



Knowledge and Perception on COVID-19 Pandemic among the Undergraduate Students of Ayurveda College: A Cross-sectional Online Survey

Srihari Sheshagiri, Jyothy Kothanath Bhaskaran

Department of Kaumarabhritya, Mahatma Gandhi Ayurved College, Hospital & Research Centre, Datta Meghe Institute of Medical Sciences (DU), Salad, Wardha, Maharashtra, India.

ABSTRACT

Introduction: Students of medical college can be potential COVID warriors who could play a significant role in the course of the coronavirus disease outcome. Their activities and role depend upon their knowledge and perception of the disease.

Objective: To assess the knowledge and perception about the COVID19 pandemic among a convenience sample of the undergraduate students of Ayurveda College in the Vidarbha area of Maharashtra state, India.

Methods: The present study is a cross-sectional survey conducted upon the undergraduate medical students using online google forms. The population strata were based upon a predetermined number of open slots into which students from each year could enrol. A minimum of 10% open slot was reserved for each professional year including interns.

Results: Out of 560 undergraduate students of the two colleges, 336 participants completed the online survey questionnaire. More than 90% of the respondents had good knowledge of the mode of disease transmission. 94% of medical students felt, lockdown implementation along with an increase in testing for suspected cases by the government of India to be a necessary step in avoiding the spread of the disease. 84.4% of them believed that the Indian system of Medicines like Ayurveda, Yoga, and Siddha can contribute to reducing the risk of reducing the Corona Pandemic. 79.3% of them had recommended Ayurveda Medicine to their family members or others for immune boosting.

Conclusion: This survey serves as a guide or a base to public health care authorities, clinicians, and researchers. This methodology of the quick online surveys upon the general public to assess their knowledge, perception, and opinion could be used by public health authorities and act accordingly. It can also be concluded that medical undergraduate students can be effective COVID warriors in educating the general public.

Key Words: Knowledge, Perceptions, COVID19, Pandemic, Undergraduate Students of Ayurveda, Online Survey

INTRODUCTION

COVID-19 – Coronavirus disease 2019, is a new infectious disease caused due to severe acute respiratory syndrome coronavirus 2 (SARS-COV-2).¹ The disease was first reported in December 2019 at Wuhan, China² and was later declared a pandemic by WHO in March 2020.³

In pandemic conditions, the response of public health authorities depends upon the knowledge and perception of the public among the disease. The activities and role of medical professionals and graduate students play an influential role in the outcome of the COVID pandemic. Population-based surveys during lockdown is an impossible method to assess

the required response and hence online survey is used, which is less time-consuming.

MATERIALS AND METHODS

The current cross-sectional online survey was conducted upon the prospective medical graduates who were from Mahatma Gandhi Ayurved College, Hospital & Research Centre, Salad, Wardha and DattaMeghe Ayurveda Medical College, Hospital and Research Centre, Wanadongri, Nagpur, Maharashtra. The online platform used for the survey was through structured Google forms. The population strata were based upon a predetermined number of open slots into which

Corresponding Author:

Srihari Sheshagiri, Department of Kaumarabhritya, Mahatma Gandhi Ayurved College, Hospital & Research Centre, Datta Meghe Institute of Medical Sciences (DU), Salad, Wardha, Maharashtra, India; Phone: 7972215316; Email: srihari.s@dmimsu.edu.in

ISSN: 2231-2196 (Print)

ISSN: 0975-5241 (Online)

Received: 07.09.2020

Revised: 10.11.2020

Accepted: 05.01.2021

Published: 30.03.2021

students from each year could enrol in the survey on a first come first basis. A minimum of 10% open slot was reserved for each professional year including interns. The study was conducted only after the participants would provide consent in the forms. There was no compulsion on them to be a part of the study and it was voluntary involvement. The study was conducted from 10.00 am on July 11th 2020 till 12.00 Am on July 14th 2020. Answering all questions was mandatory and specific instruction on how to fill the form and type of answer expected as detailed in the instruction section. The study protocol was reviewed and approved by the Institutional Review Board of Mahatma Gandhi Ayurved College, Hospital & Research Centre. There was no compulsion on the students to participate in the study. Voluntary Consent was obtained from the participants to be a part of the study. Only after their consent, the subsequent forms would open. The study was reviewed and approved by the Institutional review board.

The data evaluated were based upon the following parameters,

1. Characteristics of sample: This included their vital information such as gender, place of residence, year of an undergraduate course, etc.
2. Awareness about the pandemic: This included the participant's level of awareness upon the cause, course and future outcome of the disease
3. Awareness about the government initiatives: This included the participant's level of awareness of the measures and efforts taken by the government to tackle the issue
4. Awareness about Role of AYUSH System of Medicine in COVID pandemic: This included the participant's recommendations to their family about Immune enhancing measures of AYUSH interventions in combatting the disease spread

The data obtained from the above parameters were analysed using the percentage of participants who selected each response for binary and categorical response and two-sided 95% confidence intervals using the Wilson score interval for binomial proportions.⁴

RESULTS

Responses of the participants were analysed carefully without any bias. Out of the 560 maximum available participants, 336 participants undertook the online survey. The general characteristics of the participants involved in the study have been tabulated in table 1.

