

Resilience Approach of Ayurveda: nCOV-19 Pandemic

Research Article

Vijay Mohan Soni¹, Shiv Singh², Neha Munjal^{3*}

1. Medical Officer, Uni-Hospital, Lovely Faculty of Applied Medical Sciences (LFAMS),
Lovely Professional University, G. T. Rd, Phagwara, Punjab.

2. Assistant Librarian, Department of Library,

Bennett University (Times of India Group), Tech Zone II, Greater Noida, Uttar Pradesh.

3. Assistant Professor, Department of Physics, School of Chemical Engineering and Physical Sciences,
Lovely Professional University, G. T. Rd, Phagwara, Punjab.

Abstract

Introduction: The coronavirus disease, nCOV-19 pandemic is exceptional and unprecedented in many aspects and it has shaken the health care system at global level. The several studies reported on nCOV-19 suggest that, immunization is the only way to fight against it. For this, Ayurveda is the most imperative as it recommends a healthy lifestyle instead of the mere prescription of medicines. **Methodology:** Ministry of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy is purposed with developing education, research and propagation of indigenous alternative medicine systems in India (Ministry of AYUSH). The Ministry is headed by a Minister of State, which is currently held by Shripad Yesso Naik and has recommended some measures to be followed in building strength by following the holistic approach of Ayurveda toward *Swasthavritta*. Thus, the present paper focuses on analysing the public perception towards Ayurveda measures using the most popular statistical techniques as ANOVA. **Results:** The analysis of data indicated that, the people are mesmerised by the concept of Ayurveda and are following all the possible precautions to save themselves from the effect of COVID-19. Older generation has a firm believe on the vedic science as compared to the younger generation. **Conclusion:** The classic of Ayurveda '*Charaka Samhita*' describes the epidemic management and it defines immunity as the most essential to prevent diseases and arrest its progress. The foundation of Ayurveda is to building strength of mind and body to manage with different stressors, including infections. The Ayurveda concept of immunity (*Bala* or strength) is categorized as natural (*Sahaja*), chronobiologic (*Kalaja*), and acquired (*Yuktikrut*). Henceforth, we can achieve the aim of Ayurveda i.e. the *Swasthasya Swasthya Rakshanam* and *Aturasya Vikar Prashamanam*, against nCOV-19 pandemic.

Key Words: Covid-19, Ayurveda, Ministry of AYUSH, ANOVA, Pandemic, Atharva veda.

Introduction

Ayurveda, a branch of Vedic Science, literally means "the science of life" and originated in India as the traditional healing system over 5,000 years ago. The term Ayurveda is derived from the Sanskrit word *ayur*, meaning "life" or "longevity," and *veda*, meaning "knowledge" or "science." According to *Charak Sutra* (1-2). "what is good (*hita*) and what is bad (*ahita*) for the four different types of *ayus* (namely, *hitayu*, *ahitayu*, *sukhayu* and *dukhayu*, concerning different conditions of diseased or healthy life) is Ayurveda ". Ayurveda explores life and all its layers. The concept of Ayurveda has been divided in two aspects *Swasthasya Swasthya Rakshanam* (Preventive and Social medicine) and *Aturasya Vikar Prashamanam* (Therapeutics). The purpose of Ayurveda is to help the healthy person to

maintain good health and diseased person to regain good health. The practice of Ayurveda is designed to promote human happiness at physical, mental and spiritual level. By the proper balance of all vital energies in the body, the processes of physical deterioration and disease can be reduced. This can be accomplished through proper eating, thinking and living habits as well as the use of herbal remedies to treat illness. Ayurveda provides us with a multitude of daily practices, food guidelines, herbal remedies and body therapies to help create a harmonious external and internal world. That will facilitate healing not only physically and mentally (deep within our beings) (3-4).

In, *Charaka Samhita* (1) there is a chapter called "*Janapada Dvamsa Vyadhi*", which means epidemics and presently world is facing the nCOV-19.

