



Original Research Article

Perception and preference of health care providers regarding protective role of immunity boosters against Covid -19

Amruta Vishwas Dashputra^{1,*}, Nayse Jaydeep², Siddique R³, Amit Date², Quazi Shadama²

¹Dept. of Pharmacology, NKP Salve Institute of Medical Sciences & RC and LMH, Nagpur, Maharashtra, India

²NKP Salve Institute of Medical Sciences & RC and LMH, Nagpur, Maharashtra, India

³Dept. of Pharmacology, NKP Salve Institute of Medical Sciences & RC and LMH, Nagpur, Maharashtra, India



ARTICLE INFO

Article history:

Received 12-08-2022

Accepted 30-11-2022

Available online 07-04-2023

Keywords:

Covid19

Immunity

Modern medicine

Ayurvedic medicine

Homeopathic medicine

ABSTRACT

Introduction: Covid -19 caused by a virus to which the people with low immunity response are being affected. Immune boosters play a vital role in protecting human being from various infective organism. The immune boosters include vitamins, minerals, antioxidants, probiotics etc. Indian Government gave emphasis on improving immunity in March 2020. At That time many people started using immunity booster agents.

Objectives: To study perception and preference of medical teachers about immunity booster agents against Covid -19.

Materials and Methods: A questionnaire based cross sectional study was conducted among medical teachers. Questionnaire was framed in Google form and circulated in social media.

Statistics: Data was noted from excel sheet derived through google form and results were calculated in frequency and percentage, mean &SD.

Results: 78% participants were aware about immune boosting agents in initial period of Covid and highest used immune booster agent was Kadha (98%). Participant opined that source of information during this Covid period were Government & WHO guidelines (15%), TV/ newspaper (50%) and social media (41%). Most preferred and convenient to take immunity booster agent was fruits (67%).

Discussion: Reason for high search and use of immunity boosters is that in initial stage of Covid- 19 pandemic, there was threat to life especially in first and second wave of Covid. Along with immune boosters, diet, sleep, exercise and stress reduction are some of the most recommended measures.

Conclusion: In present study highest used immune booster agent was Kadha. Allopathic, Ayurvedic and Homeopathic medicine were used as immunity booster agent.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

Covid -19 present a major threat to public health. It was first identified in a cluster of patients with pneumonia symptoms in Wuhan city in China in end of 2019. It was named by world Health organization as Covid -19. The virus can be transferred from human to human through respiratory

droplets, contacts and fomites.¹

Immunity is defined as the resistance gained by the body to guard against the disease. Covid -19 caused by a virus to which most probably the people with low immunity response are being affected. If immunity is good enough it will strongly fight against diseases. Immune boosters are the product that are present naturally as sunlight, minerals and plant products. So these natural immune boosters play a

* Corresponding author.

E-mail address: avdashputra@gmail.com (A. V. Dashputra).

vital role in protecting human being from various infective organism. The immune boosters include vitamins, minerals, antioxidants, probiotics etc.² Plant based food increased the intestinal beneficial bacteria which are helpful and make up of 85% immune system. By the use of plenty of water, mineral like magnesium and Zinc, micronutrients, herbs, food rich in vitamins C, D, and E, and better life style one can promote the health and can overcome this infection.³

Indian government imposed strict lockdown on 22 March 2020 to tackle this pandemic. Use of mask, sanitizer and social distancing was made mandatory for everyone. Along with these preventive measures Indian Government gave emphasis on improving immunity. Which includes Modern medicine, Ayurveda, Homeopathic medicines, Yoga and other exercises, steam inhalation etc. Special guidelines issued by ministry of AYUSH with emphasis on respiratory health. Most of the people started using immunity boosting agents. Indian Council of medical Research (ICMR) recommended use of hydroxychloroquine as preventive measure for healthcare workers especially those involved in the care of suspected or confirmed cases of Covid -19.^{4,5}

These preventive measures had been taken by many of health workers also. It was observed that nutritional supplementation could play a supportive role in Covid -19 patients. Administration of higher than recommended daily doses of nutrients such as vitamins D, C, E, Zinc and omega -3 fatty acids might have a beneficial effect, potentially reducing Covid -19 viral load and length of hospitalization.⁶⁻⁸ Thus this study was planned to see perception and preference of health care providers about immunity booster agents against Covid -19.

