



# **Study on Knowledge and Practices of Ayurvedic Preventive Measures for Respiratory Tract Infections**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

Respiratory diseases have become world health burden. It has been estimated that 65 million people have moderate severe chronic obstructive pulmonary diseases from which about 3 million die each year. Objective of this survey study was to assess knowledge and practice of Intern medical officers on Ayurvedic preventive measures for managing respiratory tract infectious diseases. A cross sectional descriptive study was carried out among the Intern Medical Officers during their training program. 85 respondents out of 150 were assessed for their knowledge and practices on Ayurvedic preventive measures for Respiratory tract infections by using pre-structured questionnaire. Among the sampled students, most of them were female 92.9% (79) and unmarried 51.8% (44). The mean age and the standard deviation of the respondents were  $28.25 \pm 0.815$  years. There were 41(48.2%) Intern medical students with good knowledge, 42(49.4%) were with satisfactory knowledge and 2.4% of the study group was having the little knowledge. Most of the respondents 56(65.9%) were doing good practice on preventing RTI and 29 (34.1%) respondents were doing bad practice. Overall the respondents have good practice on prevention of RTI with the mean score of  $19.9 \pm 2.589$ .

**Keywords:** Respiratory tract infections; intern medical officers; Ayurveda; preventive measures.

## 1. INTRODUCTION

Respiratory tract infection (RTI) is defined as any infectious disease of the upper or lower respiratory tract. Depending on their location, these diseases can be divided into upper and lower respiratory tract infections (Khan S, Priti et al, 2015). Upper respiratory tract infections include common colds, laryngitis, pharyngitis and acute rhinitis. Lower respiratory tract infections include acute bronchitis, bronchitis, pneumonia and tracheitis. A respiratory disease has become world health burden [1]. It has estimated that 65 million people have moderate severe chronic obstructive pulmonary diseases from which about 3 million die each year [2]. Researchers found out that about 334 million, people suffer from asthma, which is the most common chronic diseases of childhood [3]. It has identified that the 4 million people were died prematurely from chronic respiratory disease [4]. A total of 9 million children less than 5 years old die annually, and pneumonia is the world's leading killing of these children. Viruses are the causal pathogen in most upper respiratory tract infection causes, with fewer than 10% of cases caused by bacteria. Influenza, a potentially more serious illness that usually occurs during the winter accounts 9% total upper respiratory tract illnesses [5]. Some researchers have showed that, among all illness of childhood, acute respiratory tract infection, malnutrition and diarrheal diseases are the principal causes of morbidity and mortality in the developing countries [6]. And also acute respiratory diseases are reported as the 3<sup>rd</sup> leading cause of child morbidity and mortality [7]. A significant determinant of human health is the knowledge and practice of the primary health care provider's toward these diseases.

Intern medical officers are also health care givers to the society in the prevention and cure of the respiratory tract infections diseases. Hence, their knowledge and practices on health directly impacts the health status and survival of the society. Nowadays with the pandemic situation of the corona virus it has become a need to follow preventive measure of the respiratory tract infections diseases. WHO has declared that the corona virus infection has pandemic with more than 9 million confirmed cases and 469, 239 deaths due to covid-19 from 188 countries across the world [8]. Day by day, the numbers of the infections and the mortality rate have

increased. In Ayurvedic authentic books have mentioned there are so many preventive measures to prevent RTI diseases such as Dinacharya, healthy diet and immunity enhancement drugs [9].

In the promotion these health messages health care providers should have keen knowledge and experiences of these health tips. And also they should strong enough to enhance the confidence of the society to follow the preventive measures in RTI. Though there are many Ayurvedic preventive measures on RTI prevention and to enhance the immunity of the people. Especially Ayurvedic health care providers should have good knowledge in to follow the Ayurvedic preventive measures in according Ayurveda to reduce the prevalence rate of RTI and to numbers of the victims of corona virus [10,11,12].

## 2. OBJECTIVES

To assess knowledge and practice of Intern medical officers' on Ayurvedic preventive measures for respiratory tract infectious diseases.

### 2.1 Specific Objectives

- To evaluate the knowledge of Internal Medical Officers' on the Ayurvedic preventive measures of respiratory tract infections.
- To evaluate the practice of Internal Medical Officers' on the Ayurvedic preventive measures of respiratory tract infections.
- To update the knowledge and practical skills of Ayurvedic preventive measures on RTI
- To enhance the health of the society in the prevention of respiratory tract infections.

## 3. METHODOLOGY

### 3.1 Sample and Measures

A descriptive study was conducted among intern Medical Officers at their training program. A total of the 150 were assessed about their knowledge and practices on Ayurvedic preventive measures for RTI by using a pre-structured questionnaire. First part of the questionnaire included the demographic characteristics of the study population. Second part of it has included the 30 questions to assess the knowledge and practice on preventive measures of RTI of which 15 for knowledge and 15 for practice for themselves.

