the virus. Ministry of AYUSH as well as WHO has suggested that the best way to tackle the current pandemic situation is to undertake measures to boost individual immune system. Intake of health supplements was one of the suggested measures to enhance the immunity. This study aims to understand the various changes in life style, attitude and consumption of health supplements by the people during the corona pandemic in order to strengthen the immunity. Data was collected from people in and around Pune city situated in Maharashtra through a structured questionnaire. The collected data was analysed using statistical tools and the formulated hypothesis were evaluated using suitable statistical tests. The analysed data showed considerable changes in people's food habits, sleeping pattern and exercise routine. Surprisingly there was no considerable association between the demographic factors and the awareness and attitude towards health supplements, except for annual income. However, data showed that the pandemic significantly affected the consumption of health supplements among the studied population. The data analysis also confirms that the pandemic significantly affected the measures taken by the studied population to boost immunity.

Keywords: COVID 19, corona virus, SARS- CoV2, pandemic, lifestyle changes, health supplements, awareness of health supplements, attitude towards health supplements, consumption of health supplements, immune system, boost immune system, Ministry of AYUSH

Introduction

People are becoming more health conscious. A study conducted by BBMG, a branding and integrated marketing agency, reported that nine out of ten people are conscious buyers. Similarly, studies carried out in India showed that consumers are becoming more proactive towards their health and backed up with increasing disposable income and increased urbanization, the demand for healthy foods is increasing. Other important factor is the increase of various health problems like diabetes, heart diseases, cancer and other health threats, people are switching to eating healthy and nutritious. Understanding the seriousness of the health issues even regulatory bodies and Government are designing policies which support healthy living and are promoting intake of functional foods and nutraceuticals as preventive measures for a healthy living.

The recent Covid 19 pandemic has become a global public health concern. Affected people are suffering from respiratory disorders. Severity of cases range from asymptomatic patients to the serious ones who need to be hospitalised and need help from support systems like ventilators along with the treatment. All though vaccines have started coming in the markets, the production is much less than the population. Other precautionary measures included a forced lockdown in the country and use of masks and sanitisers. Along with the physical and physiological problems caused by the coronavirus pandemic, people are also suffering with emotional problems due to isolation, unemployment, financial crisis and many such issues.

With serious physical, psychological and emotional health problems, lack of fool-proof medication and overburdened medical system, this pandemic is a major cause of concern. World Health Organization (WHO), Government of India, Ministry of Health, Ministry of AYUSH and Medical Associations are regularly giving

guidelines to manage individual health during this pandemic situation. Importance of healthy diet and use of nutritional supplements is among the various measures suggested by the above governing bodies as well as medical practitioners to boost the immunity levels of individuals and to help the individuals fight against coronavirus infection.

The current paper also aims to find out the changes in the lifestyle and attitude of people in this pandemic situation and understand their awareness and consumption of nutritional supplements.

Literature Review

With increasing health threats people are becoming more conscious of their food intake. Awareness and interest in healthy foods and nutritional supplements are increasing. People consider these as a safe way to lead a healthy life. (Lau, et.al., (2013). Bech-Larsen and Grunert (2003) gave a simple definition of functional foods. They stated that functional foods are a part of the diet and these provide more health benefits than the basic nutrition. On the other hand, according to Tee (2011), nutraceuticals or health supplements are considered and presented not as foods, as their active components are isolated and are marketed in the form of medicine.

Hippocrates, about 2500 words stated that "Let food be thy medicine and medicine be thy food". Shirwaikar, Parmar and Khan (2011) in their report stated that people are increasingly concerned about the impact of synthetic drugs on their health. The primary reason for them to switch to consuming nutraceuticals, is that the consumers feel it is a comparatively safe way towards healthy life. The authors further stated that this feeling has helped in acceleration of growth of nutraceuticals market globally and it is anticipated that it will grow further. Sachdeva, Roy and Bharadvaja (2020) mentioned that the global market for nutraceuticals is currently 117 billion USD. In their review they have presented the various bioactive nutraceuticals and their role in health benefits and prevention of various diseases.

