



E-ISSN: 2664-1305
P-ISSN: 2664-1291
www.paediatricnursing.net
IJRPN 2024; 6(1): 01-05
Received: 03-11-2023
Accepted: 02-12-2023

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Knowledge and attitude among caregivers of children (12-17 years) regarding COVID-19 vaccine for children in selected urban and rural areas of Meghalaya

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DOI: <https://doi.org/10.33545/26641291.2024.v6.i1a.145>

Abstract

Coronavirus disease 2019 is a highly contagious virus with the ability to evolve quickly, resulting in different strands of COVID-19 today. COVID-19 has varied effects on different persons. The aim of the study is to assess and compare the knowledge and attitude among the caregivers of children (12-17 years) regarding COVID-19 vaccination for children residing in urban and rural areas of Meghalaya.

A comparative descriptive study was performed using semi-structured interview schedule among the caregivers of children (12-17 years) residing in urban and rural areas of Meghalaya regarding COVID-19 vaccine for children. A semi-structured questionnaire, developed by the researcher, was used to assess the knowledge and attitude of the caregivers. A total of 152 data were collected through multistage sampling. Equal numbers of sample were selected from each area. Analysis shows that the mean knowledge score of urban and rural caregivers are 10.25 ± 1.90 and 9.39 ± 1.62 respectively with the p value of 0.003 and the mean attitude of urban and rural caregivers are $45.33 \pm$ and 43.24 ± 6.51 respectively with p value of 0.05.

An association was found between knowledge of caregivers of children (12-17 years) with educational status and occupation (0.02 and 0.04 respectively). Association was also found between attitude with educational status and occupation of the caregivers of children (12-17 years).

The present study shows that urban caregivers have good knowledge and favorable attitude compare to rural caregivers. This highlights the needs for increase sensitization of the community people, especially rural areas regarding COVID-19 vaccine for children.

Keywords: Knowledge, attitude, caregivers of children (12-17 years), COVID-19 vaccination for children

Introduction

The COVID-19 ('CO' stands for Corona, 'VI' for Virus, and 'D' for Disease 2019) pandemic which was started in Wuhan, China, on December 31, 2019 can caused severe acute respiratory infection. The epidemic outbreak was deemed a global health emergency by the World Health Organization on January 30, 2020, and it was deemed a pandemic on March 11, 2020 ^[1]. Data from throughout the world and India demonstrate that infection in youngsters is often relatively mild. Only about 1-2% of the symptomatic children require intensive care unit treatment. Clinical manifestations range from asymptomatic to lethal, but the most common symptoms are fever, dry cough, and exhaustion ^[2]. There are wide range of complication and sequelae of symptoms may arises following initial infection. Potential late complication for COVID-19 which is also known as late COVID ^[3]. Most children have mild symptoms to asymptomatic, but the child may suffer from multi-system inflammatory syndrome in children (MISC-C) after infection with COVID-19 ^[4]. A COVID-19 vaccine is intended to provide acquired immunity against severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). The Indian government launched the COVID-19 vaccine for children aged 12 to 14 on March 16, 2022. And, as of January 3, 2022, the Government of India has already initiated a vaccine drive for children aged 15 to 18 ^[5].

Need of the study: Parents have the right to decide whether or not to vaccinate their children. When there is hesitation about the COVID-19 vaccine, parents may decline to vaccinate their children ^[6].

The vaccine's side effects had caused some people to express concerns about their child's and their own safety, resulting in immunization delay or outright opposition to COVID-19 Vaccination.

It is crucial to comprehend the parents' knowledge, outlook, and willingness to have their kids vaccinated. Therefore, the researcher has felt the importance of conducting a comparative study to assess the knowledge and attitude of caregivers regarding COVID-19 vaccination for children (12-17 years) in the urban and rural areas in Meghalaya, which will show the acceptance level towards the COVID-19 vaccine.

Objectives

Primary objectives

1. To assess the knowledge and attitude among the caregivers of children (12-17 years) regarding COVID-19 vaccination for children residing in selected urban and rural areas of Meghalaya.
2. To compare the knowledge and attitude among the caregivers of children (12-17 years) towards COVID-19 vaccination for children residing in urban and rural areas of Meghalaya.