Table 1: Characteristics of sample enrolled

Gender	Male	31.5%
	Female	68.4%
Residence	Rural	45.6%
	Urban	54.3%
Year of Undergraduate course	1 st Year	11.2%
	2 nd Year	13.7%
	3 rd Year	10.3%
	4 th Year	45.9%
	Internship Program	18.7%

Awareness about the pandemic

This important part of the survey included the responses of the participants about the course, cause and future outcome of the disease. 36.5% (Inter Quartile Range (IQR): 31.2% - 41.8%) of participants expected a minimum of 100 thousand people in India would be infected by a coronavirus and 46.2% (IQR: 40.8% - 51.6%) expected 10 thousand deaths. 85.9% (IQR: 82.1%-89.7%) of participants thought that Elderly People are most likely to be affected by COVID and 57.5% thought people with other co-morbid conditions are more likely to die from COVID infection than those who do not have any Co-morbidities. More than 90% of the participants were aware of the main way by which the Corona virus spreads, its prevention, common signs and symptoms in patients affected as detailed in table 2.

78.1%, 95.3% and 99% of the participants thought that wearing a mask, washing and being in a secure area (isolation) as a highly effective method in reducing the risk of getting infected by the corona virus (Highly effective suggests reducing the risk by >95%), respectively.

Only 58.4% (IQR: 53.0%-63.8%) of participants were aware of the procedure to follow if they were in contact with a patient of COVID-19 and start showing the signs of the disease. 39.0% (IQR: 33.7%-44.4%) would stay at the home and adopt the wait and watch method. 85% (81.0%-88.9%) of participants were aware that no medicine or vaccine had been developed to date to cure COVID -19.

Table 2: Awareness about the pandemic

Sl. no.	Parameters assessed	Response*	Results#
1.	What is the minimum number of COVID Infected cases you are expecting to be recorded in INDIA?	Above 1000000	36.5% (31.2%-41.8%)
2.	What is the minimum number of Deaths due to COVID infections you are expecting to be recorded in INDIA	Above 100000	46.2% (40.8%-51.6%)
3.	As per the current situations of COVID Cases registered, which age group you think is most likely to be affected more? (Multiple options can be selected)	Children	25.9% (21.1%-30.7%)
		Adult	33.4% (28.2%-38.6%)
		Elderly People	85.9% (82.1%-89.7%)
4.	Do you think people with other co-morbid conditions are more likely to die from COVID infection than those who do not have any Co-morbidities?	Yes	57.5%
5.	What do you think is the main way by which Coronavirus spreads?	[Droplet Infection]	95.9% (93.7%-98.1%)
		[Direct Contact with body fluids like sweat, vomit, blood, etc]	70.3% (65.3%-75.3%)
		[Handshake or touch]	97.5% (95.7%-99.2%)
		[Mosquito bites does not cause the spread of the virus]	90.9% (87.7% - 94.0%)
		[Eating Uncooked meat products]	51.5% (46.0%- 57.0%)
		[Unhygienic habits]	90.3% (87.0%-93.5%)
6.	The spread of the Corona virus can be prevented by	[Washing hands frequently]	100%
		[Wearing the mask]	99.3%
		[Avoid Close Contact with people who show signs of flu]	98.7% (97.5%-99.9%)
		[By taking antibiotics]	43.4% (38.0%-48.8%)
		[Use of Sesame oil (Tilli Tail) on Your Skin and Nostril]	68.1% (63.0%-73.5%)
		[Frequent Gargling of Mouth with Mouthwash]	78.1% (73.5%-82.5%)
		[Avoid touching of eyes, nose, mouth frequently]	99.3%
		[Drinking herbal tea]	71.2% (66.2%-76.2%)
		[Eating onion and Garlic]	36.8% (31.5%-42.1%)
		[By isolating yourself from the external world]	97.8% (96.2%-99.4%)
7.	Awareness about the Common Signs and Symptoms of Coronavirus infections are	Cough	99.6%
		Fever	99%
		Nose Congestion	80.3% (75.9%-84.6%)
		Skin Rash	8.7% (5.6%-11.8%)
		Shortness of breath	98.7% (97.5%-99.9%)
		Frequent Urination	7.1% (4.3%-10%)
		Constipation	13.4% (9.7%-17.1%)
		Tiredness	70.9% (65.9%-75.9%)
		Running Nose	75.3% (70.5%-80%)
		Sore Throat	91.5% (88.5%-94.6%)
		Diarrhoea	36.5% (31.2%-41.8%)