In the preceding paper, the current author has mentioned the scenario of COVID- 19 pandemic in India and the various health issues like physical, physiological and emotional faced by people in India due to the pandemic, lockdown, unemployment, isolation and such reasons. Kotecha (2021) has stated various actions taken by the Ministry of Health and Family Welfare (MoHFW), Government of India in the control, prevention, and treatment of COVID-19 by issuing several advisories and guidelines. The Ministry of AYUSH (MoA), Government of India has undertaken several R&D and public health initiatives to harness the potential of AYUSH (Ayurveda, Yoga & Naturopathy, Unani, Siddha, Sowa Rigpa, and Homeopathy) systems to contain the impact of the COVID-19 pandemic. One such initiative was suggesting the use of nutritional supplements to enhance immunity.

The objective of the current paper was to analyse the changes of lifestyle, attitude and consumption of nutritional supplements during the COVID 19 pandemic.

Research Hypothesis

- H#1 Covid-19 pandemic has caused considerable changes in the lifestyle of the studied population
- H#2 There is a statistically significant association between the demographic characters and the attitude towards health supplements among the studied population
- H#3 There is a statistically significant association between the demographic characters and the awareness about health supplements among the studied population.
- H#4 Covid-19 pandemic has significantly affected the consumption of health supplements among the studied population
- H#5 Covid-19 pandemic has significantly affected measures taken by the studied population for boosting immunity

Research Methodology

In the current descriptive research, data was collected using google forms which was forwarded to people residing in and around Pune through email and whats app. A structured questionnaire mostly with closed ended questions was used for data collection. Data collected from 84 respondents was analysed first using frequency distribution. The results of which was mentioned in the preceding paper. Hypothesis testing was then carried out using z-test and chisquare test and the analysis is stated in the current paper.

Data Analysis

Hypothesis testing was carried out using the statistical tests mentioned in research methodology

Hypothesis 1: Covid-19 pandemic has caused considerable changes in the lifestyle of the studied population.

To test the hypotheses,

The null hypothesis, H_0 :

Covid-19 pandemic has not caused considerable changes in the lifestyle of the studied population

Vs.

The alternative hypothesis, H_a :

Covid-19 pandemic has caused considerable changes in the lifestyle of the studied population.

The test used is z test for proportions.

Test statistics:

$$Z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

Here \hat{p} = sample proportion, p_0 = hypothetical value = 50% = 0.5, n = sample size

Calculation table:

Daily routine/ Lifestyle Modifications	Frequency (Total - Disagree-Strongly Disagree)	Proportion	Z Statistics	P value	Significance
I intend to continue these changes in my food habits even after the lockdown	75	0.89	7.20	0.0000	Significant
I have gained weight during the lockdown	43	0.51	0.22	0.4136	Not Significant
My sleep pattern has changed during the lockdown	59	0.70	3.71	0.0001	Significant
I am regularly taking exercise during the lockdown	59	0.70	3.71	0.0001	Significant
I am consciously eating more of the following food items during the lockdown	Frequency	Proportion	Z Statistics	P value	Significance
Fruits	49	0.58	1.53	0.0633	Not Significant
Vegetables	59	0.70	3.71	0.0001	Significant
Which of the following describes your exercise routine?		Proportion	Z Statistics	P value	Significance
Frequency (Total - No)	74	0.88	6.98	0.0000	Significant
Do you feel that you are healthy?		Proportion	Z	P value	Significance

			Statistics		
Frequency (Yes)	55	0.65	2.84	0.0023	Significant
What do you feel about the status of your health?		Proportion	Z Statistics	P value	Significance
Frequency (Total - Poor - Very poor)	80	0.95	8.29	0.0000	Significant
From whom do you receive health tips?		Proportion	Z Statistics	P value	Significance
Frequency (Doctor, Family, Friends, Internet, Television) (Total - None)	78	0.93	7.86	0.0000	Significant

If p value < 0.05 , the level of significance; the null hypothesis is rejected.