The Ayurveda has been proved to promising in treating several disorders and diseases (5-26). The ancient history of Ayurveda explains that following the *dinacharya* and *pranayama* for healthy living. Thus, Ministry of AYUSH, India has given the proper guidelines to follow the healthy routine as mentioned in ancient science to improve immune system and to fight with nCOV-19 (27).

* Corresponding Author:

Neha Munjal

Assistant Professor, Department of Physics, School of
Chemical Engineering and Physical Sciences,
Lovely Professional University, G. T. Rd. Phagwara,
Punjab-144411, India.

Email Id: neha.18869@lpu.co.in

In the present work, the data is collected through random sampling to understand the perspectives of the Indian public towards Ayurveda and their beliefs.

Methodology

The random sampling technique has been used to take opinion of public regarding the guidelines issued by Ministry of AYUSH to be followed for enhancing the immunity. The questionnaire method has been adopted to take the responses. The Google form was created and circulated through the social media sites such as Whatsapp, Facebook, E-mail etc. The link was shared using the snowball sampling techniques, for obtaining the responses from the wider area. In total, 2872 responses were recorded, out of which 2519 were properly filled and they were analyzed using descriptive and inferential statistic techniques. These 2519, response were segregated on the basis of age and gender for analysis. The analysis has been done using ANOVA. It is Analysis of variance which comprises of the collection of statistical models and their associated estimation procedures such as the variation among and between groups. It is used for testing the hypothesis, where the variation of the data is to studied among the groups using the value of mean.

To check the variability, the F statistic is considered, it is a measure of the variability between treatments divided by a measure of the variability within treatments. If F is large, the variability between treatments is large relative to the variation within treatments, and we reject the null hypothesis of equal means. If F is small, the variability between treatments is small relative to the variation within treatments, and we do not reject the null hypothesis of equal means. The ANOVA table is represented as

Source	SS	df	MS	F
Model/Group	SSG	k - 1	$MSG = \frac{SSG}{k-1}$	$\frac{MSG}{MSE}$
Residual/Error	SSE	n - k	$MSE = \frac{SSE}{n-k}$	
Total	SST	n - 1		

Here,
 SS=Sum of Squares (sum of squared deviations)
 SST measures variation of the data around the overall mean
 SSG measures variation of the group means around the overall mean
 SSE measures the variation of each observation around its group mean

Degree of freedom

k - 1 for SSG, since it measures the variation of the k group means about the overall mean
 n - k for SSE, since it measures the variation of the n observations about k group means
 n - 1 for SST, since it measures the variation of all n observations about the overall mean
 MS = Mean Square = SS/df
 The F statistic = MSG/MSE

If the null hypothesis is true, the F statistic has an F distribution with k - 1 and n - k. If the alternate hypothesis is true, then F tends to be large and null hypothesis Ho is rejected. F statistics and can also be compared using the P value method.

Hypothesis

The Null hypothesis framed were

1. The general Ayurveda measures as prescribed by Ministry of Ayush are followed by everyone irrespective of age groups
2. The Ayurveda immunity promoting measures as prescribed by Ministry of Ayush are followed by everyone irrespective of age groups
3. The simple Ayurveda procedures as prescribed by Ministry of Ayush are followed by everyone irrespective of age groups
4. During dry cough/sore throat precautions as prescribed by Ministry of Ayush are followed by everyone irrespective of age groups

The above hypothesis were tested using Anova technique.

Data Interpretation

The complete data set is presented in Table 1, it consists of 1268 Males, 1250 Females and which is further categorized into age groups. The respondents were from 26 states of India.

Age	Male	Female	Total
18-28	300	291	591
29-39	279	286	565
40-50	290	265	555
51-59	230	218	448
60 and above	170	190	360
Total	1269	1250	2519

Further, the first question was “Do you believe in Ayurveda remedies for fighting the war against nCOV-19”. Figure 1 demonstrates the responses as per the age and gender. It clearly depicts that the younger generation believes less in Ayurveda as compared to older generation.