Most of the information was described using distributions. The consents of the participants were also obtained through the questionnaire. Data collection was carried out by the principal investigator during the period of their training conducted at the IIM. The questionnaires were collected after ensuring their completeness. Data were entered directly from the pre-coded questionnaire. The statistical analysis was performed using SPSS for Windows 16.0. Descriptive statistics such as frequencies, means, ratios, standard deviations and percentages were used to describe the variables. Scoring system was developed to assess the KP. Correct answer was given score 1 and incorrect answer, uncertain answer 0. The grading of KP was done.

### 3.2 Inclusion Criteria

- Ayurvedic Intern Medical Officers
- Age limit: 25- 30 years

### 3.3 Exclusion Criteria

- Not qualified to get the appointment.
- Absentees of the program due to various situations

### 3.4 Statistical Analysis

Answers were marked as correct or incorrect. Each correctly followed item was given one mark. The total score was turned in to percentage and was categorized as in Table 1. The total score was turned into a percentage.

**Chart 1. Categorical score**

Score (%)	Category
0-40	Poor
41-60	Satisfactory
61-100	Good

### 3.5 Knowledge Score

Each question on knowledge was given score mark as following,

Correct answer = 01  
 Incorrect answer = 0

The total score was calculated by adding all individual scores. The mean and standard deviation was calculated and the knowledge score.

### 3.6 Practical Score

Answers were marked as Good practice or Bad practice. Each good practice marked as 01 & the bad practice marked as 0. The total score was turned into percentage and was categorized as given below.

**Chart 2. Practical score**

Score (%)	Category
0 - 50	Bad practice
50 - 100	Good practice

## 4. RESULTS

This study was done among Intern Medical Officers, who are the health care providers to the community. A cross sectional study carried out in order to describe Knowledge and practice on Ayurvedic preventive measures of Respiratory tract diseases. Total number of the medical officers was 150 and the response rate was 57% (85).

### 3.1 Socio-Demographic Characteristics of the Intern Medical Officers Table. 1 Shows Distribution on Selected Socio- Demographic Characteristics among Respondents

According to the table .1, Among the 85 Intern Medical Officers mostly is female 92.9% (79), unmarried 51.8% (44). The mean age and the standard deviation of the respondents were  $28.25 \pm 0.815$ .

### 3.2 Knowledge of the Intern Medical Officers' on the Ayurvedic Preventive Measures of the Respiratory Tract Infections

Knowledge assessed through a self-administered questionnaire. Table 2 shows the correct responses given to each question.

Table 2 summarizers scoring of marks allotted to answers given by the Intern medical officers. The knowledge scoring range of the questionnaire was 15 (maximum) to 0 (minimum). The maximum possible score for nutrition was 15. The Intern doctors "knowledge ranged from 5-15. The total score was turned in to percentage and was categorized as given follow. Considering knowledge regarding questions except the knowledge on symptoms of respiratory tract infection, other questions likewise causes for flu

like illnesses, way it's spreading, complication of flue and way of protection of flu shows that most of the respondents having good knowledge representing the percentage on correct answers more than the 70%. Most of the respondents' knowledge on Dinacharya is good presenting the correct answers percentage more than 60%. But their knowledge on, whether the steps in Dinacharya as preventive measures to prevent RTI is very poor presenting incorrect answers as 95.3%.

There were 41(48.2%) Intern medical students with good knowledge, 42(49.4%) were with satisfactory knowledge and 2.4% of the study group was having the poor knowledge.

### 3.3 Practice of the Intern Medical Officers' on the Ayurvedic Preventive Measures of the Respiratory Tract Infections

Practice of the preventive measures has assessed through a self-administered questionnaire. Table 3 shows the correct responses given to each question. Practices towards RTI prevention were assessed by asking 15 questions were labeled with good or bad practice. A score 1 was given to good while 0 was given to bad practice with score range of maximum of 10 to a minimum of 0. The total score was turned into percentage and was categorized as mentioned in Table 4.

**Table 1. Socio-demographic characteristics of the intern medical officers**

	Frequency	Percentage (%)
<b>Sex</b>		
Male	6	7.1
Female	79	92.9
<b>Marital status</b>		
Married	37	43.5
Unmarried	44	51.8
Widower	4	4.7
<b>Residence</b>		
Urban	31	36.5
Semi urban	38	44.7
Rural	16	18.8
<b>Religion</b>		
Buddhist	73	85.9
Hindu	7	8.2
Christian	5	5.9