2. Objectives

To study perception and preference of medical teachers about immunity booster agents against Covid -19.

3. Materials and Methods

A questionnaire based cross-sectional study was conducted at tertiary care center. Study participant were medical faculty. Project was started after ethical approval from institutional ethics committee (NKPSIMS&RC and LMH/IEC-pharmacology/1/26/3/2021). Questionnaire was self - prepared by author and prevalidated by faculties of this institute. Questionnaire was categorized into Socio demographic profile of participant, knowledge and preference about the immunity boosting agents. Questions were in the form of yes or no answers or multiple choice questions. Questionnaire was framed in Google form using simple language for understanding the meaning of all questions. It was electronically circulated on social media in month of May 2021. Electronic circulation was suitable in

Covid conditions where people had to avoid close contact. During circulation process the purpose of study was very well explained. If any doubts, it was clarified by principal investigator. It was mandatory for participants to answer all the questions before submission of form. Anonymity and confidentiality of participants were maintained.

3.1. Statistics

Data was noted from excel sheet derived through google form and results were calculated in frequency and percentage, mean & SD.

4. Results

In present study perception and preference of medical and allied teachers about immunity booster agents against covid-19 were taken via google form. In this study total 123 (80 female+ 42 male) doctors responded. Mean age of participants were 42.30, SD12.3. Results of present study showed that 78% participants were aware about immune boosting agents in initial period of Covid. 95% participant opined that it is important to boost immunity. Participants opined that source of information (Figure 1) during this Covid period were Government & WHO guidelines (15%), TV/ newspaper (50%) and social media (41%). In present study for stress relief 23% participant opted for meditation and 29 % exercise, whereas 48% opted for both modes. Among allopathic medicine (Figure 2) participant preferred for prophylaxis were Vitamin C & Zinc (70% for 8 months), Vitamin D (12% for 6months), HCQS/ Ivermectin (2% for 1.5 months), whereas 28% participant used no allopathic medicine. None of study participant noted side effect with allopathic medicine. Among ayurvedic medicine (Figure 3) participant preferred Kadha (92%) for duration of 6-8 months Giloy Juice and other preparations in 8% participant along with Kadha. Among users of ayurvedic medicine only 4% noted gastritis as side effect of it. In present study highest used immune booster was Kadha (98%). In homeopathic medicine 4% participant used arsenic album for 2 months and 1.2% participant noted side effect like metallic taste and loss of appetite. According to 67% participant most preferred and convenient to take immunity booster agent was fruits, followed by tablet vitamin C, D& Zinc (20%) whereas 12% opined for Kadha as preferred agent. 20% study participant advised these agents to friends and relatives. Regarding protective action of these agents against Covid, 15% participant were sure about its immune enhancing action and 15% said these substances do not have any action, where as 70% participant were not sure about it. Among study participant 14% participants were suffered from Covid infection during first or second wave. In present study (Figure 4) 88 % participants were vaccinated

with first dose and 61% were with second dose of vaccine. Even after vaccination 4% participant were still using kadha/ vitamin C, Zinc as immunity boosting agent as precautionary measure to boost immunity against Covid infection.