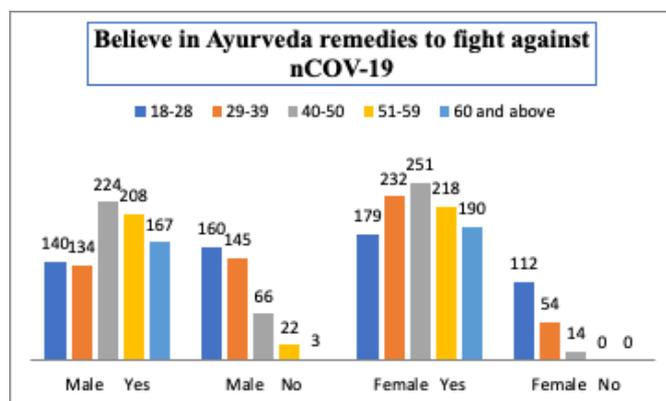


Figure 1. Belief in Ayurveda remedies to fight against nCOV-19.

The second block of the questionnaire was about the practicing of general measures of Ayurveda as per the guidelines of Ministry of Ayush. It consists of three parameters

- I. Drinking of warm water throughout the Day
- II. Daily practice of *Yogasana*, *Pranayama* and meditation for at least 30 minutes as advised by Ministry of AYUSH
- III. Spices like *Haldi* (Turmeric), *Jeera* (Cumin), *Dhaniya* (Coriander) and *Lahsun* (Garlic) are recommended in cooking.

Figure 2 represents the perception of above parameters as per segregation of demographic variables. For all age groups, females have more belief on Ayurveda in comparison to males. The result ANOVA indicates (Table 2) that respondents have different

opinion as per the age group, thus rejecting the Hypothesis 1.

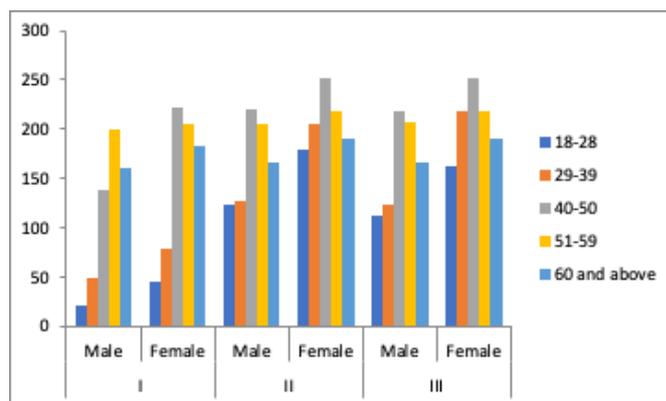


Figure 2. Perspectives about the General Measures as per the Ministry of Ayush

Source of Variation	Sum of squares (SS)	Degree of freedom (df)	Mean square (MS)	F statistics	P-value	F critical value
Between Groups	67427.73	4	16856.9	11.765	0.00085	3.47805
Within Groups	14328	10	1432.8			
Total	81755.73	14				

The third block of the questionnaire was about Ayurvedic Immunity Promoting Measures. Which was further categorized by the three subsets as follows

- I. Take *Chyavanprash* 10gm (1tsf) in the morning.
- II. Drink herbal tea / decoction (*Kadha*) made from *Tulsi* (Basil), *Dalchini* (Cinnamon), *Kalimirch* (Black pepper), *Shunthi* (Dry Ginger) and *Munakka* (Raisin) - once or twice a day.
- III. Golden Milk- Half tea spoon *Haldi* (turmeric) powder in 150 ml hot milk - once or twice a day.

