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A transverse study to observe the health status of individuals working in frontline of COVID-19 Management, Immunomodulator & Preventive Effect of certain Ayurvedic Formulations

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ABSTRACT

This study is aimed to observe the health status of the individuals working in the front line of the COVID-19 management in the Udaipur city along with immunomodulator and preventive effect of certain ayurvedic formulations. This study had become essential to be conducted by viewing in the surge of the COVID-19 (first wave) cases in the Udaipur city and by the urge of the local administration to the Principal of MMM Government Ayurveda College, Udaipur. For this study three (3) Ayurvedic formulations i.e., *Navrasayan Yoga* (powder), *Mukhshodhak Yoga* (Mouth wash) and *Nasya Bindu Taila* (Nasal drop) were prepared in the pharmacy of the MMM GAC, Udaipur, under the guidance of the expert panel of the college. These formulations were to be distributed among the people, who were working in the front line of the COVID-19 management in the city. A questionnaire (Performa) was also prepared for the evaluation of the immunity status of the individuals (participants). In this sequence, these Ayurvedic formulations were given to the registered individuals, and the immunity status of the participants were recorded before and after the trial of the medicine with the help of the questionnaire.

Key words: COVID-19, *Navrasayan Yoga*, *Mukhshodhak Yoga*, *Nasya Bindu Taila*, Questionnaire.

INTRODUCTION

After declaration of the COVID-19 a pandemic by WHO on 11th of march 2020, the disease spread worldwide with its hazardous effects on the population.

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In India the first case of the COVID-19 was reported in Kerala state. In the initial stage of the disease in India, most of the corona positive cases had a clear travel history of the abroad. In Rajasthan state, an Italian tourist who visited India with the group of 23 tourists from Italy, detected positive for the COVID-19 on 2nd of March 2020.

In the Udaipur city (the lake city) of Rajasthan, the first case of COVID-19 detected on 3rd of the April 2020, was a 15-year-old boy in the Raza colony of the Mallatalai area of the city, only a day after the occurrence of the first case, another three close relatives of the patient were also tested positive for the COVID-19. By viewing in emerging of the cases, the district collector had to impose curfew for 14 days in the periphery of the whole affected area. By now

the administration of the city had come on an alert mode.

By this time all the government authorities, especially concerned to the health system, including AYUSH Department of India Government, issued the advisories to the public, containing the preventive measures to combat & to control the spread of the disease, in the consequence a complete lockdown was imposed across the country by the Government of India.

Meanwhile the medical experts & the scientists assumed that an individual's good immune system of the body could be able to prevent & combat the disease. In this context, the ministry of AYUSH, Government of India issued an advisory along with the advice of the use of some certain Ayurvedic medicines to enhance and modulate the immune system of the people, hence these medicines were included in a formulation (Navrasayan Yoga) of this study with few other immune modulator Ayurvedic medicines. Through which the immunity could be maintained at a maximum level.^{[10],[11]}

On May 9, 2020 the tally of the COVID-19 patients of the Udaipur city went past the 100 mark, hence the administration had to declare the city as a containment zone as soon as the number of the COVID-19 cases jumped to 103 mark on the same day.

By viewing in the surge of the COVID-19 cases in the city, and by the urge of the local administration, the administration of MMM Government Ayurved College, Udaipur had come to a conclusion that some Ayurvedic formulations should be prepared & distributed among the people, who were working in the frontline of the COVID-19 management of the city. In this regard a proposal was sent to the local administration by the College & after approval of the same, three formulations of the Ayurvedic medicines, in accordance with the advisory of AYUSH Ministry, Government of India & the Ayurveda Department of Rajasthan, were prepared in the pharmacy of the college under the guidance of the expert panel of the college, by adopting all the precautionary measurement in the process.

Along with this, an advisory in the format of a poster were also prepared by the college in the guidance of the expert panel which was to be disseminated & displayed on various important public places of the city for the awareness of the disease.

To embark the programme, the Principal of the College visited to the district collector's & IG'S Police office with his team on 28th of the May 2020. The programme was inaugurated by unveiling of the poster by the District Collector & the IG Police respectively on the same day.

