

## ASSESSMENT OF KNOWLEDGE, ATTITUDES AND PRACTICES OF GENERAL POPULATION ON RESPIRATORY HYGIENE ATTENDING IN CATCHMENT AREA OF RURAL HEALTH TRAINING CENTRE OF A MEDICAL COLLEGE IN HARYANA.

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### Abstract

**Background:** According to WHO, Acute respiratory infections (ARI) are infections of viral or bacterial origin. Respiratory hygiene is one of the many ways for prevention of spread of acute respiratory tract infections in the community. **Materials & Methods:** This field based cross sectional study was conducted in the rural field practice areas of Community Medicine Department, NCMCH, Panipat during February-March 2023. A sample size of 371 was taken out with help of Epi Info software. A semi-structured pro-forma was used to record information regarding sociodemographic indicators, knowledge attitude and practices of respiratory hygiene. **Results:** Among the gender, the majority of the males were found to have poor knowledge (83.20%) and negative attitude (74.80%). Majority of the males were found to have good practices of following respiratory hygiene (66.03%). In the females, the majority had good knowledge (59.63%) and positive attitude (79.81%) but had poor practices of respiratory hygiene (78.89%). The data received was also found to be statistically significant for all knowledge, attitude and practices of the respondents (p value=<0.00001). **Conclusion:** The current study finds out that many individuals of rural areas of Haryana have a poor knowledge, attitude as well as practices of respiratory hygiene despite of the efforts of local government to spread knowledge. To improve the current condition, more focus must be made by government towards respiratory hygiene.

## INTRODUCTION

According to WHO, Acute respiratory infections (ARI) are infections of viral or bacterial origin, such as the common cold, pharyngitis, laryngitis, tracheitis, bronchitis, bronchiolitis, pneumonia, and bronchopneumonia, which pose serious problems owing to their great prevalence with associated high mortality rates and economic costs.<sup>[1]</sup> ARI is one of the major causes of morbidity and mortality in under 5 children in India as well as in the world.

The National Family Health Survey 5, conducted in 2019–2020, reported a 2.4% prevalence of ARI in the preceding 2 weeks in the urban areas and a 3.8% in the rural areas in India.<sup>[2]</sup> In the Indian slum areas, ARI constitutes more than two-thirds of all childhood illnesses. In Haryana, according to NFHS 5 2019-2020, prevalence of ARI in urban setting is 1.8% and in rural setting is 2.4% with total prevalence of 2.4%

among under 5 children.<sup>[2]</sup> Globally, in 2010, nearly 265,000 in-hospital deaths of young children were attributed to ARI, 99% of which were reported in developing countries.<sup>[3]</sup> In India, 14.3% of the deaths among infants and 15.9% of the deaths among children between 1 and 5 years of age are due to ARIs and most of these deaths are preventable.<sup>[4]</sup> This is why it becomes very much important to control such infections and their spread. The Global Burden of Disease (2019) study reports that lower respiratory tract infections are the second highest cause of burden in children.<sup>[5]</sup>

Major factors causing ARI include poverty, Malnutrition, poor housing conditions; indoor air pollution (including parental smoking), poor ventilation, overcrowding, rapid urbanization industrialization, sociocultural values, overuse and misuse of antibiotics, lack of basic health services, lack of awareness and poor socioeconomic Strata of individual. Lack of awareness about respiratory

hygiene is also one of the major factors resulting in the spread of ARI.

Major way through which an ARI spreads is by spread from droplet infection generated by the infected person via coughing, sneezing or spitting which comes in contact with a healthy individual via touching, direct exposure or some other means.<sup>[6]</sup> Therefore, it becomes necessary to prevent such infection right from where they started, that is an infected person.

Respiratory hygiene is one of the many ways for prevention of spread of acute respiratory tract infections in the community. It includes following methods:

Cover mouth and nose with a tissue when coughing or sneezing.

Use the nearest waste receptacle to dispose of tissues after use.

Perform hand hygiene (like washing hands or using hand sanitizer) after having contact with respiratory secretions and contaminated objects or materials.

Offer masks to coughing patients and other symptomatic people when they enter any public or health care setting.

Encourage people with symptoms to sit as far away from others as possible.

Maintain distance from those who are exposed to ARI or have preventive steps for prevention.

Isolation of infected and quarantine of exposed is also one of the important steps in prevention of spread of any ARI.

With this along with specific measures like vaccination and immunization, nutrition and environmental hygiene is also very important for prevention and control of any ARI.

