

## Effectiveness of educational module on knowledge regarding COVID-19 precautionary measures among children aged 10-13 years in rural community areas

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### Abstract

**Background:** Children's life was disturbed during pandemic due to social isolation, disrupted routines and restricted access to recreational activities. They had questions, anxiety and fear related to corona virus and age appropriate answers were not benefited the children to reduce their fear and anxiety.

**Aim:** To evaluate effectiveness of educational module on knowledge regarding COVID-19 precautionary measures among children aged 10-13 years in selected rural community areas of Indore.

**Method and Materials:** Quantitative approach was used. A pre experimental one group pretest - posttest design was adopted for the study. The setting of the study was selected rural community areas of Indore, Madhya Pradesh. The samples were children aged 10-13 years. The sample size comprised of 117 children and were selected using non-probability purposive sampling technique. Self structured questionnaire was used to measure the demographic data and knowledge regarding COVID-19 precautionary measures. The pretest knowledge was evaluated on the day 1 and educational module was administered regarding COVID-19 precautionary measures to the samples and on day 7 post test knowledge was evaluated. The data analysis was done using descriptive and inferential statistics.

**Result:** Result showed that pretest, no participants obtained poor grades, 71 (60.7%) participants obtained average grades, 41 (35%) participants obtained good grades and 5(4.3%) participants obtained excellent grade. In the post-test 10 (8.5%) participants obtained average grade, 38 (32.5%) participants obtained good grade and 69 (59%) participants obtained excellent grade. The mean pretest knowledge score was  $11.57 \pm 3.66$  and the mean posttest knowledge score was  $18.78 \pm 3.95$ . The difference was found to be statistically significant ( $p=0.001$ ), showing a significantly higher mean posttest knowledge score in comparison to the mean pretest knowledge score.

**Conclusion:** The study concluded that structured teaching program was effective in improving the knowledge of the participants.

**Keywords:** Knowledge, COVID-19, precautionary measures, children, community areas

### Introduction

Children's life was disturbed during pandemic due to social isolation, disrupted routines and restricted access to recreational activities. They were forced to remain in the home. Children had questions, anxiety and fear related to corona virus and age appropriate answers were not benefited the children to reduce the fear and anxiety [1]. Fears of contact and transmitting the virus, school closures, as well as social isolation were having a harmful impact on their development [2]. Prevention is always vital than treatment in infectious diseases, especially for such a very contagious virus as COVID-19. The well-known transmission routes of COVID-19 are droplet and contact transmission. Some very simple and effective ways to help prevent child from catching or spreading COVID-19 are have them wash their hands often, clean your home often, keep child away from sick people, know the COVID-19 level in your community, a statistic that is constantly updated by the CDC. Follow CDC recommendations as far as precautions such as mask [3].

### Need of the study

In India schools remained closed since the global Covid

pandemic struck India in March 2020. In India, around 250 million students were affected due to school closures at the onset of lockdown induced by COVID-19 [4] and staying indoors have profound impact on children's health and psychosocial well-being. The United Nations Children's Emergency Fund (UNICEF) said that globally one in every seven children, or 332 million, has lived under a lockdown for at least nine months, making them vulnerable to mental health issues. Indian children are no exception [5].

In comparison with adults, children with COVID-19 were deemed to have milder illness and a better prognosis [6]. The Korean Society of Infectious Diseases, the Republic of Korea reported 32 (0.8%) children aged 0-9 years and 169 (4.0%) cases aged 10-19 years among 4212 confirmed cases of SARS-CoV-2-on March 2, 2020[7]. The United States "CDC COVID-19 Response Team" reported 2572 (1.7%) laboratory positive children (<18 years old) among 149 080 confirmed cases from February 12 to April 2, 2020, in the United States. COVID-19 symptoms like fever, cough, or shortness of breath were observed in 73% of infected children [8]. Taiwan Centers for Disease Control reported 376 confirmed cases up to April 7, 2020. Among confirmed