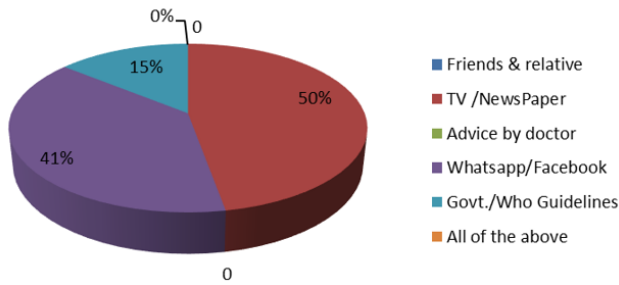


Fig. 1: Source of information and knowledge

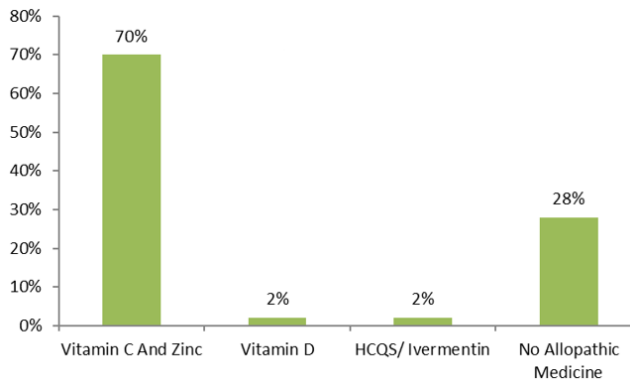


Fig. 2: Use of allopathic medicine

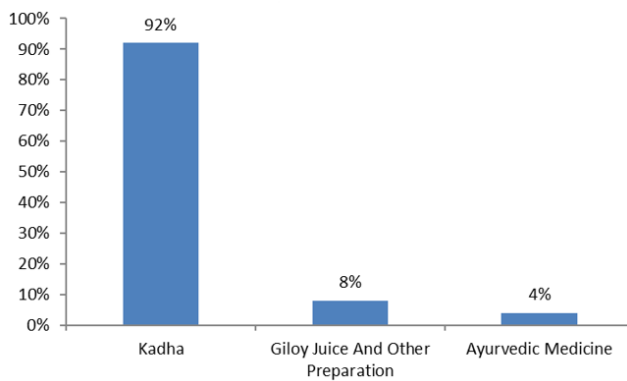


Fig. 3: Use of ayurvedic medicine

5. Discussion

In human being role of immune system is very important in protecting the body against diseases, fighting against

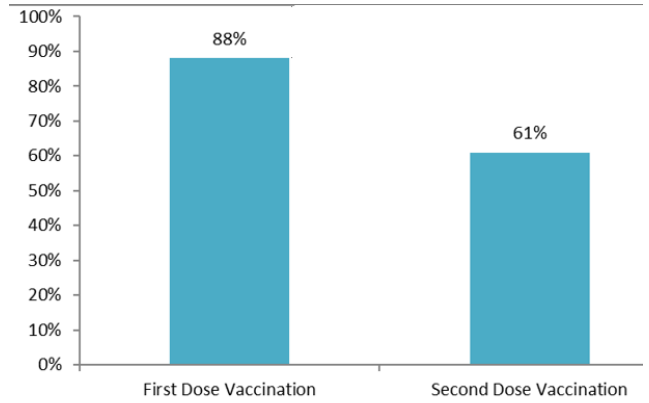


Fig. 4: Vaccination

foreign bodies and defending against microorganism and other infectious agents.² Results of present study showed that 78% participants were aware about immune boosting agents in initial period of Covid. 95% participant opined that it is important to boost immunity. Google trend analysis showed there was spike in search in terms like immunity, immune boosting agents in early February in 2020.⁹ There was threat to life especially in first and second wave of covid that might be strong reason for high search and awareness about immunity boosters in initial stage of Covid-19 pandemic. At that time confusion and uncertainty was prevalent in minds of general population and among doctors also. No specific drug therapy or vaccine was available at that time. So available alternative was to prevent occurrence of disease, by enhancing immunity which was one of the preventive measure other than use of mask, sanitizer, social distancing etc.