Since p value is less than 0.05 for 8 factors out of 10 factors; the null hypothesis can be rejected for 8 factors out of 10 factors.

Conclusion:

For the majority of parameters, the null hypothesis is being rejected.

Hence Covid-19 pandemic has caused considerable changes in the lifestyle of the studied population.

Hypothesis 1 is accepted.

Hypothesis 2: There is a statistically significant association between the demographic characters and the attitude towards health supplements among the studied population.

Pairs considered for association:

- 1) Age Vs. I think that the consumption of Health supplements improves immunity
- 2) Age Vs. I think that the Consumption of Health supplements prevents diseases.
- 3) Age Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19
- 4) Age Vs. I think that the Consumption of Health supplements helps in treating the diseases
- 5) Age Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency
- 6) Age Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body
- 7) Age Vs. I think that the consumption of health supplements can be a replacement to a balanced diet
- 8) Age Vs. I think that the consumption of health supplements will give me protection against Covid-19
- 9) Gender Vs. I think that the consumption of Health supplements improves immunity
- 10) Gender Vs. I think that the Consumption of Health supplements prevents diseases.
- 11) Gender Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19
- 12) Gender Vs. I think that the Consumption of Health supplements helps in treating the diseases
- 13) Gender Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency
- 14) Gender Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body
- 15) Gender Vs. I think that the consumption of health supplements can be a replacement to a balanced diet
- 16) Gender Vs. I think that the consumption of health supplements will give me protection against Covid-19
- 17) Occupation Vs. I think that the consumption of Health supplements improves immunity
- 18) Occupation Vs. I think that the Consumption of Health supplements prevents diseases.
- 19) Occupation Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19
- 20) Occupation Vs. I think that the Consumption of Health supplements helps in treating the diseases
- 21) Occupation Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency
- 22) Occupation Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body
- 23) Occupation Vs. I think that the consumption of health supplements can be a replacement to a balanced diet
- 24) Occupation Vs. I think that the consumption of health supplements will give me protection against Covid-19
- 25) Educational Qualification Vs. I think that the consumption of Health supplements improves immunity
- 26) Educational Qualification Vs. I think that the Consumption of Health supplements prevents diseases.
- 27) Educational Qualification Vs. I think that the Consumption of Health supplements prevents diseases, but not

Covid-19

- 28) Educational Qualification Vs. I think that the Consumption of Health supplements helps in treating the diseases
- 29) Educational Qualification Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency
- 30) Educational Qualification Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body
- 31) Educational Qualification Vs. I think that the consumption of health supplements can be a replacement to a balanced diet
- 32) Educational Qualification Vs. I think that the consumption of health supplements will give me protection against Covid-19
- 33) Annual Income Vs. I think that the consumption of Health supplements improves immunity
- 34) Annual Income Vs. I think that the Consumption of Health supplements prevents diseases.
- 35) Annual Income Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19
- 36) Annual Income Vs. I think that the Consumption of Health supplements helps in treating the diseases
- 37) Annual Income Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency
- 38) Annual Income Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body
- 39) Annual Income Vs. I think that the consumption of health supplements can be a replacement to a balanced diet
- 40) Annual Income Vs. I think that the consumption of health supplements will give me protection against Covid-19

To test the hypotheses,

The null hypothesis, H_0 :

There is no significant association between the pairs listed above.

Vs.

The alternative hypothesis, H_a :

There is significant association between the pairs listed above.

The test used is Chi-Square test.