For this study three (3) Ayurvedic formulations i.e., *Navrasayan Yoga* (powder),^{[1-7],[10],[11]} *Mukhshodhak Yoga* (Mouth wash)^{[4],[6],[7]} and *Nasya Bindu Taila* (Nasal drop)^{[7],[8]} were prepared in the pharmacy of the MMM GAC, Udaipur, under the guidance of the expert panel of the college. These formulations were to be distributed among the people, who were working in the front line of the COVID-19 management in the city.

A questionnaire (Performa)^[9] was also prepared for the evaluation of the immunity status of the individuals (participants).

AIMS AND OBJECTIVES

1. To observe the health status of the individuals working in the frontline of the covid-19 management in the Udaipur city.
2. To observe the immunomodulator & preventive effects of the Ayurvedic formulations.

MATERIALS AND METHODS

This transverse study was carried out in the professionals, as the employees of the Police Department, staff of the medical and paramedical department, security staff, staff of the municipal corporation of the city, and in those who were working daily in the exposure with the public. i.e., worker of the general store, medical store, vegetable vendors, milkman and who were working in the frontline of the COVID-19 management.

The consent of each individual was taken prior to the trial of the study. The kits of the medicines were

provided to them, along with the advisory. An observation was performed according to the predesigned format on day 1st, and after completion of the trial on the 10th day.

Assessment Criteria

All the individuals registered for the study were assessed on the specific features & followed up according to the questionnaire on day 1st, and on the completion of the trial i.e., on day 10.

Following features were recorded and assessed.

1. Fever
2. Common cold
3. Cough
4. Sore throat
5. Difficulty in breathing
6. Skin problem
7. Psychological factors (stress/anxiety/depression)
8. Sleeping disorders
9. Fatigue
10. Low appetite
11. Diarrhoea

These features had been assessed for the measurement of the immunity status of the individuals. In this study, these parameters were assessed as by present (yes), and by absent (no) measurements.

Drug details

For this study three Ayurvedic formulations of the medicines were prepared i.e.

1. **Navrasayan yoga**, is a powder of nine herbal drugs containing:
 - a) *Ashwagandha* (*Withania somnifera*, root used in 21 parts)^[1,2,7]
 - b) *Guduchi* (*Tinospora cordifolia*, stem used in 21 parts)^[3,7]
 - c) *Madhuyashti* (*Glycyrrhiza glabra*, stem used in 14 parts)^[6,7]

- d) *Tulsi* (*Ocimum sanctum*, whole plant used in 14 parts)^[5,7]
- e) *Nisha* (*Curcuma longa*, root used in 7 parts)^[4,7]
- f) *Twak* (*Cinamomum vera* bark used in 7 parts)^[10,11]
- g) *Pippali* (*Piper longum* fruit used in 7 parts)^[10,11]
- h) *Sunthi* (*Zingiber officinale*, root (rizome) used in 7 parts)^[10,11]
- i) *Marich* (*Piper nigrum*, fruit used in 2 parts),^[10,11]

This powder was given to the participants in the dose of 5 gram each time, twice daily with the lukewarm water.

2. **Mukhshodhak Yoga** (mouth wash) is a coarse powder of the four drugs i.e.,

- a) *Bibhitak* (*Terminalia bellirica*, fruit rind used in 33.33%)^[7]
- b) *Madhuyashti* (*Glycyrrhiza glabra* stem used in 33.33%)^[6,7]
- c) *Nisha* (*Curcuma longa* root used in 22.22%)^[4,7] and
- d) *Saindhav Lavan* (rock salt used in 11.11%)

All the participants were explained about the use of the mouthwash, that they would take 5 grams of *Mukhshodhak* powder and after boiling it in a glass of water for 5 minutes on low flame, filter it, and when it became lukewarm let their mouth full with it with little mobility in the mouth, retaining it for one to two minute in the mouth let it poured out, this process would be done for two to three times a day.

3. **Nasya Bindu Taila** (nasal drop) it is processed (in various Ayurvedic drugs) *Tila Taila* (sesame oil), two drops of this oil to be instilled in both the nostrils twice daily as *Nasya* process.^[8]

Sample Size

This study had been done on 1500 individuals who were working in the Frontline of the covid-19 management in the Udaipur city, for which 15 teams of self-motivated faculty members of the college along with the PG scholars were deployed.

