

# Nutritional Status and Educational Outcomes among School Children during the COVID-19 Pandemic: A Cross-Sectional Study

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**Abstract**— the overall aim of the research was to conduct a quantitative study to assess the nutritional status and educational outcomes among schoolchildren during the COVID-19 pandemic in a selected rural area of Thiruvananthapuram district.

**Research methodology:** It was a non-experimental survey, which is more appropriate in the field of modern technologies in education and nutrition of school children for its practicability in real-life situations. The research design was a “cross-sectional study design.” The study was conducted in selected Grama panchayath’s in Perumkadavila block panchayath, Thiruvananthapuram district. The sample was selected through a convenience sampling technique. The sample size consists of 100 schoolchildren. The data gathered were analysed using descriptive and inferential statistical methods, and interpretation was done on the basis of the objectives of the study. The result shows that Occupation of head of family is significantly associated with the nutritional status among children  $p=0.021(<0.05)$ . Educational outcome is significantly associated with Age group, Religion, Education, Monthly income of the family and Occupation of head of the Family  $p<0.05$ .

The study reveals that there were some problems faced by schoolchildren during the covid-19 pandemic in the fields of education and nutritional status.

**Index Terms**—Nutritional Status, Educational Outcomes, School Children, COVID-19 Pandemic, Cross-Sectional Study

The COVID-19 pandemic has ushered in great and rapid change in our society. Although children are somewhat less likely to get infected or have severe symptoms from COVID-19, they are being adversely affected by this global public health emergency in many direct and indirect ways. It is important to emphasize that the impact of COVID-19 on children will not be uniform given their developmental differences. On one hand, younger

children may be more vulnerable to indirect suffering from the pandemic.

Several governmental measures have been taken to counteract the risk of disease spreading. COVID-19 pandemic has affected all levels of the education system. Commonly, although children and adolescents have experienced a drastic routine disruption due to the closure of schools and the absence of outdoor activities, they may not be completely isolated.

## NEED FOR STUDY

As this most disrupted of school years draws to a close, it is time to take stock of the impact of pandemic on student learning and well-being. Although the 2020–21 academic year ended on a high note with rising vaccination rates, outdoor in-person graduations, and access to at least some in-person learning for 98 percent of students it was as a whole perhaps one of the most challenging for educators and students in our nation’s history. It is currently unknown to what extent this pandemic will impact the nutritional status of children around the globe, but it could compromise diet quality, quantity and diversity increasing the risk of various forms of Malnutrition, namely obesity, under nutrition and hidden hunger due to micronutrient deficiencies, especially among vulnerable groups. As children stayed at home with no physical activities, their weight may have increased.

## Problem statement

“A study to assess the nutritional status and educational outcomes among school children during covid-19 pandemic in a selected rural area of Thiruvananthapuram district”

**Objectives**

- To assess the nutritional status among school children during COVID-19 pandemic.
- To assess the educational outcomes among school children during COVID-19 pandemic.
- To associate the nutritional status with socio-demographic variables.
- To associate the educational outcomes with socio-demo- graphic variables

**Hypothesis**

**H<sub>1</sub>**:- Covid-19 pandemic has a significant effect on student’s educational outcomes and nutritional status.

**H<sub>2</sub>**:- There will be significant association between educational outcomes with educational system.

**H<sub>3</sub>**:-There will be significant association between nutritional status and educational outcomes with socio-demographic variables and lifestyle factors.

RESEARCH METHODOLOGY

**Research approach:** The research approach adopted for this study is quantitative in nature. This study aims at assess the nutritional status and educational outcomes among school children during covid-19 pandemic.

**Research design:** The research design selected for the study was cross sectional study design.

**Variables of the study:** The research variable of the study was the nutritional status and educational outcomes

**Setting of the study:** Kallikkadu, Perumkadavila, Amboori and Aryancode Grama panchayath’s in Perumkadavila block panchayath, Thiruvananthapuram district.

**Sampling technique:** Convenience sampling technique was used to select the samples based on the sampling criteria for this study.

**Sample:** The sample comprised of school children of age group 6 to12 years in four Grama panchayath’s under Perumkadavila block panchayath.