WebPages/ Google and other sites had given importance to immune boosting for prevention of covid -19. In present study participant opined that source of information for ways of stress relief and immunity booting agents during this Covid period were Government & WHO guidelines (15%), TV/ newspaper (50%) and social media (41%). The people were searching information online.⁹ In another study conducted on general population showed that covid related information sources used by people were; internet (80.6%), friends (21.2%), family members (24.9%), Media (53.5%), Medical staff (19.3%).¹⁰ It showed that in these studies people rely on multiple sources. This also indicate that very few had taken prophylactic drugs/ immune boosters on advice of medical staff. There is possibility of usage of immune boosting agents in India was intensified after Ayush guidelines issued by Government of India.⁵

Though Web pages giving importance to supplements as beneficial agents for boosting the immune system. Still diet, sleep, exercise and stress reduction are some of the most recommended measures. Eating a balanced diet getting sufficient sleep, exercising regularly and stress reducing

strategies like meditation were all time proved strategies for maintaining good health.^{11,12} Result of present study was in same direction. During Covid period for stress relief participant opted for meditation (23%) and exercise (29%), whereas 48% opted for both modes. Stress negatively alters the immune system responses within the body.¹³ Another important factor for immune system is sleep. Sleep gives opportunity to heal and recover from illness.¹⁴ Exercise helped to raise the levels of white blood cells and antibodies that fight infections.¹⁵ More intakes of antioxidant- rich foods help in combat inflammation and keep immune system healthy.²

During covid period health professionals had to work in hospitals. One study showed higher level of stress among health professional was found who exposed to covid positive patients. All these factors were additive factor to motivate to take prophylactic medicine to enhance immunity and other preventive measures. Among allopathic medicine participant preferred for prophylaxis were Vitamin C & Zinc (70% for 8 months), Vitamin D (12% for 6months), HCQS/ Ivermectin (2% for 1.5 months), whereas 28% participant used no allopathic medicine. None of participant had side effect with allopathic medicine. In other study which was conducted among general population showed that use of modern medicine was negligible. They preferred natural product and ayurvedic preparation because they thought modern medicine had more side effect.¹⁶ Even study conducted in Nepal showed that Ayurvedic medicine was perceived as free of side effect.¹⁷ Among ayurvedic medicine participant preferred Kadha (92%) for duration of 6-8 months Giloy Juice and other preparations in 8% participant along with Kadha. Among users of ayurvedic medicine only 4% noted gastritis as side effect of it. In present study highest used immune booster was Kadha (98%) as Government of India had published guidelines under which emphasis was given on the use of ayurvedic products like turmeric, decoction/ Kadha, steam inhalation etc.⁴ In present study most preferred and convenient to take immunity booster agent was fruits (67%), followed by tablet vitamin C, D& Zinc (20%) and Kadha (12%). Many studies had shown that fruits and vegetables are rich in beta- carotene, vitamin C and vitamin E; substances which enhances immunity as well as it helps in reducing oxidative stress.² For a healthy immune system zinc mineral having vital role in human being. Zinc helps in correctly synthesizing DNA, promoting healthy growth during childhood and healing wounds. Use of zinc was very much promoted during covid -19 pandemic on the basis of anti- viral properties of zinc like inhibition of virus attachments, uncoating during viral replication.¹⁸ Studies showed that there is reduced symptoms, severity, frequency and duration of respiratory infections after zinc administration.¹⁰ Ascorbic acid (vitamin C) was popularized because it strengthened both innate and

adoptive immune system.^{11,12} Simultaneously Vitamin D also used during this period. Role of vitamin D is to improve defense mechanism, lower viral replication rate and also reduction in concentration of pro inflammatory cytokines. There are many studies supporting that use of Vitamin D reduces risk of Covid 19 infection.¹⁹ In this study 4% participant used homeopathic medicine arsenic album for 2 months and 1.2% participant noted side effect like metallic taste and loss of appetite. Whereas in another study 7.8% participant preferred homeopathy.²⁰

Among study participant 14% participants were suffered from Covid infection during first or second wave. Sometimes people thought that by taking immunity boosting agent may give them relaxation in protocols of Covid like not following social distancing meticulously.⁹ This type of false sense of complete protection might prove dangerous to them. Development of vaccine against Covid -19 infection has become an important milestone. In May 2021 when this questionnaire was administered to participants 88% participants were vaccinated with first dose and 61% were with second dose of vaccine. Another study conducted on general population showed that people were not willing to take vaccination.²⁰ In the U.S., there were two large measles outbreaks in Washington State and New York City, largely due to vaccine refusal.²¹ Now against Covid-19 vaccine is available. Vaccination of mass population will be crucial to prevent ongoing transmission. Reason for high rate of vaccination among health care workers that they directly involved in Covid -19 patient care. This result of present study in line with study conducted in Israel.²²