Calculation Table:

Chi-Square Tests				
Pairs	Pearson Square	Chi-	P Value (2-sided)	Significance
1) Age Vs. I think that the consumption of Health supplements improves immunity	25.4		.187	No
2) Age Vs. I think that the Consumption of Health supplements prevents diseases.	20.9		.403	No
3) Age Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19	16.866		.662	No
4) Age Vs. I think that the Consumption of Health supplements helps in treating the diseases	19.15		.512	No
5) Age Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency	25.751		.174	No
6) Age Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body	14.149		.823	No
7) Age Vs. I think that the consumption of health supplements can be a replacement to a balanced diet	20.396		.433	No

8) Age Vs. I think that the consumption of health supplements will give me protection against Covid-19	28.813	.091	No
9) Gender Vs. I think that the consumption of Health supplements improves immunity	3.703	.448	No
10) Gender Vs. I think that the Consumption of Health supplements prevents diseases.	4.195	.380	No
11) Gender Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19	1.899	.754	No
12) Gender Vs. I think that the Consumption of Health supplements helps in treating the diseases	4.177	.383	No
13) Gender Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency	4.695	.320	No
14) Gender Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body	1.723	.787	No
15) Gender Vs. I think that the consumption of health supplements can be a replacement to a balanced diet	6.422	.170	No
16) Gender Vs. I think that the consumption of health supplements will give me protection against Covid-19	1.619	.805	No
17) Occupation Vs. I think that the consumption of Health supplements improves immunity	37.722	.390	No
18) Occupation Vs. I think that the Consumption of Health supplements prevents diseases.	33.244	.600	No
19) Occupation Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19	31.115	.700	No
20) Occupation Vs. I think that the Consumption of Health supplements helps in treating the diseases	31.115	.700	No
21) Occupation Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency	35.307	.501	No
22) Occupation Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body	35.792	.478	No
23) Occupation Vs. I think that the consumption of health supplements can be a replacement to a balanced diet	33.458	.590	No
24) Occupation Vs. I think that the consumption of health supplements will give me protection against Covid-19	45.698	.129	No
25) Educational Qualification Vs. I think that the consumption of Health supplements improves immunity	11.744	.466	No
26) Educational Qualification Vs. I think that the Consumption of Health supplements prevents diseases.	8.25	.765	No
27) Educational Qualification Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19	7.16	.847	No
28) Educational Qualification Vs. I think that the Consumption of Health supplements helps in treating the diseases	8.118	.776	No
29) Educational Qualification Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency	11.666	.473	No
30) Educational Qualification Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body	17.3	.139	No
31) Educational Qualification Vs. I think that the consumption of health supplements can be a	19.748	.072	No

replacement to a balanced diet			
32) Educational Qualification Vs. I think that the consumption of health supplements will give me protection against Covid-19	8.4	.753	No
33) Annual Income Vs. I think that the consumption of Health supplements improves immunity	14.478	.563	No
34) Annual Income Vs. I think that the Consumption of Health supplements prevents diseases.	15.999	.453	No
35) Annual Income Vs. I think that the Consumption of Health supplements prevents diseases, but not Covid-19	15.413	.495	No
36) Annual Income Vs. I think that the Consumption of Health supplements helps in treating the diseases	19.375	.250	No
37) Annual Income Vs. I think that the Consumption of Health supplements helps to avoid dietary deficiency	21.334	.166	No
38) Annual Income Vs. I think that long-term consumption of dietary supplements has no adverse effect on my body	17.871	.331	No
39) Annual Income Vs. I think that the consumption of health supplements can be a replacement to a balanced diet	21.291	.168	No
40) Annual Income Vs. I think that the consumption of health supplements will give me protection against Covid-19	27.598	.035	Yes
If p value < 0.05, the level of significance; the association is significant.			

Since p value >0.05, the level of significance for all pairs except 'Annual Income Vs. I think that the consumption of health supplements will give me protection against Covid-19'; the association is not significant for all pairs except 'Annual Income Vs. I think that the consumption of health supplements will give me protection against Covid-19'.

Since p value is greater than 0.05 for 39 factors out of 40 factors; the null hypothesis is being accepted for 39 factors out of 40 factors.

Conclusion:

There is no significant association for all pairs except 'Annual Income Vs. I think that the consumption of health supplements will give me protection against Covid-19'.

There is significant association for pair 'Annual Income Vs. I think that the consumption of health supplements will give me protection against Covid-19'.

For the majority of parameters, the null hypothesis is being accepted.