Figure 3 represents the perception of above parameters as per segregation of demographic variables. For age group 18-28 and 29-39 refer the first measure taking *Chyavanprash* is least preferred. The respondents in the age group of 18-28 prefer to drink herbal tea/*kadha* to boost immunity, whereas 29-39 age group respondents have more preference to Golden Milk. The older generation is following all the measures to protect themselves from nCOV-19. For all age groups, the

females are more inclined towards Ayurveda measures. The result ANOVA indicates (Table 3) that respondents have different opinion as per the age group, thus rejecting the Hypothesis 2.

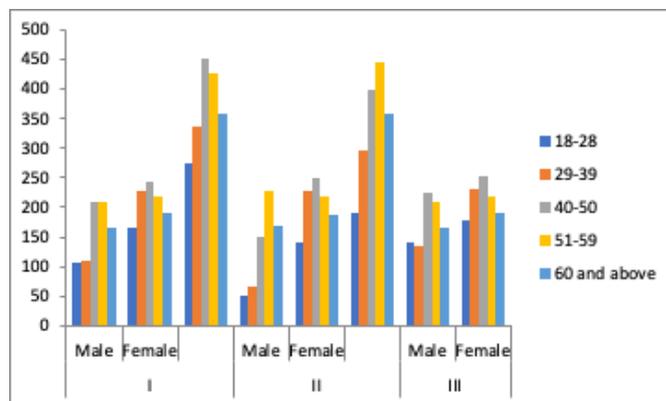


Figure 3. Perspectives about the Ayurvedic Immunity Promoting Measures as per the Ministry of Ayush

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	108404.9	4	27101.23	3.829805	0.038685	3.47805
Within Groups	70764	10	7076.4			
Total	179168.9	14				

The fourth block of the questionnaire was about Simple Ayurveda Procedures. Which was further categorized into the two subsets as follows

- I. Nasal application
- II. Oil Pulling Therapy

Figure 4 represents the perception of above parameters. The Nasal application is preferred more as compared to Oil pulling therapy. For age group above

60, 162 males and 190 females are using Nasal therapy, whereas 110 males and 123 females are Oil pulling therapy. For this section also the most dominating are females towards Ayurveda procedures. The result ANOVA indicates (Table 4) that respondents have same opinion as per the age group, thus accepting the Hypothesis 3.

Table 4: Analysis of Ayurveda Procedures

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	39593.4	4	9898.35	0.724989	0.611149	5.192168
Within Groups	68265.5	5	13653.1			
Total	107858.9	9				

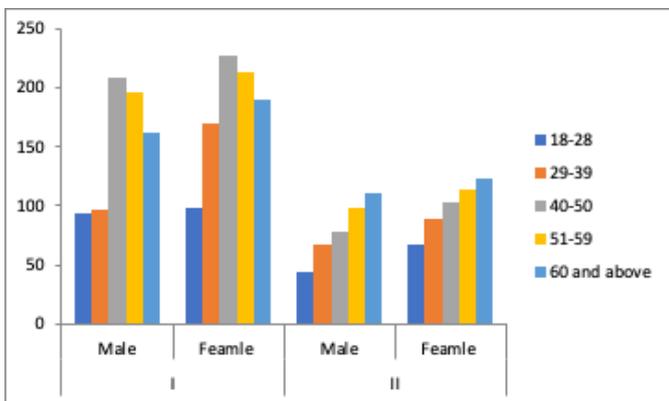


Figure 4. Perspectives about the Ayurveda Procedures as per the Ministry of Ayush

The fifth block of the questionnaire was about procedures followed during dry cough/sore throat. Which was further categorized into the two subsets as follows

- I. Steam inhalation with fresh *Pudina* (Mint) leaves or *Ajwain* (Caraway seeds) can be practiced once in a day.
- II. *Lavang* (Clove) powder mixed with natural sugar / honey can be taken 2-3 times a day in case of cough or throat irritation.

Figure 5 represents the perception of above parameters. The above both remedies are followed but the inclination is slightly more towards the steam inhalation. The older generation is trying to follow the both procedures to prevent themselves from severe infection. The result of ANOVA indicates (Table 5) that respondents have same opinion as per the age group, thus accepting the Hypothesis 4.