**Sample size:** sample size consists of 100 school children who fulfill the inclusion criteria.

**Description of tool**

Tool consist of three sections

**Section A:** Demographic data of the family

**Section B:** Questionnaire to assess the nutritional status among school children

**Section C:** Questionnaire to assess the educational outcomes among school children

**Score interpretation**

Score	Socio Economic Class
26-29	Upper
16-25	Upper middle
11-15	Lower middle
5-10	Upper lower
<5	Lower

**Procedure of data collection:**-Formal permission was obtained from the president of the respective Grama panchayats to conduct the study.

**Plan for data analysis:** - The data were planned to analyze based on the study subjects and objectives with the help of descriptive and inferential statistics.

**Description statistics:** - It was used to find out the frequency and percentage of Demographic variables

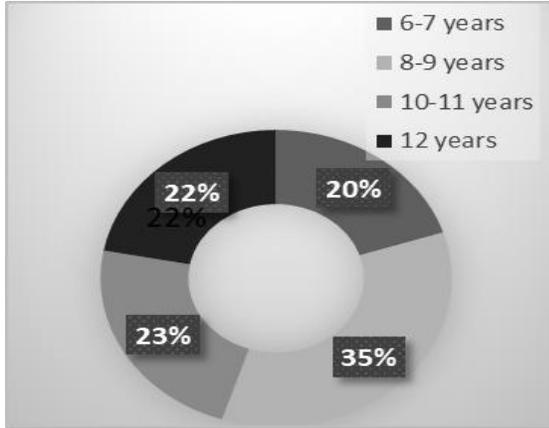
**Inferential statistics:** - Chi square test is used to determine the association between nutritional status and educational outcomes with selected demographic variables.

**Organization and presentation of data**

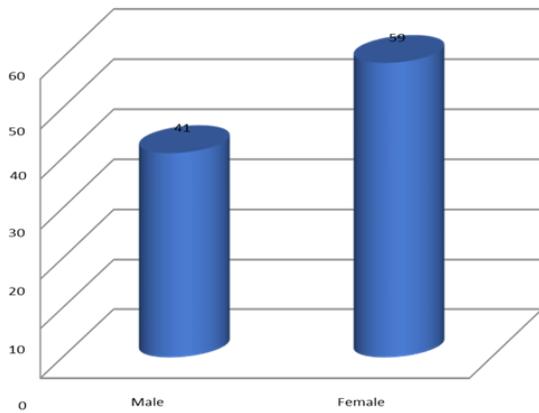
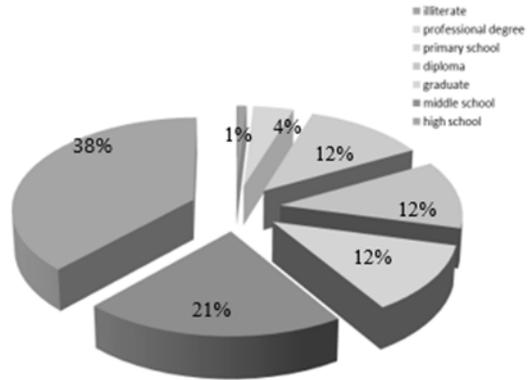
The raw data collected were entered in master data sheet. There data were organized and presented as mentioned below:

- Socio-demographic profile of study participants
- Assessment of nutritional status among school children during COVID-19 pandemic
- Assessment of educational outcomes among school children during COVID-19 pandemic
- Association between nutritional status and socio demo- graphic factors
- Association between educational outcomes and socio demographic factors