Hence there is no statistically significant association between the demographic characters and the attitude towards health supplements among the studied population.

Hypothesis2 is rejected.

Hypothesis3: There is a statistically significant association between the demographic characters and the awareness about health supplements among the studied population.

Pairs considered for association:

- 1) Age Vs. Do you think it is necessary to take health supplements?
- 2) Age Vs. Have you or any family member has started taking health supplements during the lockdown?
- 3) Age Vs. What is the duration of consumption of health supplements?
- 4) Gender Vs. Do you think it is necessary to take health supplements?
- 5) Gender Vs. Have you or any family member has started taking health supplements during the lockdown?
- 6) Gender Vs. What is the duration of consumption of health supplements?
- 7) Occupation Vs. Do you think it is necessary to take health supplements?
- 8) Occupation Vs. Have you or any family member has started taking health supplements during the lockdown?
- 9) Occupation Vs. What is the duration of consumption of health supplements?
- 10) Educational Qualification Vs. Do you think it is necessary to take health supplements?
- 11) Educational Qualification Vs. Have you or any family member has started taking health supplements during the lockdown?
- 12) Educational Qualification Vs. What is the duration of consumption of health supplements?
- 13) Annual Income Vs. Do you think it is necessary to take health supplements?
- 14) Annual Income Vs. Have you or any family member has started taking health supplements during the lockdown?
- 15) Annual Income Vs. What is the duration of consumption of health supplements?

To test the hypotheses,

The null hypothesis, H_0 :

There is no significant association between the pairs listed above.

Vs.

The alternative hypothesis, H_a :

There is significant association between the pairs listed above.

The test used is Chi-Square test.

Calculation Table:

Chi-Square Tests			
Pairs	Pearson Chi-Square	P Value (2-sided)	Significance
Age Vs. Do you think it is necessary to take health supplements?	33.345	.000	Yes
Age Vs. Have you or any family member has started taking health supplements during the lockdown?	5.779	.328	No
Age Vs. What is the duration of consumption of health supplements?	15.297	.430	No

Gender Vs. Do you think it is necessary to take health supplements?	2.388	.303	No
Gender Vs. Have you or any family member has started taking health supplements during the lockdown?	0.429	.513	No
Gender Vs. What is the duration of consumption of health supplements?	4.308	.230	No
Occupation Vs. Do you think it is necessary to take health supplements?	17.431	.494	No
Occupation Vs. Have you or any family member has started taking health supplements during the lockdown?	9.887	.360	No
Occupation Vs. What is the duration of consumption of health supplements?	14.164	.980	No
Educational Qualification Vs. Do you think it is necessary to take health supplements?	5.837	.442	No
Educational Qualification Vs. Have you or any family member has started taking health supplements during the lockdown?	1.306	.728	No
Educational Qualification Vs. What is the duration of consumption of health supplements?	7.37	.599	No
Annual Income Vs. Do you think it is necessary to take health supplements?	14.041	.081	No
Annual Income Vs. Have you or any family member has started taking health supplements during the lockdown?	6.31	.177	No
Annual Income Vs. What is the duration of consumption of health supplements?	6.315	.899	No
If p value < 0.05, the level of significance; the association is significant.			

Since p value >0.05, the level of significance for all pairs except 'Age Vs. Do you think it is necessary to take health supplements?'; the association is not significant for all pairs except 'Age Vs. Do you think it is necessary to take health supplements?'.

Since p value is greater than 0.05 for 14 factors out of 15 factors; the null hypothesis is being accepted for 14 factors out of 15 factors.

Conclusion:

There is no significant association for all pairs except 'Age Vs. Do you think it is necessary to take health supplements?'.

There is significant association for pair 'Age Vs. Do you think it is necessary to take health supplements?'.

For the majority of parameters, the null hypothesis is being accepted.

Hence there is no statistically significant association between the demographic characters and the awareness about health supplements among the studied population.

Hypothesis3 is rejected.

Hypothesis4: Covid-19 pandemic has significantly affected the consumption of health supplements among the studied population.