cases, 24 (6.4%) cases are younger than 20 years old, and only four cases (1.7 %) was younger than 10 years of age<sup>[9]</sup>. The number of children with COVID-19 has dramatically spiked with the Omicron and BA.2 variants<sup>[10]</sup>. In the report of the Wuhan Children's Hospital, 3 of 171 (1.8%) SARS-CoV-2-positive children required intubation<sup>[11]</sup>. At Boston Children's Hospital has described 75 cases of croup in children with COVID-19. Croup is a common illness in babies and young children characterized by a bark-like cough and sometimes noisy, high pitched breathing. In the 75 patients with croup caused by COVID-19 infection, 12% of the children needed hospital care, with just under half of these needing intensive care<sup>[12]</sup>.

Data from across the world, and India, shows that over 60-70 per cent of children who get COVID-19 are asymptomatic — meaning they don't show any symptoms of the virus at all. Of the children that are symptomatic, only around 1-2 per cent need intensive care unit treatment. This number is less than the percentage of adults requiring intensive care<sup>[13]</sup>. Children represent about 19% of all reported COVID-19 cases in the U.S. since the pandemic began. Up to 50% of children and adolescents might have COVID-19 with no symptoms, and some children with COVID-19 need to be hospitalized, treated in the intensive care unit or placed on a ventilator to help them breathe<sup>[14]</sup>. The most common symptoms of COVID-19 in children are cough and fever. Possible signs and symptoms includes Fever, Cough that becomes productive, Chest pain, New loss of taste or smell, Changes in the skin, such as discolored areas on the feet and hands, Sore throat, Nausea, vomiting, belly pain or diarrhea, Chills, Muscle aches and pain, Extreme fatigue, severe headache, and nasal congestion.<sup>[15]</sup> Multisystem inflammatory syndrome in children (MIS-C), is another potentially severe and dangerous complication can occur in children. It can lead to life-threatening problems with the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs in the body<sup>[16]</sup>.

Prevention, early identification and isolation, adequate management, and development of vaccine are the keys to control the disease spread. Clinical physicians should be alert to asymptomatic children with COVID-19<sup>[17]</sup>.

The most effective preventive measures recommended include: hand wash and disinfection; preventing hands from touching eyes, nose and mouth; using napkin or elbow while sneezing or coughing; using a medical mask especially when there is respiratory symptoms considering a safely disposal, as well as keep social distancing from the one with symptoms<sup>[18]</sup>.

Hence, researcher felt the need of providing knowledge regarding COVID-19 precautionary measures to children aged 10-13 years. So the study was aimed to evaluate the effectiveness of educational module on knowledge regarding COVID-19 precautionary measures among children aged 10-13 years in selected rural community areas of Indore.

### Problem statement

“A study to evaluate the effectiveness of educational module on knowledge regarding COVID-19 precautionary measures among children aged 10-13 years in selected rural community areas of Indore, Madhya Pradesh.”

### Objectives

1. To assess the pre - interventional knowledge score regarding COVID-19 precautionary measures among children aged 10-13 years in selected rural community areas of Indore, Madhya Pradesh.”
2. To assess the post – interventional knowledge score regarding COVID-19 precautionary measures among children aged 10-13 years in selected rural community areas of Indore, Madhya Pradesh.
3. To evaluate effectiveness of educational module on knowledge regarding COVID-19 precautionary measures among children aged 10-13 years in selected rural community areas of Indore, Madhya Pradesh.
4. To find association between the pre- interventional knowledge score of children aged 10-13 years with their selected socio -demographic variables.

### Hypothesis

**H<sub>1</sub>**-There will be significant increase in post test knowledge score after intervention regarding COVID-19 precautionary measures among children aged 10-13 at  $p \leq 0.05$  level of significance.

**H<sub>2</sub>**. There will be significant association between pre-test knowledge score regarding COVID-19 precautionary measures among children aged 10-13 with their selected socio - demographic variables at  $p \leq 0.05$  level of significance.

