



## IMPACT OF FEAR ON DEMOGRAPHY PROFILE AND EDUCATION TOWARDS THE PURCHASE OF NUTRITIONAL SUPPLEMENTS DURING COVID19 PANDEMIC

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### ABSTRACT

Every human being, from birth to death, is inevitably accompanied by the dominant emotion of fear. It starts when we perceive a physical or emotional threat to our life that poses a variety of risks. The customer was structurally exposed to the dread that is present in the possibility of impending infection, per the research findings at the period of "lockdown" (average score = 4.26; standard deviation = 0.865; relative standard deviation = 22.3%). Evidently, all people have a deep-seated dread of COVID-19 infection, which manifests as conscious and unconscious anxieties and phobias that influence purchases, but it can also be a helpful defence mechanism that prevents us from dying before our time. According to respondents, existential insecurity and imbalance are the root causes of fear during a pandemic (average score = 4.57, standard deviation = 1.41, and relative deviation = 21.8%). Additionally, fear was defined for the purposes of this study as an unpleasant, uncomfortable feeling related to a current or potential COVID-19 threat that increases intake in both men and women. Because the specific elements of the threat affect the emotional reaction, the perception of risk and danger, and the consumption of dietary supplements, it is crucial to consider the peculiarities of the threat of coronavirus infection. This is confirmed by the finding that 75% of respondents reported their use of dietary supplements has increased since the pandemic's beginning.

**KEYWORDS :** COVID-19, Nutritional Supplements, Fear and consumer behaviour, Immunity and nutritional supplements.

### Introduction

Overall, the epidemic has changed everyone's life, and people are now more concerned about their health. Numerous researches have found that the pandemic has altered respondents' attitudes and perceptions towards green consumption because of its safer and healthier qualities<sup>1</sup>. People were specifically told to stay healthy and safe throughout the epidemic, safe in the sense that they should be at home to avoid spreading the disease to others and themselves. Similarly, health agencies were worried about people eating nutritious food that would increase their immunity and make them stronger. Unquestionably, a more favourable attitude towards the use of green products has been observed in the framework of COVID-19<sup>2-3</sup>. The severe clinical studies were contributing factor unrelated to dietary supplement use. Despite the fact that the majority of respondents claimed to use dietary supplements for prevention, those who used them both as adjunctive therapy and for prevention were more likely to increase their intake of dietary supplements<sup>4</sup>. According to research, those who experienced the epidemic often modified their lifestyles for the better, increasing their level of physical exercise, paying attention to their food, and using dietary supplements more frequently. Sense of peace that using dietary supplements gives is one of the key factors for respondents who believed that supplementation contributes to both prevention and the clinical picture using dietary supplements more<sup>5</sup>.

Factor analysis was done to pinpoint key characteristics and define underlying dimensions. It was discovered that most young consumers gave packaging a high priority and were willing to pay more for packaged food products. When making purchasing selections, important functional aspects relating to usefulness, economic and social costs, safety and convenience, and safety and convenience were taken into consideration<sup>6</sup>. The goal of the current study was to understand how young consumers view packaging's utilitarian qualities and how it affects their decisions about what foods to buy. The findings show that most young consumers place a high value on food packaging and are willing to pay an additional fee of between 11 and 30% of the price for packaged food products<sup>7</sup>. According to study packaging is a product's wrapper that contains data about the product and the producer of the product. Package turns into an ultimate selling point that encourages impulsive purchasing, grows market share, and lowers promotional expenditures. Finally, it was said that there was only a weak positive link between consumer purchasing decisions and packaging attractiveness and printed information<sup>8</sup>. The performance of manufacturing activities, safety, which is a key duty of employers, has a significant impact on production quality, according to a study. Employers must make sure working conditions match employee needs and adhere to organisational and technical standards in order to reach this level of safety<sup>9</sup>.

### Methodology

The objective of this study was to evaluate knowledge and attitude regarding immunity and nutrition based on demography and gender. To understand public knowledge and perception towards immunity food boosters and consumption during COVID-19 pandemic the study was carried out. For a better understanding and comprehension about the buying behavior and purchase decision making of food product, A rapid assessment survey was conducted using Google Forms. Google Form was distributed through various social media platforms such as WhatsApp, Face book and LinkedIn in Indian Community residing across the globe.