To test the hypotheses,

The null hypothesis, H_0 :

Covid-19 pandemic has not significantly affected the consumption of health supplements among the studied population.

Vs.

The alternative hypothesis, H_a :

Covid-19 pandemic has significantly affected the consumption of health supplements among the studied population.

The test used is z test for proportions.

Test statistics:

$$Z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

Here \hat{p} = sample proportion, p_0 = hypothetical value = 50% = 0.5, n = sample size

Calculation table:

Do you think it is necessary to take health supplements?		Proportion	Z Statistics	P value	Significance
Frequency (Yes+May be)	54	0.64	2.62	0.0044	Significant
Which type of health supplements do you purchase? (Number of respondents taking some kind of health supplements)		Proportion	Z Statistics	P value	Significance
Frequency (Yes)	58	0.69	3.49	0.0002	Significant
What is the reason to start health supplements?		Proportion	Z Statistics	P value	Significance
Frequency (Total - None)	57	0.68	3.27	0.0005	Significant
What is the duration of consumption of health supplements?		Proportion	Z Statistics	P value	Significance
Frequency (Total - N.A.)	47	0.56	1.09	0.1376	Not Significant

If p value < 0.05, the level of significance; the null hypothesis is rejected.

Since p value is less than 0.05 for 3 factors out of 4 factors; the null hypothesis can be rejected for 3 factors out of 4 factors.

Conclusion:

For the majority of parameters, the null hypothesis is being rejected.

Hence Covid-19 pandemic has significantly affected the consumption of health supplements among the studied population.

Hypothesis4 is accepted.

Hypothesis5: Covid-19 pandemic has significantly affected measures taken by the studied population for boosting immunity.

To test the hypotheses,

The null hypothesis, H_0 :

Covid-19 pandemic has not significantly affected measures taken by the studied population for boosting immunity.

Vs.

The alternative hypothesis, H_a :

Covid-19 pandemic has significantly affected measures taken by the studied population for boosting immunity.

The test used is z test for proportions.

Test statistics:

$$Z = \frac{\hat{p} - p_0}{\sqrt{\frac{p_0(1-p_0)}{n}}}$$

Here \hat{p} = sample proportion, p_0 = hypothetical value = 50% = 0.5, n = sample size

Calculation table:

Questions	Frequency (Total Disagree-Strongly Disagree)	Proportion	Z Statistics	P value	Significance
I think that the consumption of Health supplements improves immunity.	66	0.79	5.24	0.0000	Significant
I think that the Consumption of Health supplements prevents diseases.	62	0.74	4.36	0.0000	Significant

I think that the Consumption of Health supplements prevents diseases, but not Covid-19	61	0.73	4.15	0.0000	Significant
I think that the Consumption of Health supplements helps in treating the diseases.	57	0.68	3.27	0.0005	Significant
I think that the Consumption of Health supplements helps to avoid dietary deficiency	65	0.77	5.02	0.0000	Significant
I think that long-term consumption of dietary supplements has no adverse effect on my body	50	0.60	1.75	0.0404	Significant
I think that the consumption of health supplements can be a replacement to a balanced diet	44	0.52	0.44	0.3313	Not Significant
I think that the consumption of health supplements will give me protection against Covid-19	48	0.57	1.31	0.0952	Not Significant

If p value < 0.05 , the level of significance; the null hypothesis is rejected.

Since p value is less than 0.05 for 6 factors out of 8 factors; the null hypothesis can be rejected for 6 factors out of 8 factors.

Conclusion:

For the majority of parameters, the null hypothesis is being rejected.

Hence Covid-19 pandemic has significantly affected measures taken by the studied population for boosting immunity.

Hypothesis5 is accepted.