### Method and Materials

Quantitative approach was used. A pre experimental one group pretest - posttest design was adopted for the study. The setting of the study was selected rural community areas of Indore Madhya Pradesh. The samples were selected from children aged 10-13 years who fulfilled the designated set criteria of interest to the researcher. The sample size comprised of 117 children aged 10-13 years and was selected using non-probability purposive sampling technique. Self structured questionnaire was used to measure the knowledge regarding COVID-19 precautionary measures. The pretest knowledge was evaluated on the day 1 and educational module was administered regarding COVID-19 precautionary measures to the samples and on the 7<sup>th</sup> day after Intervention post test knowledge was evaluated. The data was collected in month of April 2022. The data collection technique used was paper and pencil test. The data analysis was done using descriptive and inferential statistics.

### Result and Discussion

#### Findings of the Study

**Section I:** Frequency and percentage distribution of participants according to socio-demographic variables 29 (24.8%) participants were in the age group 10 years, 27 (23.1%) were in the age group 11 years, 34 (29.1%) were in the age group 12 years and 27 (23.1%) were in the age group 13 years.

75 (64.1%) participants were boys and 42 (35.9%) participants were girls. 95 (81.2%) participants were Hindus and 22 (18.8%) participants were Christians. 111 (94.9%) participants were from nuclear family and 6 (5.1%) participants were from joint family. 69 (59%) participants were vegetarians and 48 (41%) participants were non-

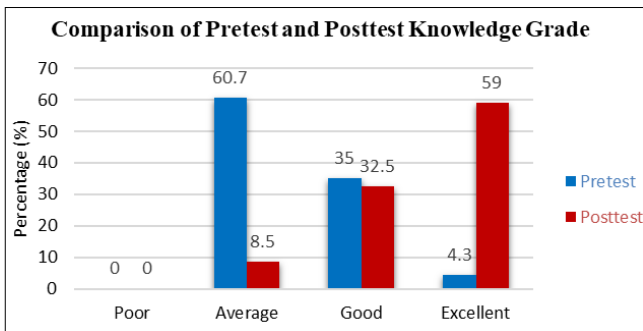
vegetarians.

115 (98.3%) participants had obtained formal education (literate), while 2 (1.7%) participants had obtained non-formal education. 49 (41.9%) participants were in 5<sup>th</sup> Class, 61 (52.1%) participants were in 6<sup>th</sup> Class and 7 (6%) participants were in 7<sup>th</sup> Class. 12 (10.3%) participants reported that someone in their house got corona, while 105 (89.7%) participants reported that none of the member of their house got corona.

**Section II-** Distribution of participants according to pretest and posttest knowledge grades.

**Table 1:** Comparison of pretest and posttest grades

S. No.	Grades	Pretest		Posttest	
		No.	%	No.	%
1.	Poor	0	0.0	0	0.0
2.	Average	71	60.7	10	8.5
3.	Good	41	35.0	38	32.5
4.	Excellent	5	4.3	69	59.0
	Total	117	100.0	117	100.0



**Graph 1:** Bar diagram showing comparison of pretest and posttest knowledge grades

The above table and graph shows the distribution of participants according to pretest and posttest knowledge grades. In the pretest, 71 (60.7%) participants had obtained 'Average' knowledge grade, 41 (35%) participants had obtained 'Good' knowledge grade and 5 (4.3%) participants had obtained 'Excellent' knowledge grade. In the posttest, 10 (8.5%) participants had obtained 'Average' knowledge grade, 38 (32.5%) participants had obtained 'Good' knowledge grade and 69 (59.0%) participants had obtained 'Excellent' knowledge grade.

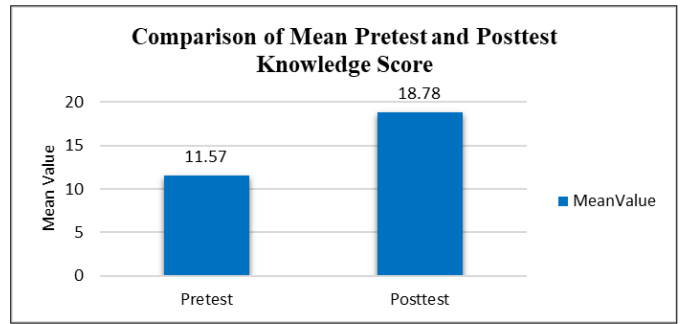
In the posttest, the proportion of participants obtaining 'excellent' knowledge grade increased and participants in the average grade decreased, which shows that intervention was very helpful in increasing the knowledge of these participants.