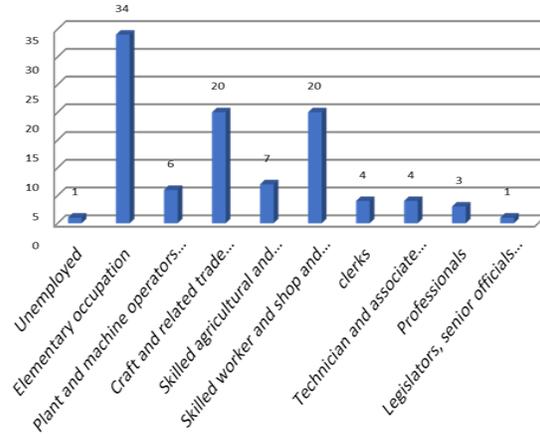
Socio demographic profile



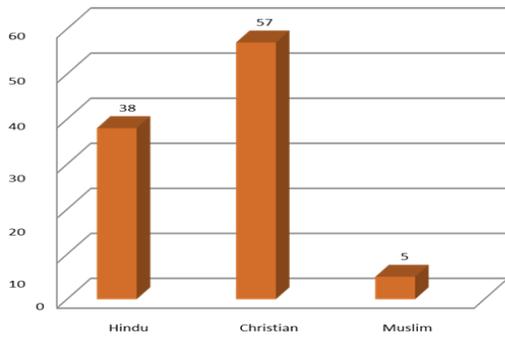
Education of head of family



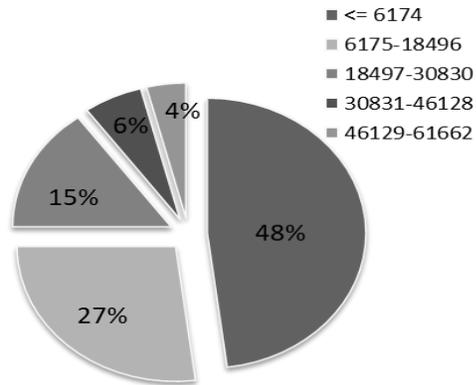
Education



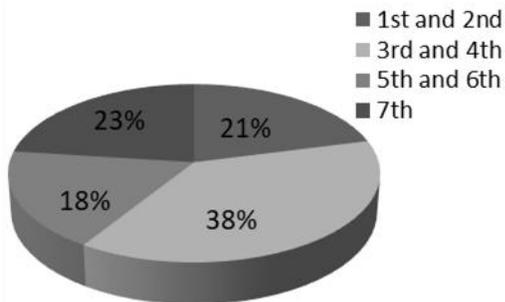
Gender



Occupation of head of family



Religion



Monthly Income distribution

Frequency and Percentage of nutritional status

Variable	N	%
underweight	19	19
Normal weight	72	72
Over weight	9	9

Association between nutritional status and socio demographic factors

Sl. No	Socio Demographic Factors		Nutritional status			p-value (Fisher's Exact)
			Under weight	Normal	Over weight	
1.	Age Group (in years)	6-7	4	11	5	0.164
		8-9	8	24	3	
		10-11	4	18	1	
		12	3	19	0	
2.	Religion	Hindu	4	31	3	0.344
		Christian	13	38	6	
		Muslim	2	3	0	
3.	Gender	Male	7	32	2	0.396
		Female	12	40	7	
4.	Education (standard)	1-2	1	16	4	0.079
		3-4	11	23	4	
		5-6	4	13	1	
		7	3	20	0	
5.	Education of head of family	illiterate	0	1	0	0.480
		Primary school	4	6	2	
		Middle school	5	16	0	
		High school	4	30	4	
		Diploma	2	9	1	
		Graduate	3	7	2	
6.	Occupation of head of family	Unemployed	0	0	1	** 0.021
		Elementary occupation	6	26	2	
		Plant and Machine Operators And assembles	0	6	0	
		Craft and related trade workers	2	16	2	
		Skilled agricultural and fishery workers	4	3	0	
		Skilled worker and shop and market sale workers	3	15	2	
		clerks	1	3	0	
		Technician and Associate professionals	3	1	0	
		Professionals	0	2	1	
Legislators, senior officials and manager	0	0	1			
7.	Monthly Income (₹)	<= 6174	7	36	5	0.198
		6175-18496	6	18	3	
		18497-30830	3	12	0	
		30831-46128	0	5	1	
		46129-61662	3	1	0	

\*\*significant at p <0.05 level

Frequency and percentage of educational outcomes

Sl. No	Variable	N	%	
11.	Did you have adequate internet connectivity	Yes	58	58
		No	42	42
12.	Do you think online classes are useful	Yes	48	48
		No	52	52
13.	Are you able to concentrate on your studies at home	Yes	40	40
		No	60	60
14.	Are you satisfied with online Education system	Yes	30	30
		No	70	70
15.	which is your available media for education	TV	41	41
		Smart phone	56	56
		Lap top	3	3
16.	How about your educational performance With these online classes	Did well	38	38
		Couldn't study well	2	2
		Had difficulty	56	56
		Satisfactory	4	4