**Data source:** Primary data is the fresh data collected from the respondents through using a pre-structured.

**Questionnaire:** Most of the data collected by the researcher are primary data through survey method, where the researcher and the respondent interact face to face. Secondary data has been obtained from many sources, including literature articles, published books, journals, magazines, periodicals, conference papers, Web sources and media reports.

**Sampling procedure:** Sampling is the selection of a group to obtain information about the whole is a group of persons that represents a particular community. The sampling method used was convenience sampling. This sampling method was used because of lack of time and lack of knowledge about the universe.

**Sample Population:** There are a total of 200 people.

**Sample Size:** All items in any field of inquiry constitute a 'universe' or 'population'. A finite subject of the population gives a sample. The statistical units in the sample are called sample units. The number of units in the sample is called the size of the sample. The target sample consists of 200 respondents.

### Results

The present survey was carried out in Krishna and Guntur District, Andhra Pradesh, India in 2021. Enrolled participants were examined for their concern towards the uses of nutritional supplements during and prior to the COVID19 pandemic. After the ethical approval of questioner all the enrolled participants were asked to provide their concern towards uses of nutritional supplements; purchase and intake. In the study all the enrolled participants were categorised into Group I-for the survey (n=250) and Group II-patients (n=50) all the participants were informed the aim and objectives of study and questioner was categorised based on age, blood group, co-morbidity, supplement usages, Education, social media and alternative medicine intake for the

prevention of infection. The questioners were broadly categories group I and Group II as mentioned in the table given below (Table 1);

**Table 1; Table summarizes study group and characteristics for questioner**

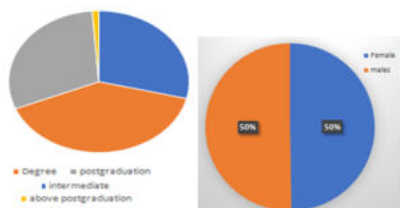
S No	Survey Group (Group I) (n=250)	Patients Data (Group II) (n=50)
1.	Age	Age
2.	Education	Blood Group
3.	Social media influence	Co-morbidity
4.	Co-morbidity	Supplement usage
5.	Alternate medicine for prevention	----

In the survey group, all the participants (n=250) were asked to answer the questions listed in questioner approved by institute ethical committee. The survey associated with demographic evaluation where enrolled participants were from Vijayawada City (n=175) (Krishna District) and Guntur City (n=75) (Guntur District). The criterion for the selection of Vijayawada and Guntur city for the survey was due to higher number of cases reported during pandemic (first and second waves). The participants were from all age group where average age of participants for the present survey was 35 years. In the present survey, 47.2% participants were from age group 30-39 years, and 49.2% from 40-49 years while 0.03% were from age group 20-30. As the there are numerous reports confirmed that in the first wave of COVID19 majority of confirmed cases were in the age group 30 years and above. P value and statistical significance: The two-tailed P value equals 0.3138. It is evident that the education plays a vital role in the health maintenance and hence here in the present survey large numbers of participants were educated (bachelor and master degree). As the data showed in the table 2 and figure 1 more than 50% participants were having bachelor and master degree. We report here 40% enrolled participants were having bachelor degree while 30% were having master degree. There is significant higher number of those participants with intermediate qualification. On the contrary, there were insignificant numbers of participants i.e. (n=03) with the education above post graduation.

**Table 2; Table summarizes education qualification of enrolled participants to evaluate the impact of nutritional supplements in fight against COVID19.**

Education Profile		Gender Profile	
Education Qualification	Number	Male	Female
Intermediate	72	127	123
Graduation	100		
Post Graduation	75		
Above post graduation	03		

In the present survey both gender male and female participated equally. As the data shown in the figure 1, the male participations (50.8%) were slight higher than female (49.2%). This is mainly due to nSARS-CoV2 infection was global and affected male and female equally and hence both the gender participated nearly equally. There are grown research evidence demonstrated children were less susceptible for nSARS-CoV2 infection mainly in the first wave of COVID19. Here, in the present survey, the enrolled participants did not answer all the questions. In response to the health problems all 250 enrolled participants given the response as "Yes" and "No". In the present section, 92 out of 250 agreed that they had health issues while other 158 denied that did not have any health issue. Here, 36.8% enrolled participants were associated with health problem while remaining 63.2% fail to agree that they have any health issues. As the result, responses to first questions "Do you have any health problem?" there is difference in positive (Yes) and negative responses (No).