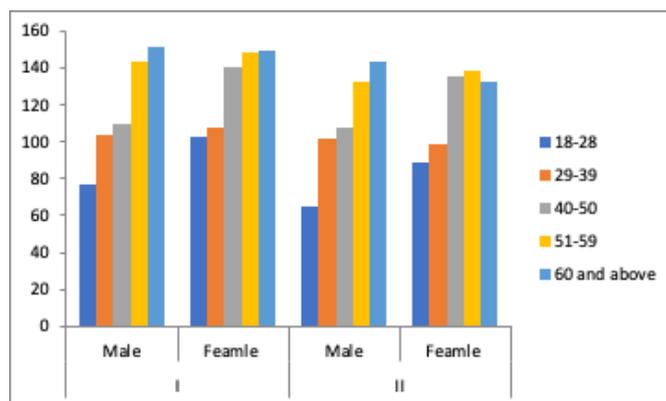


Figure 5. Perspectives about the Ayurveda Procedures as per the Ministry of Ayush

Table 5: Analysis for Measures taken during Sore throat

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	20722.4	4	5180.6	27.09519	0.001384	5.192168
Within Groups	956	5	191.2			
Total	21678.4	9				

Conclusion

The Ministry of AYUSH, Government of India, has issued a very useful advisory to fight the war against nCOV-19 using Indian traditional practices. The analysis of survey indicates that people have the firm believe in our ancient values Ayurveda. The younger generation is slightly less inclined towards Ayurveda beliefs. But the older generation is strictly following the measures to prevent themselves. The Ayurveda interventions have the several advantages and are promising measures for long run of human kind. The prevention is always better than cure, thus it has been suggested that to follow the daily *dincharya* (Healthy lifestyle) as prescribed in our Vedas. This will not only help the community to fight against the nCOV-19, it will also help in other diseases. This pandemic has warned the community and makes us recall our traditional living habits. Henceforth, we can achieve the aim of Ayurveda i.e. the *Swasthasya Swasthya Rakshanam* and *Aturasya Vikar Prashamanam*, against nCOV-19 pandemic.

Acknowledgement

Authors acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed. Authors extend the extreme gratefulness to the respondents, who devoted their valuable time in filling the questionnaire"

Conflict of Interest: NIL

References

1. Acharya Y, ed. Charaka Samhita. Varanasi, India: ChaukhambaSurbharati, 1992.
2. Bhisagratna, KK, editors-translator. *Sushruta Samhita*. 4th ed., 2 vols., Varanasi: Chowkhamba Sanskrit Series Office;1991. 240 p.
3. Sharma, PV, editor-translator. *Caraka Samhita*. 4 vols. Varanasi: Chowkhamba Sanskrit Series Office: 1981-1994.2200 p.