At the time of Covid-19 pandemic internet is flooded with information on topics like cures, treatment and preventive strategies against corona virus, as well as marketing of these products. Since it is said at initial period of Covid that role of immunity is important for prevention of covid because no specific treatment guidelines was available nor vaccine was developed at that time. The concept of immune boosting had become broader term. Many commercial products come into market to claim usefulness as immunity enhancing agent. In present study 15% participants agreed that there is need of scientific research about these herbal immunity boosting agents. In Covid period people were searching health information online; there is possibility of misguiding and inaccurate information might had caused impact on health related decision. As WHO called it “infodemic” has resulted in wasted resources, delayed treatment and deaths.⁹ There is numerous product come into market, try to legitimise unproven product even in this era of science. Immunity boosting product that lack scientific evidences were often described as excellent or wonder drug. This type of misinformation was advertised by many big celebrities. It showed that such type of conflicting information was

available. It presents a significant challenge for public searching scientifically accurate information. For this issue regulatory action like policy making was needed.⁹ National Institute of Health and Centre for Disease control and Prevention for covid-19 do not comment on any dietary supplements until efficacy is proven by clinical trials.²³ It is recommended that more measures to be taken to impart scientific knowledge to the population to prevent misuse of these agents.

6. Conclusions

In present study highest used immune booster agent was Kadha. In this study prominent source of information about immunity boosting agents were Government & WHO guidelines TV/ newspaper and social media. Allopathic, Ayurvedic and Homeopathic medicine were used as immunity booster agent during this period. As immunity boosting measure people opted for meditation and exercise for stress relief. This pandemic has given us lesson that diet, exercise, hygiene is important to maintain good health. So people should give weightage to these things not only during pandemic but throughout life.

7. Limitation

In view of magnitude of Covid pandemic this sample size is small.

8. Source of Funding

None.

9. Conflict of Interest

None.


10. Acknowledgement

Author acknowledges all participants support who had given valuable time to fill questionnaire.