In India, the major ARI infections are measles, rubella, H. influenza, Tuberculosis, Diphtheria, Pertussis, SARS COVI 2, Influenza virus and many more. Complications of these ARI's include, pneumonia, Pleuritis, Sepsis, Otitis media in children, subacute sclerosing panencephalitis, Acute encephalitis, Meningitis and many more.<sup>[7]</sup> They also result in many deaths if left untreated. India has made many decisive steps in inclusion of many such infections to its National Immunization schedule for its prevention and control so that they don't spike up in becoming epidemics. Vaccines like MR, BCG, Penta and many more are included in the National Immunization Schedule under the Universal Immunization Plan of INDIA for prevention of ARI.<sup>[8]</sup> Despite this progress, India continues to face challenges in its goal to achieve measles and rubella elimination by 2023.<sup>[9]</sup> During the COVID-19 pandemic, national routine MRCV1 coverage decreased from a peak of 95% in 2019 to 89% in 2021, and MCV2 coverage decreased from a peak of 84% (2019) to 82% (2021). In addition, the surveillance indicators demonstrated declines in sensitivity of measles and rubella surveillance from 2019 to 2020.<sup>[9]</sup> These respiratory infections can be prevented from spreading by maintaining respiratory hygiene in the general population.

The following study was conducted to demonstrate the knowledge, attitude and practices of rural communities in India about respiratory hygiene as a way of prevention of acute respiratory tract infections. It is necessary as India is becoming a Hotspot for measles in children due to disruption of routine immunization in fewer than under 5 children caused due to the pandemic COVID 19. The studies conducted in India are more in relation to pandemic control but less reliable data is available for the rural population. Even in research work of other countries, focus is being made on specific populations like health care providers, students, Pilgrims and many more. This article aims to provide data for assessment of rural communities about respiratory hygiene and also differences in knowledge, attitude and practice among various socioeconomic education strata of the population in a village.

## MATERIALS AND METHODS

**1. Study Design:** A cross section study with a pre decided and tested questionnaire was carried out in the catchment area at Rural Health Training Centre of NCMCH at Adhiyana village in district of Panipat, Haryana. Simple random sampling was used for sample collection. Individuals with age more than or equal to 18 years were taken for the study. No bar was set for level of education as well as socioeconomic status. Sample size was determined with help of Epi info software with 5% margin of error and 95% confidence level with average 50% frequency of answering which came out to be 371. In the study, p value was taken to be less than 0.05 to be statistically significant.

### 2. Sampling Method

A sample size of 371 was taken out with help of Epi Info software,<sup>[10]</sup> with margin of error 5% and confidence level of 95%. Expected frequency was taken to be 50%. Simple random sampling method was used in selection of respondents.

### 3. Study Population

An informed consent was taken from the respondents before beginning the study. The study populations were the villagers from nearby villages of Rural Health Training Center, Adhiyana, Panipat, Haryana. Subject's autonomy as well as secrecy was ensured at every step of research.

### Study tool and statistical analysis

A semi structured questionnaire was used to collect data. The questionnaire was validated by conducting a pilot study. Data was collected by the help of health workers at RHTC who were trained before data collection, in the department of Community Medicine, NCMCH, Panipat. Data regarding the sociodemographic profile, knowledge, attitude and practices of respondents of was collected. All the data collected was entered into MS Excel. Data analysis was done by using SPSS v 26 statistical software. Data was presented in the form of frequency and proportion for categorical variables and chi square

test was used to show association between categorical variables.

## RESULTS

There were 371 respondents included in the study who were above 18 years of age. The majorities among them were males (70.61%) and the rest were females. The majority of the respondents were among the age group of 31-50 years of age group (58.49%). More than two third of the individuals had a nonagricultural profession (82.47%) with the majority having education more than primary school (88.62%). Among the socioeconomic status of the respondents, the majority belonged to the upper middle class (35.04%) followed by middle class individuals (29.38%).

The knowledge, attitude and practices of the respondents were assessed and statically analyzed by taking three categories of age, socioeconomic status and gender. For knowledge, good knowledge was marked if a respondent correctly answered more than four questions. Positive attitude was assessed when any respondent correctly answered more than four questions. Similarly, Good practice was evaluated when a respondent answered more than four

questions. Among the gender, the majority of the males were found to have poor knowledge (83.20%) and negative attitude (74.80%). Majority of the males were found to have good practices of following respiratory hygiene (66.03%). In the females, the majority had good knowledge (59.63%) and positive attitude (79.81%) but had poor practices of respiratory hygiene (78.89%). The data received was also found to be statistically significant for all knowledge, attitude and practices of the respondents (p value= <0.00001). Individuals of the age group of 31-50 years showed poor knowledge (72.99%) about respiratory hygiene. Poor practices (55.27%) were observed among the same age group. Half of the individuals of age group of 31-50 years had a positive attitude (50.21%) towards respiratory hygiene. All of the variables were found to be statistically significant (p= <0.00001). Among various social classes based on modified BG Prasad socioeconomic scale, majority of the upper class respondents had poor knowledge (97.77%) as well as half of them had poor practices but had positive attitude towards respiratory hygiene. Majority of the respondents belonging to other classes showed poor knowledge, practices as well as negative attitude with exception of middle and lower middle class individuals who show good knowledge as well as practices.