Table 2: (Continued)

Sl. no.	Parameters assessed	Response*	Results [#]
8.	Do you think the wearing a mask is a "highly effective" method in reducing the risk of being infected by the corona virus. Highly effective suggests reducing the risk by >95%	Yes	78.1%
9.	Do you think washing hands is a "highly effective" method in reducing the risk of being infected by the corona virus. Highly effective suggests reducing the risk by >95%	Yes	95.3%
10.	Do you think being in quarantine is a "highly effective" method in reducing the risk of getting infected by the corona virus. Highly effective suggests reducing the risk by >95%	Yes	99 %
11.	If you have been in contact with a patient of COVID-19 and start showing the signs of the disease, what will be your approach	Stay at home and call Toll free1075 immediately Stay at home, observe for a few days, see if you are developing the signs and symptoms and then call Toll free number or Visit a Physician visit physician	58.4% (53.0%-63.8%) 39.0% (33.7%-44.4%)
12.	Is there a Medicine or Vaccine to Cure COVID -19, Developed to date	No	85%

94.3% of the participants thought that the Indian government has taken effective steps at right time in preventing the Coronavirus pandemic. 73.7% (IQR: 68.9%-78.5%) consider that the public themselves have a major role in preventing the

spread of this pandemic. More than 95% of the participants were agreeing with the actions taken by the government as an effective one as described in table 3.

Table 3: Awareness about government initiatives

1.	Do you think the Indian Government has taken effective steps at right time in preventing the Coronavirus pandemic	Yes	94.3%
2.	Whom do you think to have a major role in preventing the spread of this pandemic	Public themself Doctor & Govt.	73.7% (68.9%-78.5%) 26.2% (21.4%-31.0%)
3.	Do you think the actions taken as described below by the government is effective	[Closure of all transport facilities] [Closure of schools and colleges] [Quarantining of all suspected cases] [Avoiding of mass gatherings like sports, markets, events, religious functions] [Lockdown for 21 days]	97.5 % (95.7%-99.2%) 98.4 % (97.0%-99.9%) 99% 95.6 (93.3%-97.8%) 96.8% (94.9%-98.7%)
4	What is the one thing you would suggest the government implement to further reduce the risk of coronavirus scare	Extending Lockdown Testing on a large scale & education	73.4% (68.5%-78.2%) 26.5%(21.7%-31.4%)

84.4% of participants consider that the Indian system of Medicines like Ayurveda, Yoga and Siddha can contribute to reducing the risk of reducing the Corona Pandemic. 79.3% of participants had recommended few immune-boosting measures to either of their family members or to their closed once (the participants have not prescribed any medication).

The recommendations were of commonly used home remedies or usage over the counter medications (OTC- Over the counter medicine). *Chyawanprash* was the most popular OTC medications advised by the participants.65% (IQR: 59.7%-70.2%) recommended other measures (drugs) for immune boosting as described in table 4.

Table 4: Awareness about Role of AYUSH System of Medicine in COVID pandemic

1.	Do you think the Indian system of Medicines like AYURVEDA, YOGA and Siddha can contribute in reducing the risk of reducing Corona Pandemic	Yes	84.4%
2.	Have you recommended any Ayurveda Medicine to your family members or others for Immune Boosting? If yes please specify anyone, you think is the most effective medicine	Yes	79.3%
		<i>Chyawanprash</i>	14.0%
		Other immune-boosting measures (drugs) like <i>Guduchi, Amalaki, Yashtimadhu, Amrita Arishta</i> , eating garlic, Milk with <i>Haldi, Triphala, Tulasi, Shadanga Paniya, Yoga</i>	65% (59.7%-70.2%)

DISCUSSION

In the present study, a total of 18 parameters were assessed under four broad heading. The study was completed in 3 days which included almost all parameters that needed to be assessed physically. Female participants dominated the survey, which is directly proportional to the higher number of females enrolled on the course. There was an almost equal distribution of participants representing both rural and urban communities. The maximum representation of the survey was by Final year BAMS scholars followed by Interns.

It is to be noted that the present model of an online survey may be time saving and safe method of accessing public awareness about the COVID and assuring their apprehension through proper education. This would help in controlling the anxiety among the general public, and would thereby save the lives of many. The same was also reiterated in the findings of the present study which focused on educating the public as the most important tool in controlling the spread of the disease.