References

- Shakoor H, Feehan J, Dhaheri AA, Ali HI, Platat C, Ismail LC, et al. Immune-boosting role of vitamins D, C, E, zinc, selenium and omega-3 fatty acids: Could they help against COVID-19? *Maturitas*. 2009;143:1–9. doi:10.1016/j.maturitas.2020.08.003.
- Sreelaxmis B, Geetha RV. Knowledge and Awareness about Natural Immune Booster Among General Public. *Int J Pharm Sci*. 2020;11(3):1156–64.
- Sajidarshad M, Khan U, Sadiq A, Khalid W, Hussain M, Yasmeen A, et al. Coronavirus disease (COVID-19) and immunity booster green foods: A mini review. *FOOD Sci Nutri*. 2020;8(8):3971–6.
- Ministry of health and family welfare –advisory on the use of hydroxychloroquine. Available from: <http://www.mohfw.Gov.in/pdf/AdvisoryontheuseofHydroxychloroquinasprophylaxisforSASRCoV2infection.pdf>.
- Ministry of AYUSH – Ayurveda's immunity boosting measure for self-care during COVID 19 crisis . Available from: <https://www.mohfw.gov.in/pdf/ImmunityBoostingAYUSHadvisorypdf>.
- Gombart AF, Pierre A, Maggini S. A review of micronutrients and the immune system working in harmony to reduce the risk of infection. *Nutrients*. 2020;12(1):236. doi:10.3390/nu12010236.
- K A, Schmedic, Holl A, Ried R, Christopher KB, Pachler C, et al. Effect of high dose vitamin D3 on hospital length of stay in critically ill patients with vitamin D deficiency: the VITdAL-ICU randomized clinical trial. *JAMA*. 2014;312(15):1520–30. doi:10.1001/jama.2014.13204.
- Hemila H, Chalker E. Vitamin C Can Shorten the Length of Stay in the ICU: A Meta-Analysis. *Nutrients*. 2019;11(4):708. doi:10.3390/nu11040708.
- Rachul C, Marcon AR, Collins B, Caulfield T. COVID-19 and 'immune boosting' on the internet: a content analysis of Google search results. *BMJ*. 2020;10(10):40989. doi:10.1136/bmjopen-2020-040989.
- Wang MX, Win SS, Pang J. Zinc Supplementation Reduces Common Cold Duration among Healthy Adults: A Systematic Review of Randomized Controlled Trials with Micronutrients Supplementation. *Am J Trop Med Hyg*. 2020;103(1):86–99. doi:10.4269/ajtmh.19-0718.
- Overbeck S, Rink L, Haase H. Modulating the immune response by oral zinc supplementation: a single approach for multiple diseases. *Arch Immunol Ther Exp (Warsz)*. 2008;56(1):15–30. doi:10.1007/s00005-008-0003-8.
- Carr AC, Maggini S. Vitamin C and immune function. *Nutrients*. 2017;9(11):1211. doi:10.3390/nu9111211.
- Salleh M. Life event, stress and illness. *Malays J Med Sci*. 2008;15(4):9–18.
- Kamdar BB, Needham DM, Collop NA. Sleep deprivation in critical illness. *J Intensive Care Med*. 2012;27(2):97–111. doi:10.1177/0885066610394322.
- Mastaloudis A, Leonard SW, Traber MG. Oxidative stress in athletes during extreme endurance exercise free radical. *Free Radic Biol Med*. 2001;31(7):911–22. doi:10.1016/s0891-5849(01)00667-0.
- Webster D, Thomas MC, Huang Z, Wesselingh SL. The development of a plant-based vaccine for measles. *Vaccine*. 2005;23(15):1859–65. doi:10.1016/j.vaccine.2004.11.018.
- Kafle G, Bhattaraj I, Shrestha AK, Siwakoti M. Why do patients choose to consume Ayurvedic Medicine in Nepal? An exploratory study . *Int J Ayurvedic Med*. 2018;9(4):250–7. doi:10.47552/ijam.v9i4.1146.
- Grant WB, Lahore H, McDonnell SL, Donnell CA, Baggerly CB, French JL, et al. Evidence that vitamin D supplementation could reduce risk of influenza and Covid -19 infections and deaths. *Nutrients*. 2020;12(4):988. doi:10.3390/nu12040988.
- Roohani N, Hurrell R, Kelishadi R, Schulin R. Zinc and its importance for human health: An integrative review. *J Res Med Sci*. 2013;18(2):144–57.
- Nanavaty DP, Sanghvi AA, Mehta MS, Gupta S, Dumra G. Cross -Sectional study for determining the perception and preferences of immunity boosters for protection against Covid -19. *Int J Adv Med*. 2020;7(10):1498–505.
- Feemster K. Building vaccine acceptance through communication and advocacy. *Hum Vaccin Immunother*. 2020;16(5):1004–6. doi:10.1080/21645515.2020.1746603.
- Harapan H, Wagner AL, Yufika A, Winardi W, Anwar S, Gan AK, et al. Acceptance of a Covid -19 vaccine in southeast Asia: a cross -sectional study in Indonesia. *Front Public Health* . 2020;8. doi:10.3389/fpubh.2020.00381.
- Center for disease Control and prevention. information for clinicians on investigational therapeutics for patients with Covid -19. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/therapeutic-options.html>.

Author biography

Amruta Vishwas Dashputra, Associate Professor
 <https://orcid.org/0000-0001-9813-141X>

Nayse Jaydeep, Assistant Professor

Siddique R, Professor and Head

Amit Date, Associate Professor

Quazi Shadama, Assistant Professor

Cite this article: Dashputra AV, Jaydeep N, Siddique R, Date A, Shadama Q. Perception and preference of health care providers regarding protective role of immunity boosters against Covid -19. *Panacea J Med Sci* 2023;13(1):103-108.