**Table 2:** Comparison of mean pretest and posttest knowledge score (N=60)

Pretest / Posttest	No.	Mean	SD	't' value, df	P value
Pretest	117	11.57	3.66	-18.783, df=116	0.001*
Posttest	117	18.78	3.95		

Paired 't' test applied.

P value < 0.05 – Significant, P value < 0.01 – Highly Significant



**Graph 2:** Bar diagram shows the comparison of mean pretest and posttest knowledge score

The above table and graph shows the comparison of mean pretest and posttest knowledge scores. The mean pretest knowledge score was 11.57±3.66 and mean posttest knowledge score was 18.78±3.95. The difference was found to be statistically significant (p=0.001), showing a significantly higher mean posttest score in comparison to the mean pretest score. The intervention was effective in increasing the knowledge grade of the participants. Hence hypothesis (H<sub>1</sub>) is accepted.

**Section III:** Association between pretest knowledge grade and socio - demographic variables

A statistically significant association was seen between age and the pretest knowledge grade (p=0.010), showing that the pretest knowledge grade is dependent on the age of the participants. While, no significant association was seen between sex, religion, type of family, food pattern, educational status, class, someone got corona in the house and the pretest knowledge grade (p≤0.05), showing that these demographic variables do not have any impact on the pretest knowledge grade of the participants.

**Discussion**

Majority of the participants 34 (29.1%) were in the age group 12 years, 75 (64.1%) participants were boys, 95 (81.2%) participants were Hindus, 111 (94.9%) participants were from nuclear family, 69 (59%) participants were vegetarians, 115 (98.3%) participants had obtained formal education, 61 (52.1%) participants were in 6<sup>th</sup> Class and 105 (89.7%) participants reported that none of the member of their house got corona.

In the pretest, 71 (60.7%) participants had obtained 'Average' knowledge grade, 41 (35%) participants had obtained 'Good' knowledge grade and 5 (4.3%) participants had obtained 'Excellent' knowledge grade. In the posttest, 10 (8.5%) participants had obtained 'Average' knowledge grade, 38 (32.5%) participants had obtained 'Good' knowledge grade and 69 (59.0%) participants had obtained 'Excellent' knowledge grade. The mean pretest knowledge score was 11.57±3.66 and mean posttest knowledge score was 18.78±3.95. The difference was found to be statistically significant (p=0.001), showing a significantly higher mean posttest score in comparison to the mean pretest score. The intervention was effective in increasing the knowledge of the participants.

According to UN Secretary-General António Guterres, pandemic placed so many of the world's children in danger of harm, failure and loss. Children are both victims and

witnesses of domestic violence and abuse. With schools closed, an important early warning mechanism is missing. let us protect our children and safeguard their well-being [19]. Infection prevention, early viral detection, isolation and identification of successful treatment protocols provide the best approach in controlling disease spread [20].

A statistically significant association was seen between age and the pretest knowledge grade ( $p=0.010$ ), showing that the pretest knowledge grade is dependent on the age of the participants.

This research was effective in increasing the knowinge of the participants, they can implement knowledge to safeguard themselves from contracting or spreading covid-19 through things they can control, like hand washing, physical distancing, and other health-promoting behaviors.

### Conclusion

The findings of the study showed that educational module was effective in increasing the knowledge regarding COVID-19 precautionary measures among children aged 10-13 years and suggested that such research studies should be continued to reduce the incidence of COVID-19 among children and to enhance the overall health and quality of life of children. To fight this viral pandemic further studies on the different faces of COVID-19 are required.

**Conflict of interest:** The authors declare no conflict of interests.

### Author's Contribution

Not available

### Financial Support

Not available

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