**Table 1: Socio-demographic indicators of the respondents**

SOCIODEMOGRAPHIC CHARACTERISTIC (N=371)			
CHARACTERISTIC	CATEGORY	FREQUENCY	PERCENTAGE (%)
AGE	18-30 Y	109	29.38
	31-50 Y	217	58.49
	>50 Y	45	12.13
GENDER	MALE	262	70.62
	FEMALE	109	29.38
OCCUPATION	AGRICULTURAL	65	17.52
	NON AGRICULTURAL	306	82.48
EDUCATIONAL STATUS	PRIMARY EDUCATION	24	6.47
	SECONDARY EDUCATION	23	6.20
	SENIOR SECONDARY EDUCATION	89	23.98
	GRADUATE	174	46.90
	POST GRADUATE	44	11.87
SOCIOECONOMIC STATUS (ACC. TO BG PRASAD SCALE)	ILLITERATE	17	4.58
	UPPER CLASS	44	11.87
	UPPER MIDDLE CLASS	130	35.04
	MIDDLE CLASS	109	29.38
	LOWER MIDDLE CLASS	88	23.72

**Table 2: Knowledge of respondents**

ATTITUDE		
QUESTIONS	YES	NO
Since the bird flu, SARS, MERS- COV and H1N1 crises are over, I no longer need the worry about contracting flu-like illnesses?	109 (29.38%)	262 (70.62%)
I am generally opposed to wearing a face mask	109 (29.38%)	262 (70.62%)
If a have an ARI, I may spread it to others	304 (81.94%)	67 (18.06%)
I think coughs and flu can be prevented by wearing a mask outside my house	260 (70.08%)	111 (29.92%)
Wearing a well-fitting mask is effective in preventing flu-like illnesses	131 (35.30%)	240 (64.70%)

**Table 3: Attitude of the respondents**

PRACTICE		
QUESTIONS	YES	NO
Using masks in indoor setting	240 (64.69%)	131 (35.31%)
Hand washing with soap more than 20 seconds	282 (76.01%)	89 (23.99%)
cough or sneeze in elbow	217 (58.49%)	154 (41.51%)
Using same cloth mask on multiple occasions without washing	305 (82.21%)	66 (17.19%)

using any mask while dealing with an infective person	349 (94.33%)	22 (5.67%)
hand hygiene after coughing & SNEEZING IN HAND	197 (53.09%)	174 (46.91%)

**Table 4: Practice of the respondents**

KNOWLEDGE					
CATEGORY		POOR KNOWLEDGE (N=220)	GOOD KNOWLEDGE (N=151)	CHI SQUARE	P VALUE
1. AGE GROUP					
	18-30 Y	65	44	14.1553	0.000844
	31-50 Y	119	98		
	>50 Y	36	09		
2. SOCIO-ECONOMIC STATUS					
	UPPER	12	32	41.7895	<0.00001
	UPPER MIDDLE	65	65		
	MIDDLE	86	23		
	LOWER MIDDLE	57	31		
3. GENDER					
	MALE	187	75	53.8717	<0.00001
	FEMALE	33	76		
PRACTICE					
CATEGORY		GOOD PRACTICE (N=196)	POOR PRACTICE (N=175)	CHI SQUARE	P VALUE
1. AGE GROUP					
	18-30 Y	78	31	51.8726	<0.00001
	31-50 Y	81	136		
	>50 Y	37	8		
2. SOCIO-ECONOMIC STATUS					
	UPPER	29	15	17.2631	0.000624
	UPPER MIDDLE	79	51		
	MIDDLE	57	52		
	LOWEER MIDDLE	31	57		
3. GENDER					
	MALE	173	89	62.3552	<0.00001
	FEMALE	23	86		
ATTITUDE					
CATEGORY		POSITIVE ATTITUDE (N=153)	NEGATIVE ATTITUDE (N=218)	CHI SQUARE	P VALUE
1. AGE GROUP					
	18-30 Y	34	75	15.9829	0.000338
	31-50 Y	108	109		
	>50 Y	11	34		
2. SOCIO-ECONOMIC STATUS					
	UPPER	23	21	28.3145	<0.00001
	UPPER MIDDLE	60	70		
	MIDDLE	43	66		
	LOWEER MIDDLE	27	61		
3. GENDER					
	MALE	65	197	7.697	0.052687
	FEMALE	88	21		

## DISCUSSION

COVID 19 has brought many challenges in the world. It has increased the need of personal hygiene as well as protective practices among the communities to break the chain of transmission. The need for respiratory hygiene has also increased with the recent spike in cases of measles in India due to disruption of routine immunizations done due to pandemic.<sup>[11]</sup> As per the knowledge of the author, there has been no definite study stressing over knowledge, attitude and practices of rural community in India for respiratory hygiene with different responses in different categories.