Discussion

The current studied shows that COVID 19 pandemic has caused considerable changes in the lifestyle of the given respondents. Respondents have started eating more of vegetables and healthy diet, though the consumption of fruits has not increased significantly. They are also conscious about their weight gain and their exercise regime. Since corona virus caused respiratory track infections and affects lungs and reduces the oxygen capacity. Exercises to

strengthen the lung capacity were suggested as one of the means to boost immunity. The second important results that was brought forth, was that there was no association between the demographic factors and the attitude towards health supplements consumed. Respondents of varied ages, gender and occupation had an equally similar inclination towards consumption of health supplements. Strong association was seen between the annual income and the belief that consumption of health supplements will provide protection. Thus, indicating that annual income would be an important factor in consumption of health supplements. Similarly, it was observed that there is no association among age and awareness about the health supplements consumption. Respondents from all age groups were well aware about consumption of health supplements during the pandemic. The analysis also showed a strong association towards consumption of health supplements during the pandemic. Thus, people of all age groups are aware of the health supplements and during the pandemic many respondents have affiliation towards consuming the health supplements. COVID 19 pandemic has significantly affected the measures taken by the respondents for boosting their immune system. One of the measures that the respondents undertook was consumption of health supplements. Results also showed that respondents did not believe that consumption of health supplements could be a replacement of healthy diet. It was also important to note that the respondents believed that health supplements would enhance their immune system but may not be able to give them adequate protection against corona virus.

Thus, it could be concluded that the given respondents had changes their lifestyle and attitude and consumption of health supplements during the COVID 19 pandemic. Respondents are well aware of and they consume health supplements to boost their immunity.

Implications and future study

The current paper has implication both for the academic field as well as practical fields. It is important for the policy makers, manufacturers and sellers of health supplements to understand the awareness, perception and consumption of health supplements in order to draft strategies. A through study encompassing various different places would give an added input.

References

1. Advisory for Corona virus, Homoeopathy for Prevention of Corona virus Infections, Unani Medicines useful in symptomatic management of Corona Virus infection. Press Information Bureau. Available online at: pib.gov.in/Pressreleaseshare.aspx?PRID=1600895 (accessed February 03, 2020)
2. Bemporad, R., & Baranowski, M. (2007). Conscious consumers are changing the rules of marketing. Are you ready. Highlights from the BBMG conscious consumer report.
3. COVID-19 ICMR. COVID-19. Indian Council of Medical Research. Government of India. ICMR (2020). Available online at: <https://main.icmr.nic.in/content/covid-19> (accessed May 09, 2020).
4. Gupta, S., Chauhan, D., Mehla, K., Sood, P., & Nair, A. (2010). An overview of nutraceuticals: current scenario. *Journal of basic and clinical pharmacy*, 1(2), 55.
5. Kapoor, D., & Munjal, A. (2017). Functional foods: the new secret of the health conscious Indian women!! *Global Business Review*, 18(3), 750-765.
6. Kotecha, R. (2021). The journey with COVID-19: Initiatives by Ministry of AYUSH. *Journal of Ayurveda and Integrative Medicine*, 12(1), 1.
7. Lau, T. C., Chan, M. W., Tan, H. P., & Kwek, C. L. (2013). Functional food: a growing trend among the health conscious. *Asian Social Science*, 9(1), 198.
8. Novel coronavirus-MOHFW. Home. Ministry of Health and Family Welfare. GOI (2020). Available online at: <http://www.mohfw.gov.in/> (accessed May 08, 2020).
9. Sachdeva, V., Roy, A., & Bharadvaja, N. (2020). Current prospects of nutraceuticals: A review. *Current pharmaceutical biotechnology*, 21(10), 884-896.
10. Shirwaikar, A., Parmar, V., & Khan, S. (2011). The changing face of nutraceuticals-An overview. *International Journal of Pharmacy & Life Sciences*, 2(7).
11. Szakály, Z., Szente, V., Kövér, G., Polereczki, Z., & Szigeti, O. (2012). The influence of lifestyle on health behavior and preference for functional foods. *Appetite*, 58(1), 406-413.
12. Verma, B., & Popli, H. (2018). Regulations of nutraceuticals in India & us. *Pharma Innovation*, 7(7), 811-816.