These teams registered the individuals & distributed the medicine kits along with the advisory to them personally, by adopting all the protocols for the COVID-19. And after the completion of 10 days, all the registered participants were interviewed as a follow-up of this study by their mobile number as well as by personal contact to measure the impact of the medication.

Inclusion Criteria

1. Age – Between 12 years to 80 years of Age
2. Sex – Both male and female
3. Persons who working in the frontline duty of the COVID-19 management
4. Family members of health care workers
5. Persons like shopkeepers, vendors, milkman etc.
6. Participants having mild symptoms.

Exclusion Criteria

1. Pregnant woman
2. Persons of deteriorating condition of illness.
3. Participants having HIV, Cancer, Asthma, COPD or other serious ailments
4. Hospitalized patients
5. Participants having moderate to severe symptoms.

OBSERVATION AND RESULTS

In this study, there 48.40% participants were found of below the age of 40 years, 25% participants were in the age group of 41 to 50 years of age. 17.26% were in the age group of 51 to 60 years of age and only 9.33% were above the age of 60 years, so according to the findings of the data of the study about the age it appears that the occurrence of the percentage of the younger age i.e., below the 40 years of the age in this study may have been due to that mostly the study had been done on the front-line workers of the covid-19 management.

In this study the male participants were 78.20% & the female participants were 21.80%.

9.20% participants had the travel history, most of them were travelled from Mumbai.

The symptoms which were found in the participants as they complained for in this trial, at the first day were as follows: among the total participants 7.6 % were affecting from the symptom of common cold, 5.6% were from cough, 9.4 % were from sore throat, 2.2% were from skin problems, 2.8% were from psychological disorders like anxiety and depression, 4.6 % were from sleeping disorders, 13.4% were from fatigue, 9.6% were from low appetite and only 1.2% were from mild diarrhoea and none of them complained of the shortness of the breathing problem.

After the trial of the medicines, all the participants were interviewed as in their follow up, the recovery rate in the various symptoms were found as follows 66.66% participants felt relief in the symptom of common cold. Those who were suffering from cough 61.90% among them felt relief in the symptom, 46.80% relieved in the symptom of sore throat, 15.15% in the skin problem, 11.90% in psychological disorders, 18.84% in the sleeping disorders, 67.66% in fatigue, 38.19% in the low appetite and 55.55% in the mild diarrhoea.

DISCUSSION

As the study was conducted on the frontline workers deployed in the COVID-19 management in the Udaipur city, approximately half of the volunteers were found below the age of 40 years, i.e., 48.40%. It would have been possible because the government have prohibited the deployment of the elderly people above the age of 50 years in the field of COVID-19 management or it may have been due to the fear among the elders that they hadn't attached themselves in the COVID-19 management as the 1st wave of the COVID-19 mostly affected the elderly population of the country.

Findings of the large number of the male participants i.e., 78.20% in this study, suggests that it could have been possible because either there, in the particular fields like police department, medical department and municipal department as well as in the small

businesses like medical stores, general stores and street vendors the female staff would have been less employed in the quantity in comparison with the male staff, Because most of the volunteers were been registered from these particular fields in the study.

The status of the immunity level of the participants in the study were recorded as before & after the trial of the medicine which was based according to the Questionnaire, the examination & measurement of the immunity level of an individual was based on the Questions like, fever, running nose, cough etc., that how much individuals were affecting from these symptoms.

In this study it is observed that the volunteers, who were affecting with the symptom of fatigue were found in the majority and the percentage of the most relieved symptom were also the fatigue.

Finding the symptom of fatigue most common in the volunteers may have been due to their possible exertion from the duty as they were doing in the lockdown period.

The symptom of shortness in the breathing were not found in any volunteer, it may have been possible because asthmatic, COPD patients as well as moderate of any disease patients were excluded from the study.

The volunteers with the complaint of diarrhoea were only 1.2%. They were only having mild diarrhoeal symptoms.

It was also felt little difficult in this study that to reach on an exact conclusion on how much volunteers were benefited in their immunity level by the end of the trial of the medicine. But it can be definitely said that the reviews received after the completion of the drug trial, reveals that most of the participants felt overall better than before without any side effects.

No hazardous effects of the medicine were reported by anyone.

The data of the study were recorded according to the Questionnaire and the personal reviews were

recorded in the form of videos, audios and in the written format also.

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