There have been studies over different groups of individual about COVID 19 and other related topics about respiratory hygiene. In this study majority of the respondents showed poor knowledge, poor attitude and poor practices. This difference is more widely seen between males and females as well as different age groups. In a study conducted in Hong Kong to study parental knowledge, attitude and practices of hygiene for prevention of URTI's in children, majority of the parents showed good knowledge about different practices about the hygiene maintains.<sup>[12]</sup> In the study, majority of the respondents were educated as well as had jobs in non-agricultural sector like private jobs and many more. Still, there was a significantly less knowledge about the topic. Majority among the respondents in the

study were those who have attended more than elementary schooling. According to NHFS 5, in Haryana, around 79.7% of women and 91.5% of men are literate with 49.5% of women and 62.2% of men have at least attended school for more than 10 years. This gap was even more when rural and urban community were compared,<sup>[13]</sup> practices were also not adequate as per the standards. In another study done among doctors practicing in Janaki medical college teaching hospital, Janakpur, Nepal to see the knowledge, attitude and practices among the doctors to set a baseline for further studies done afterwards, Overall knowledge about the various aspects of COVID-19 among the doctors of Janakpur can be considered good among 34.38% and moderate or fair among 46.87% of the doctors.<sup>[14]</sup> In Haryana, Prevalence of symptoms of acute respiratory infection (ARI) in the 2 weeks was 2.3% in NHFS 5 which is less than NHFS 4 which was 3.2%.<sup>[13]</sup> In another study conducted in Malaysia among hajj pilgrims about knowledge, attitude and practices of prevention of respiratory tract infection, The IRT on the knowledge section showed a good difficulty psychometric property of the domain. For the attitude section, EFA indicated a two-factor structure of the questionnaire could jointly account for 72.3% of the total observed variance which was what was hypothesized.<sup>[15]</sup> In a study conducted in India about the Knowledge, Attitude and practices about COVID 19 in type 1 diabetes mellitus, well-educated, urban-residing population, we found an overall correct rate of 83% on the knowledge questionnaire. The majority of the participants (74%) had average knowledge. Their knowledge was reflected in their attitude, as 98% of the participants were confident in being able to protect themselves from COVID-19. Similarly, all the participants were abiding by the practice of regular hand washing; however, as much as 51% of the respondents had left home on one or more occasions amid the lockdown, mostly to procure insulin/insulin needles/glucometer strips from the pharmacy.<sup>[16]</sup> About the practice of the respondents, poor practice was observed among females and individuals of age group of 31-50 years of age. In a study conducted to observe practices of respiratory hygiene in rural Bangladesh, the findings from this study suggest that coughing and sneezing in public areas is a relatively common behavior (i.e., an average of 0.8 events per observed-person-hour). The observation of multiple respiratory events in the same subject (23.4%) suggests that at least a proportion of these people had a respiratory tract infection and were not following the advice during the pandemic from health authorities to remain at home. This study also showed that potentially hazardous respiratory behaviors (e.g., uncovered cough within a meter of another person) are a common event even during a well-publicized influenza pandemic in which people were dying.<sup>[17]</sup> In another recently conducted study about knowledge, attitude and practices on respiratory hygiene and respiratory exercise in 12-18 years of school going children of North India, The

study revealed that about 88.7% of students have good Knowledge, 10.698% of students have average Knowledge and only 0.59% of students have poor Knowledge about respiratory exercise; the importance of using a face mask, respiratory hygiene, and hand hygiene technique and females are more Knowledgeable about precautionary measures of Covid-19 than males which can be depicted as that the females are more-sincere and more precautionous about hygiene and exercises related to Covid-19 than males. 91.38% of students have a good attitude, 8.47% of students have an average attitude, and only 0.15% of students have a poor attitude toward respiratory exercise; and precautionary measures such as the importance of using a face mask, respiratory hygiene, and hand hygiene technique. 66.12% of students perform good practice toward the recommended guidelines given by the Government, 33.43% of students perform the average practice of respiratory exercises and respiratory hygiene, and only 0.45% of students perform the poor practice of respiratory exercise; using a face mask.<sup>[18]</sup>

## CONCLUSION

The current study finds out that many individuals of rural areas of Haryana have a poor knowledge, attitude as well as practices of respiratory hygiene despite of the efforts of local government to spread knowledge. To improve the current condition, more focus must be made by government towards this topic. The concerned authority must also identify focus groups and target them for achieving a reasonable number of individuals having good knowledge, positive attitude as well as good practices among the rural population.

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