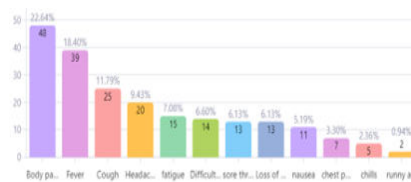
**Figure 1; Figure demonstrates education qualification of enrolled participants to evaluate the impact of nutritional supplements in fight against COVID-19.**

Further, in response to the question "Have you ever affected with nSARS-CoV2 infection?" all 250 enrolled participants showed their response. As the result out of 250 more than half i.e. 78 accepted infections with nSARS-CoV2 while other 172 denied that they had any infection. Here, majority of enrolled participants in the present survey i.e. 68.8% did not encounter nSARS-CoV2 infection while other 31.2% agreed that they had nSARS-CoV2 infection. There are several respiratory infections remaining in high prevalence and hence low severity cases mostly remain untested and unreported. In response to the question "If you got nSARS-CoV2 infection and COVID19, what are the key symptoms?" 212 out of 250 enrolled participants expressed their response. In the response there was mixed symptoms among the participants. Body pain was key symptoms in case of nSARS-CoV2 infection in 48 participants out of 212 (22.64%). Similarly, fever was reported as key symptom in 39 participants out of 212 (18.39%).

**Table 3; Table summarizes response against the question "If you got nSARS-CoV2 infection and COVID19, what are the key symptoms?"**

S No	Symptoms	Response	%
1.	Body pain	48	22.64
2.	Fever	39	18.40
3.	Cough	25	11.79
4.	Headache	20	9.43
5.	Fatigue	15	7.08
6.	Difficult breathing	14	6.60
7.	Sore Throat	13	6.13
8.	Loss of smell/taste	13	6.13
9.	Nausea	11	5.19
10.	Chest pain	7	3.30
11.	Chills	5	2.36
12.	Runny/stuffy nose	2	0.94

Subsequently, in response to the question "If you are infected with nSARS-CoV2 then weather hospitalized?" only 78 out of 250 enrolled participants showed responses. Here, in the response to question only 24 out of 78 were hospitalized while other 54 did not. The rate of hospitalization in the present survey based on the response was reported 30.70% which was quite high. However, rate of hospitalization also depends on several factors such as age, gender and co-morbidity. The rate of hospitalization also depends on variant of nSARS-CoV2 where a Delta variant was reported highest among other variants of nSARS-CoV2. In the continuation of survey, response for question "Have you lost any of your family members in the COVID19 pandemic?" all 250 enrolled participants given their response. Here, in response to the question 210 (84%) out of 250 showed negative responses that did not loss any family member during pandemic while 40 (16%) out of 250 actually lost one or more number of family member. Since the outbreak of COVID19 reporting of death during the nSARS-CoV2 remains ambiguous and there was no clear measure and guidelines towards reporting of the deaths especially due to COVID19. In the response to the question "What was your diet during nSARS-CoV2 infection and COVID19?" responses were diverse and all the enrolled 250 participants did not responded.



**Figure 2; Figure demonstrates response and comparison against the question "If you got nSARS-CoV2 infection and COVID19, what are the key symptoms?"**

**Table 4; Table summarizes the responses against "What was your diet during nSARS-CoV2 infection and COVID-19?"**

S No	Response	Number
1.	Healthy Food	03
2.	Idly juice, Dhal with Chapathi	01
3.	Ragimalt, Snakes, fruits and soup	01
4.	Eggs and milk	01

5.	Good Sleep with vegetarian food	01
6.	Egg, milk and Chapati	01
7.	Dry fruits, milk, nuts, butter and dal	01
8.	Balance diet, good sleep and mood	01
9.	Green vegetables and rice with Dal	01
10.	Dry fruits, milk and green vegetable	01
11.	Balance diet, milk and good sleep	01
12.	Oat lunch, fish, roti and sleep	01
13.	Good breakfast, meditation and balance diet in lunch and dinner	01

Further, in the response to the question “If you had nSARS-CoV2 infection then how many times?” only 94 out of 250 enrolled participants showed response. As the data showed, a total of 50% (47/94) enrolled participants received nSARS-CoV2 infection. Further, 21.28% (20/94) participants did not expose to the virus and remain protected against viral infection. Only 12.77% (12/94) got infected twice while 9.57% (09/94) infected multiple times and only 6.38% (06/94) got infection thrice.