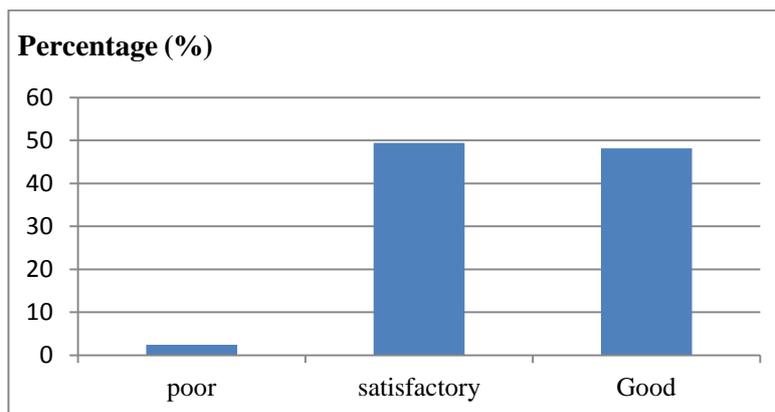
**Table 2. Responses given to each question on knowledge**

Knowledge area	Responses	
	Frequency	Percentage (%)
<b>Knowledge 1- What Symptoms of Respiratory Tract infections</b>		
Incorrect answer	60	70.6
Correct answer	25	29.4
<b>Knowledge 2- Flu like illness are caused by</b>		
Incorrect answer	12	14.1
Correct answer	73	85.9
<b>Knowledge 3- Flu like illness are spread by</b>		
Incorrect answer	24	28.2
Correct answer	61	71.8
<b>Knowledge 4 - Complications of flu</b>		
Incorrect answer	25	29.4
Correct answer	60	70.6
<b>Knowledge 5 - Protect from flu illness</b>		
Incorrect answer	25	29.4
Correct answer	60	70.6

Knowledge area	Responses	
	Frequency	Percentage (%)
<b>Knowledge 6 -RTI can Prevent by practicing daily routine</b>		
Incorrect answer	81	95.3
Correct answer	4	4.7
<b>Knowledge 7 -Ayurvedic preventive measures of RTI mention in daily routine</b>		
Incorrect answer	8	9.4
Correct answer	77	90.6
<b>Knowledge 8-What is Ushapana</b>		
Incorrect answer	24	28.2
Correct answer	61	71.8
<b>Knowledge 9- Quantity of Ushapana</b>		
Incorrect answer	31	36.5
Correct answer	54	63.5
<b>Knowledge 10- Home remedy Sanitizers</b>		
Incorrect answer	13	15.3
Correct answer	72	84.7
<b>Knowledge 11- Herbal Steaming</b>		
Incorrect answer	14	16.5
Correct answer	71	83.5
<b>Knowledge 12- Herbal Leha Karma</b>		
Incorrect answer	22	25.9
Correct answer	63	74.1
<b>Knowledge 13- Spices for RTI</b>		
Incorrect answer	7	8.2
Correct answer	78	91.8
<b>Knowledge 14- Herbal drinks for RTI</b>		
Incorrect answer	4	4.7
Correct answer	81	95.3
<b>Knowledge 15- What is Balance diet in Ayurveda</b>		
Incorrect answer	21	24.7
Correct answer	64	75.3

**Table 3. Categorization of Knowledge on prevention of RTI**

	Frequency	Percentage (%)	Mean	Standard deviation
Poor knowledge	2	2.4		
Satisfactory knowledge	42	49.4	12.09	2.689
Good knowledge	41	48.2		
Total	85	100.0		



**Fig. 1. Distribution if the knowledge scores**

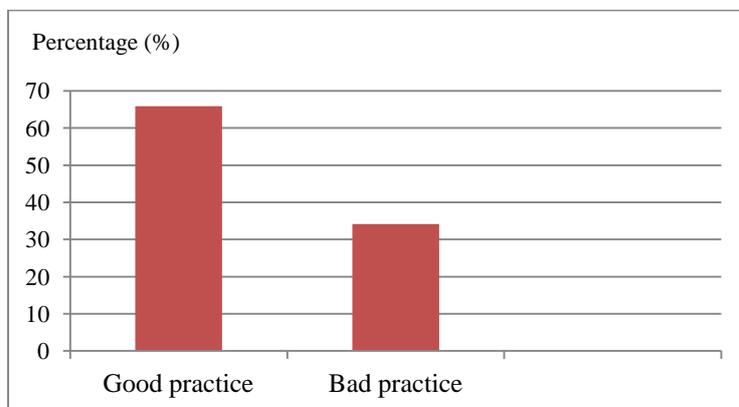
Table 4. Responses given to each question on practice of RTI prevention