It generally appeared that the level of knowledge and awareness among the study participants was high about the cause and course of the pandemic. An in-depth analysis of the responses from the survey brings out the fact that the participants were unsure about the future outcome of the disease. They had underestimated the population to be affected by COVID and overestimated the mortality rate. WHO estimates that an average of 1-2 % of mortality is seen in patients affected with COVID worldwide.³ The current mortality rate of India stands at around 2-3%.⁵ The relevant public health authorities can direct their campaign towards this misconception and educate the common public too about the morbid effects of the pandemic and also address some of the wrong information that has circulated on social media to apprehend their anxieties.⁶⁻⁸

The participants appreciated the efforts taken by the government and recommended continuing with similar measures till a vaccine or medicine is developed. They were well oriented with the policies of the government and the role of the AYUSH system of medicine in the Pandemic situation.⁹⁻¹⁵

More than 79% of the population had already started using AYUSH medicine along with Yoga for improving their immunity and prevent themselves from being infected with COVID.

The present study had certain limitations. Firstly, it was conducted only on medical undergraduate students, hence the level of knowledge and awareness about the course of the disease might be higher. Secondly, the sample size was small and the demographic area selected was only one region. Hence, a larger study incorporating a general population with different geographical and educational background may bring about an exact level of knowledge and awareness regarding the present context and would be able to give a clearer insight to the public health campaigning agencies.

CONCLUSION

The present study is a small effort to understand the knowledge and perception of the COVID 19 pandemic among the undergraduate medical students of Ayurveda using an online survey tool. A similar tool can be utilized to assess the general public awareness and target their specific apprehensions about the currently prevailing condition of the COVID pandemic.

ACKNOWLEDGEMENT

The authors would like to acknowledge all the volunteers who have taken their valuable time and participated in the survey. The authors would also like to 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.

Conflict of Interest: None

Source of Support: Datta Meghe Institute of Medical Sciences (DU), Wardha

REFERENCES

1. WHO. Naming the coronavirus disease (COVID-19) and the virus that causes it. [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it). [Accessed 30/6/2020].
2. WHO. Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19). [https://www.who.int/publications/i/item/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-\(covid-19\)](https://www.who.int/publications/i/item/report-of-the-who-china-joint-mission-on-coronavirus-disease-2019-(covid-19)). [Accessed 30/06/2020].
3. WHO. Director-General's opening remarks at the media briefing on COVID-19. <https://www.who.int/dg/speeches/detail/whodirector-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>. [Accessed 30/06/2020].
4. Wilson EB. Probable Inference, the Law of Succession, and Statistical Inference. *J Am Stat Assoc* 1927;22(158):209-12.
5. Covid-19 India. Ministry of Health and Family Welfare. <https://www.mohfw.gov.in/index1.php> [Accessed 30/06/2020].
6. Pinky R, Abilasha R, Preetha S. Awareness About COVID-19 Precautions and Case Management Among Paramedics - A Questionnaire Based Survey. *Int J Curr Res Rev* 2020;11:20-26.
7. Swetha R, Preetha S, Dinesh P, Lavanya P, A, Social m, C, M, P, Fake n. Awareness on Spread of Misinformation and its Effect on Public with Regard to COVID-19. *Int J Curr Res Rev* 2020;12:66-73.
8. Trisha S, Gayathri R, Ganesh L, Vishnupriya V. Awareness and Initiatives Taken by the Residents of Condominium in a Metro City to Prevent Infection (COVID-19) Spread - A Survey. *Int J Curr Res Rev* 2020;12:116-121.
9. Meshram A, Sheshagiri S. Possible effects of Ayurvedic herbs on the management of Covid-19. *Int J Res Pharm Sci* 2020;11(SPL(1):1219-1221.
10. DeulkarN, Jyothy KB, Morey P. Concept of airborne infectious diseases in Ayurveda. *Int J Res Pharm Sci* 2020;11(SPL(1):1292-1297.
11. Sathya KR, Sabu I, Bhuyan G, Ratha KK, Meda MR. AYUSH-Ayurveda guidelines: A conceptual review of the rationale in prophylaxis during COVID -19 pandemic. *J Res Tradit Med* 2020;6(2):74-84.
12. Ramalingam, Venkataramani G. Unlocking the Potential of Traditional Native Medicines - A Perspective to Manage the COVID-19 Pandemic. *J Res Tradit Med* 2020;6(1):21-28.
13. Prajapati RKP, Kalariya MV, Solanki N, Sanghani G, Jain V. Prophylaxis and treatment aspect of COVID-19 with the use of Indian traditional plant-based medicine: A hypothetical review. *J Indian Sys Med* 2020;8:71-83.
14. Kumar S. Ayurveda interpretation, diagnostic, and probable management of COVID-19 pandemic. *J Indian Sys Med* 2020;8:91-101.
15. Manisha P, Kshirabdh T, Ranjan SD. Knowledge and Attitude Towards Covid 19 Among Indian Residents: A Cross-Sectional Study. *Int J Curr Res Rev* 2020;12(24):211-216.