**Figure 3;** Figure demonstrates the responses against “If you had nSARS-CoV2 infection then how many times?” of the enrolled participants during the survey.

During the pandemic, co-morbidity was key risk factors not only for infection but also higher rate of mortality. In general population remain in fear and under stress where co-morbidity was more prominent. Hence, in the survey questioner includes question “Did you keep the stock of COVID19 infection medicine at home as a precautionary measure?” Here, in the response to the question all the 250 participants showed their response where 185 (74%) out of 250 aware and stored precautionary medicine during the pandemic. As the data showed in the table 5 only 26% (65/250) of enrolled participants did not store the listed therapeutics during pandemic. Subsequently, fear and stress posed by nSARS-CoV2 infection across the world and higher causalities in the first wave of COVID-19 in western world people started storage of precautionary medicine. In India another critical factor pose a large number of populations to store precautionary medicine is lack of robust healthcare facility in India.

**Table 5; Table summarizes the responses against “If you had nSARS-CoV2 infection then how many times?” of the enrolled participants during the survey.**

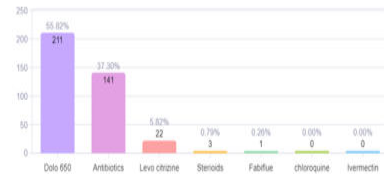
S No	Infections	Response	Percentage (%)
1.	Once	47	50
2.	Never	20	21.28
3.	Twice	12	12.77
4.	Many times	09	9.57
5.	Thrice	06	6.38

As the data showed in table 6 and interpreted in the figure 4, a higher proportion of medicine were stored were anti-inflammatory and antibiotics. Here all the 250 participants showed their response against the question “What are the medicine were stored as precautionary medicine?” As data showed 211 out of 250 responded (55.82%) Dolo 650 was key medicine stored. Further, 141 out of 250 (37.30%) stored antibiotics while 22 out of 250 (5.82%) stored levocitizine. A few number of participants also responded steroids and Fabiflue.

**Table 6; Table summarizes responses of participants against the question “What are the medicine were stored as precautionary medicine?”**

S No	Therapeutic	Responses	Percentage (%)
1.	Dolo 650	211	55.82

2.	Antibiotics	141	37.30
3.	Levo citrizine	22	5.82
4.	Steroids	3	0.79
5.	Fabiflue	1	0.26
6.	Chloroquine	0	0.00
7.	Ivermectin	0	0.00



**Figure 4;** Figure demonstrates the responses of participants against the question “What are the medicine were stored as precautionary medicine?”

Additionally, stress and fear in the pandemic also trigger a larger percentage of population for self preliminary diagnosis and health check. Hence, there is massive rise in the sale/purchase of health equipment where oximeter was key device. Hence, in the questioner, question “did you purchase oximeter?” was included. In the response to the question not all the enrolled participants responded to the question, only 226 out of 250 answered. As the data more than 53% purchased oximeter (120 out of 250). Also 106 out of 250 did not purchased oximeter during the COVID19 pandemic. The fear of rising cases and difficulty in finding robust and fast diagnosis a large number of populations adopted self early/precautionary monitoring. The fear and stress due to mixed symptoms a large number of populations gone for purchase of thermal scan. As shown below in the table 6 and figure 4 in response to the question “Did you purchase thermal scan for temperature check?” not all enrolled participants showed their responses. Here, 221 out of 250 enrolled participants actively had given response to the question where, 85.97% (190 out of 250) purchased the thermal scan and or thermometer. However, only 14% (31 out of 250) agreed that did not purchase thermal scan and or thermometer.