17.	How much your ability to use the educational technology improved during online Education	Improved well	53	53
		Improved a little	42	42
		Not improved	2	2
		Satisfactory	3	3
18.	How much time did you spend for online classes a day	1-2 hours	88	88
		3-4 hours	12	12
		5-6 hours	0	0
		More than 6 hours	0	0
19.	How many hours you use mobile Rather than learning purpose	1-2 hours	69	69
		3-4 hours	28	28
		5-6 hours	1	1
		More than 6 hours	2	2
20.	Did you suffer with any of the physical problems while using continuous online technology	Have problems	37	37
		No problems	19	19
		Mild problem	43	43
		Sometimes	1	1
21.	If yes which problem, do you have	Headache	46	46
		Visual disturbances	2	2
		Neck pain	31	31
		All the above	5	5
22.	Did you complete the assignments given during online teaching	Completely done	51	51
		Nothing	43	43
		I don't know how to do	1	1
		Some projects will do	5	5
23.	How often did you work for Effective writing skill	Frequently	65	65
		Sometimes	28	28
		Rarely	7	7
		Never	0	0
24.	How often did you work for effective speaking skill	Frequently	61	61
		Sometimes	32	32
		Rarely	6	6
		Never	1	1
25.	Did you understand the tough subjects well through online education	Can understand	30	30
		Can't understand	53	53
		Not getting time	2	2
		Rarely	15	15
26.	How about the projects during this new educational system	It's easy	44	44
		It's difficult	50	50
		Can do projects more creatively	2	2
		Satisfactory	4	4
27.	Whether your parents supervise or helps you in attending online classes and completion of assignments	supervised	57	57
		Not supervised	5	5
		Sometimes	11	11
		When needed	27	27
28.	Are you feeling any anxiety/mood swings/a state of isolation during these days	always	41	41
		Not feeling	23	23
		Sometimes	33	33
		In between	3	3
29.	Did all your teachers inspire you for learning	Most of the teachers	83	83
		Only few teachers	15	15
		No inspiration	2	2
		None of these	0	0

**Nursing Implication**

The implications were on various aspects like nursing education, nursing practice, nursing administration and nursing research.

**Nursing practice:**

- A professional nurse can teach the parents about the physical, mental and nutritional needs of school children.
- A professional nurse can teach the parents regarding the harmful effects of increased internet use and importance of spending more time with their children.

- Nursing education
- Education helps the individual to learn about the changes occurred during COVID 19pandemic and the alternative adoption methods.
- Nurse educator can encourage the students to conduct mass health education on effects of increased internet usage in school children.
- Provide counselling services for children and their parents to solve the problems through tender loving care for children.

Association between educational outcomes and socio - demographic factors

Sl. No	Socio Demographic Factors		Educational Outcome		p-value
			Good Outcome	Poor Outcome	
1.	Age Group (in years)	6-7	4	16	**0.032
		8-9	10	25	
		10-11	13	10	
		12	11	11	
2.	Religion	Hindu	16	22	**0.006 (Fisher's Exact)
		Christian	17	40	
		Muslim	5	0	
3.	Gender	Male	15	26	0.488
		Female	23	36	
4.	Education (standard)	1&2	5	16	**0.004
		3&4	9	29	
		5&6	12	6	
		7	12	11	
5.	Education of head of the family	illiterate	0	1	0.064 (Fisher's Exact)
		Primary school	3	9	
		Middle school	7	14	
		High school	12	26	
		Diploma	9	3	
		Graduate	4	8	
6.	Occupation Of head of the family	Unemployed	0	1	**0.007 (Fishers' Exact)
		Elementary occupation	5	29	
		Plant and machine operators and assemblers	3	3	
		Craft and related trade workers	9	11	
		Skilled agricultural and fishery workers	5	2	
		Skilled worker and shop and market sale workers	9	11	
		clerks	2	2	
		Technician and associate professionals	2	2	
		Professionals	3	0	
7.	Monthly Income (₹)	<= 6174	8	40	**0.00 (Fisher's Exact)
		6175-18496	14	13	
		18497-30830	11	4	
		30831-46128	2	4	
		46129-61662	3	1	

\*\*significant at p <0.05 level

Nursing administration

- The nurse administrator should plan to organize in-service education programme for nursing personnel regarding the management and prevention of nutritional deficiencies and mobile addiction during COVID-19 pandemic in school children.
- It helps to make them aware about the causes of physical and psychological problems facing by school children.

Nursing research

Researchers should focus on the nutrition and education of school children during COVID-19 pandemic. This study can be helpful for conducting a study in other pandemic situations

CONCLUSION

The study revealed that the nutritional status and educational outcomes of the school children were affected during COVID-19 pandemic due to lockdown procedures and online education system.

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