Practical area	Responses	
	Frequency	Percentage (%)
<b>Practical 1- Washing hands with soap</b>		
Always	61	71.8
Occasionally	23	27.1
Never	0	0
<b>Practical 2- Sanitizer with outdoor duties</b>		
Always	71	83.5
Occasionally	14	16.5
Never	0	0
<b>Practical 3- Wearing a mask properly</b>		
Always	71	83.5
Occasionally	14	16.5
Never	0	0
<b>Practical 4 - Going out when return I do herbal steaming</b>		
Always	9	10.6
Occasionally	65	76.5
Never	11	12.9
<b>Practical 5 - Gargle with warm salt water</b>		
Always	5	5.9
Occasionally	71	83.5
Never	9	10.6
<b>Practical 6 - Use herbal drinks</b>		
Always	22	25.9
Occasionally	61	71.8
Never	2	2.4
<b>Practical 7 - Using herbal porridge</b>		
Always	7	8.2
Occasionally	67	78.8
Never	11	12.9
<b>Practical 8- Wash my hands after touching the personal items</b>		
Always	49	57.6
Occasionally	31	36.5
Never	5	5.9
<b>Practical 9- Practicing Yoga exercises</b>		
Always	8	9.4
Occasionally	38	44.7
Never	37	43.5
<b>Practical 10- Type of Yoga karma for RTI</b>		
Incorrect answer	22	25.9
Correct answer	61	71.8
<b>Practical 11- Eating fresh fruits</b>		
Always	31	36.5
Occasionally	49	57.6
Never	5	5.9
<b>Practical 12- Oil use for Nasya Karma</b>		

Practical area	Responses	
	Frequency	Percentage (%)
Incorrect answer	37	43.5
Correct answer	48	56.5
<b>Practical 13 - Herbal porridge for RTI</b>		
Incorrect answer	40	45.9
Correct answer	45	52.9
<b>Practical 14 - Ayurvedic medicine use to prevent from RTI</b>		
Incorrect answer	16	18.8
Correct answer	69	81.2
<b>Practical 15 - Spices use in cooking</b>		
Incorrect answer	71	83.5
Correct answer	14	16.5

**Table 5. Categorization of Practice on prevention of RTI**

	Frequency	Percentage (%)	Mean	Standard deviation
Good practice	56	65.9		
Bad practice	29	34.1	19.9	2.589
Total	85	100.0		



**Fig. 2. Distribution of the practical scores**

Considering the practice on basic preventive measures on RTI more than 70% of the respondents were following basic preventive measures on RTI especially in this CORONA pandemic situation. But considering the practice on Ayurveda preventive measures, these respondents were having bad practice representing the answer in never as a percentage in 11%.

### 3.4 Categorization of Practice on Prevention of Respiratory Tract Infections among Intern Medical Officers

Each response was scored as described in the 3. The practice scoring range of the questionnaire

was 10 (maximum to 0 (minimum). The total score was turned in to percentage and was categorized as given follow.

As shown in the table 5, there were 56(65.9%) respondents were doing good practice on Preventing RTI. And 29 (34.1%) respondents were doing bad practice. Overall the respondents have good practice on prevention of RTI with the mean score of 19.9±2.589.

### 4. DISCUSSION

In general doctors are health care takers to prevent the community from infectious diseases. With the pandemic situation of the covid 19 which is respiratory tract infection it has become a need to follow Ayurvedic preventive measures

to prevent from respiratory tract infections. In this study majority of them were female doctors. In this study 48.2% respondents were having good knowledge. This is not satisfied stage due being the Medical Officers'. This was proved by the study of Pulle et al, by saying that doctors do not provide adequately for their own medical care. And also Allibone et al. [13] found out that health care takers look after their health in haphazard manner. Similar study done by the Anirudha Vijay et al. [14] found out that knowledge on RTI of parents of school going children were poor in 51.4%. In this study there were only 83.5% respondents were wear the mask properly and 83.5% washing hands with sanitizers. Similar findings were observed Gautret P.S et al study. Preventive practices did not reflect the adequate knowledge reported in this study may be due small sample size. In generally only 65.9% having practice Ayurvedic preventive measures regarding to RTI. But being health care providers this score is not in satisfactory stage.

## 5. CONCLUSIONS

Intern Medical Officers' knowledge on Ayurvedic preventive measures regarding Respiratory tract infections were not in a satisfactory stage. Even though one third of the respondents haven't clear knowledge Ushapana and the quantity of it. And also they have no satisfactory knowledge on Ayurvedic balance diet. Practice of Ayurvedic preventive measures regarding respiratory tract infections were followed by 65.9% of the Intern Medical Officers. Very less amount were followed the herbal steaming, warm salt water gargling using herbal porridge and practicing yoga asana presenting representing 10.6%, 5.9%, 8.2% and 9.4% respectively. Though they have keen knowledge on RTI, they didn't practice it in day today life especially in a covid pandemic period. Therefore it is a need to encourage them to practice on preventive measures regarding RTI especially in this pandemic situation. During their training period it is need to update their knowledge and practice on Ayurvedic concepts which will use in day today life.

## CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

## ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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