4. Sharma, RK, Vaidya BD, editors-translators. *Caraka Samhita*. 3d ed., 3 vols. Varanasi: Chowkhamba Sanskrit Series Office: 1992.
5. Singh N, Bhalla M, de Jager P, Gilca, M. An overview on Ashwagandha: a Rasayana (rejuvenator) of Ayurveda. *Afr J Tradit Complement Altern Med* 2011;8:208–213.
6. Sumantran VN, Tillu G. Cancer, inflammation, and insights from Ayurveda. *Evid Based Complement Alternat Med* 2012;2012:306346.
7. Vinjamury SP, Vinjamury M, Sucharitakul S, et al. Panchakarma: Ayurvedic detoxification and allied therapies—is there any evidence? In: *Evidence-Based Practice in Complementary and Alternative Medicine*. Berlin: Springer, 2012:113–137
8. Watts S. Disease and medicine in world history. *Disease and Medicine in World History*; 2003. p. 1-166.
9. Turk C, Turk S, Malkan UY, Haznedaroglu IC. Three critical clinicobiological phases of the human SARS-associated coronavirus infections. *Eur Rev Med Pharmacol Sci* 2020;24(16):8606-8620.
10. Tanner CM, William Langston J. Do environmental toxins cause Parkinson's disease? A critical review. *Neurology* 1990;40(10):17-30.
11. Svoboda RE. Ayurveda's role in preventing disease. *Indian J Med Sci* 1998;52(2):70-77.
12. Singh AK, Bhushan B, Maurya A, Mishra G, Singh SK, Awasthi R. Novel coronavirus disease 2019 (COVID-19) and neurodegenerative disorders. *Dermatol Ther* 2020;33(4).
13. Rao RV, Descamps O, John V, Bredesen DE. Ayurvedic medicinal plants for Alzheimer's disease: A review. *Alzheimers Res Ther* 2012;4(3).
14. Rajurkar NS, Damame MM. Elemental analysis of some herbal plants used in the treatment of cardiovascular diseases by NAA and AAS. *J RADIOANAL NUCL CHEM* 1997;219(1):77-80.
15. Prashantkumar P, Vidyasagar GM. Traditional knowledge on medicinal plants used for the treatment of skin diseases in Bidar district, Karnataka. *Indian J Trad Knowl* 2008;7(2):273-276.
16. Nagashayana N, Sankarankutty P, Nampoothiri MRV, Mohan PK, Mohanakumar KP. Association of L-DOPA with recovery following Ayurveda medication in Parkinson's disease. *J Neurol Sci* 2000;176(2):124-127.
17. Mandal B. The global emergence of severe acute respiratory syndrome coronavirus 2 in human. *VirusDisease* 2020;31(2):67-70.
18. Man SC, Durairajan SSK, Kum WF, Lu JH, Huang JD, Cheng CF, et al. Systematic review on the efficacy and safety of herbal medicines for Alzheimer's disease. *J Alzheimer's Dis* 2008;14(2):209-223.
19. Konakci G, Ozgursoy Uran BN, Erkin O. In the Turkish News: Coronavirus and “Alternative & complementary” medicine methods. *Complement Ther Med* 2020;53.
20. Khedekar S, Rathi RB, Rathi BJ, Deshmukh A. The rationale behind ayurveda codes of conduct (Aacharrasayana) in covid-19 like new disorders. *Int J Res Pharm Sci* 2020;11(Special Issue 1):391-395.
21. Jayasundar R. Ayurveda: A distinctive approach to health and disease. *Curr Sci* 2010;98(7):908-914.
22. Goothy SSK, Goothy S, Choudhary A, Potey GG, Chakraborty H, Kumar AHS, et al. Ayurveda's holistic lifestyle approach for the management of coronavirus disease (COVID-19): Possible role of Tulsi. *Int J Res Pharm Sci* 2020;11(Special Issue 1):16-18.
23. Golechha M. Time to realise the true potential of Ayurveda against COVID-19. *Brain Behav Immun* 2020;87:130-131.
24. Chintamunnee V, Mahomoodally MF. Herbal medicine commonly used against non-communicable diseases in the tropical island of Mauritius. *J Herbal Med* 2012;2(4):113-125.
25. Chakravorty RC. Head and neck diseases in an ancient Indian surgical text (The Sushruta-samhita). *Med Hist* 1971;15(4):393-396.
26. Auddy B, Ferreira M, Blasina F, Lafon L, Arredondo F, Dajas F, et al. Screening of antioxidant activity of three Indian medicinal plants, traditionally used for the management of neurodegenerative diseases. *J Ethnopharmacol* 2003;84(2-3):131-138.
27. Ministry of AYUSH, Government of India. Ayurveda's immunity boosting measures for self care during COVID19 crisis. Online document at: <http://ayush.gov.in/event/ayurveda-immunity-boosting-measures-self-care-during-covid-19-crisis>, accessed July 10, 2020.