**Discussion**

A large population during the COVID19 pandemic identified the following aspects: (1) health care workers unable to diagnose and treat the coronavirus; (2) a loved one infected with the virus; (3) a lack of food or medical supplies; (4) insufficient government action to control the pandemic; (5) the pandemic's economic impact; (6) the state of general anxiety; and (7) not knowing when this crisis is going to end. An 18-item scale (FCS) was created by Sandn et al. in 2020 to measure anxieties experienced by COVID 19 during the lockdown. A modified FCS was included in the "Spaniards' mental health during the Covid-19 pandemic Survey"<sup>8</sup> that was released a year later by the Spanish Sociological Research Center. The examination of these data revealed the following components': (1) fear connected to one's own health; (2) fear related to the health of a loved one; (3) fear linked to economic and employment loss; and (4) fear related to social issues. It has proven helpful to distinguish the many Covid-19 fear facets because, to some extent, these facets vary in terms of their sensitivity characteristics and, more importantly, their protective variables. According to a study, "having a private garden, working outside the home, and income level predicted numerous anxiety categories. Fear of social isolation increases with age. There aren't many studies that look at the connections between Covid-19 worries and somatic health issues, which a significant gap is given that somatic health issues have been discovered in the general community during the COVID-19 outbreak"<sup>10</sup>.

A healthy diet can enhance wellbeing and may reduce the risk and morbidity of the coronavirus disease 2019 (COVID-19), which is brought on by the coronavirus 2 that causes severe acute respiratory syndrome (SARS-CoV-2). This review provides an overview of the nutritional recommendations that underpin the dietary advice offered by dietitians and other medical professionals<sup>11</sup>. The bulk of the documents promoted eating entire grains, fruits, and vegetables. For maintaining a healthy immune system, 31% of the recommendations emphasized the value of vitamins and minerals including zinc and vitamins C, A, and D. Supplementation of the diet have not been connected to the prevention of COVID-19<sup>8,11</sup>. However, it was noted

that persons with or at risk for respiratory virus infections or those in whom nutrient deficiency is diagnosed may benefit from taking supplements of the vitamins C and D, as well as zinc and selenium. Although it was advised to handle and prepare food with adequate cleanliness, there was insufficient evidence to conclusively link food or food packaging to the spread of COVID-19<sup>24</sup>. Even for women with COVID-19 diagnoses, there have been no modifications to the breastfeeding instructions.

The nSARS-CoV2 including all emerged variants patients may be symptomatic and or asymptomatic. Among the hospitalized patients, fever (84%), exhaustion (83%), cough (73%), and dyspnea (72%) were the most frequently reported symptoms<sup>12</sup>. The most frequently reported symptoms among the 236 non-hospitalized patients were fatigue (90%), fever (83%), cough (83%), and myalgia (74%). Cough (21% to 25%) and fever (20% to 25%) were the initial symptoms that were most frequently mentioned. In a multivariate analysis, hospitalization was strongly correlated with vomiting, dyspnea, changed mental status, dehydration, and wheezing, whereas non-hospitalization was significantly correlated with rhinorrhea, headache, sore throat, and anosmia or ageusia<sup>13</sup>. Anosmia, ageusia, lower respiratory symptoms, and gastrointestinal symptoms appeared later in the course of the disease. General symptoms and upper respiratory symptoms first appeared. When making decisions on possible COVID-19 cases in the context of clinical and public health, symptoms should be taken into account alongside other epidemiologic criteria<sup>14-15</sup>.

### Conclusion

The question of how important it is to have access to information and have faith in the sources of that information arises when people experience dread during a pandemic, which is caused, among other things, by changes in the availability of food. It has been discovered that trust, a component of social capital, is crucial for risk management, interpersonal relationships, and civic involvement. As a result, trust becomes more significant during a pandemic because it makes it easier for passive information to become active information that may be used to make decisions. Furthermore, past studies have shown that attitudes and purchase choices related to food goods are significantly influenced by trust. Relationships between persons (interpersonal or relational) and between individuals and institutions as sources of knowledge on the pandemic situation were the primary focus of the researchers' attention regarding trust in the current study.

### Declarations;

**Acknowledgment;** Author would like to thank Acharya Nagarjuna University for providing support for the study.

**Conflict of Interest;** Author Declare no conflict of interest

**Ethics approval and consent to participate:** Applicable and applied as approved by ethical committee.

**Availability of data and materials:** Not applicable

**Conflict of interests:** Author declares no conflict of interest.

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