Secondary objectives

To find the association between knowledge with selected demographic variables of caregivers of children (12-17 years) residing in urban and rural areas of Meghalaya.

Hypothesis

H₁: There will be significant difference in knowledge between the caregivers of children (12-17 years) regarding COVID-19 vaccination for children residing in urban and rural areas of Meghalaya at 0.05 level of significance.

H₂: There will be significant difference in attitude among the caregivers of children (12-17 years) regarding COVID-19 vaccination for children residing in urban and rural areas of Meghalaya at 0.05 level of significance.

Methodology

Study setting: The study was conducted in 3 areas each from 2 health facilities of Meghalaya i.e. Rynjah State Dispensary (Urban) and Mawphlang CHC (Rural). The areas were selected using multi-staging method.

Study population: The study was conducted on the caregivers of children (12-17 years) in selected areas under Rynjah State Dispensary (Urban) and Mawphlang CHC (Rural). The sample size was calculated using the formula $Z^2 p (1-p) / d^2$. The assumed prevalence of willingness of the parents to be 37% which was adopted from the previous similar study (Kocamaz EB and Kocamaz H Awareness of COVID-19 and attitude towards vaccination in parents of children between 0 to 18 years). With $Z=1.96$ and $D=0.0064$ Total sample with 10% attrition is 152.

Sampling method: Multi-staging sampling method was used for selecting the samples. Rynjah State Dispensary have 8 subcenters and Mawphlang CHC have 7 subcenters from which 3 subcenters were selected from each health

centers randomly. From each subcenters 3 areas were selected randomly from both health centers.

Study instrument: A semi-structured questionnaire was developed by researcher which was validated by the experts and the data was collected by face to face interview method.

Statistical analysis: The data collected were analyzed by using SPSS version 22 software. The data were found to be equally distributed so for descriptive analysis frequency, percentage, mean and standard deviation and inferential statistics, Independent T-Test and Fisher Exact Test were used.

Results

Table 1: Frequency and percentage distribution of caregivers of children (12-17 years) according to demographic characteristics, N=152

Demographic Data	Urban (N=76)	Rural (N=76)
	F (%)	F (%)
Age (in years)		
18-37	38 (50)	19 (25)
38-57	35 (46.05)	56 (73.68)
57-77	03 (3.95)	01 (1.32)
Gender		
Female	61 (80.24)	74 (97.37)
Male	15 (19.74)	02 (2.63)
No. of children		
1	54 (71.05)	44 (57.90)
2	17 (22.37)	28 (36.84)
3 and more	05 (6.58)	04 (5.26)
Relationship with children		
Mother	52 (68.42)	72 (94.74)
Father	07 (9.21)	03 (3.95)
Others	17 (22.37)	01 (1.31)
Educational status		
Primary level	04 (5.26)	18 (23.68)
Middle level	07 (9.21)	18 (23.68)
Secondary level	18 (23.68)	23 (30.26)
Higher secondary level	18 (23.68)	06 (7.89)
Undergraduate and above	19 (25)	10 (13.16)
Illiterate	10 (13.16)	01 (1.32)
Occupation		
Unemployed	33 (43.42)	19 (25)
Daily wage bearer	31 (40.79)	31 (40.79)
Private worker	9 (11.84)	10 (13.16)
Govt. Worker	03 (3.95)	16 (21.05)

The data present in Table 1 revealed that out of 76 urban caregivers, 38 (50%) were of age between 18-37 with mean age of 37.38 ± 10.69 , 61(80.24%) were female, 54(71.05%) have 1 child between the age of 12-17 years, 52 (68.42%) of participants were mothers, 19 (25%) of participant's educational status were undergraduates and above and 33 (43.42%) were unemployed.

In rural areas, out of 76 participants, 56 (75.68%) was in the age group of 38-57 years with mean age of 41.25 ± 6.65 , 74(97.37%) of participants were female, 72 (94.74%) of participants were mother, 23 (30.26%) of participant's educational status were secondary level and 31 (40.79%) of participants were daily wage.

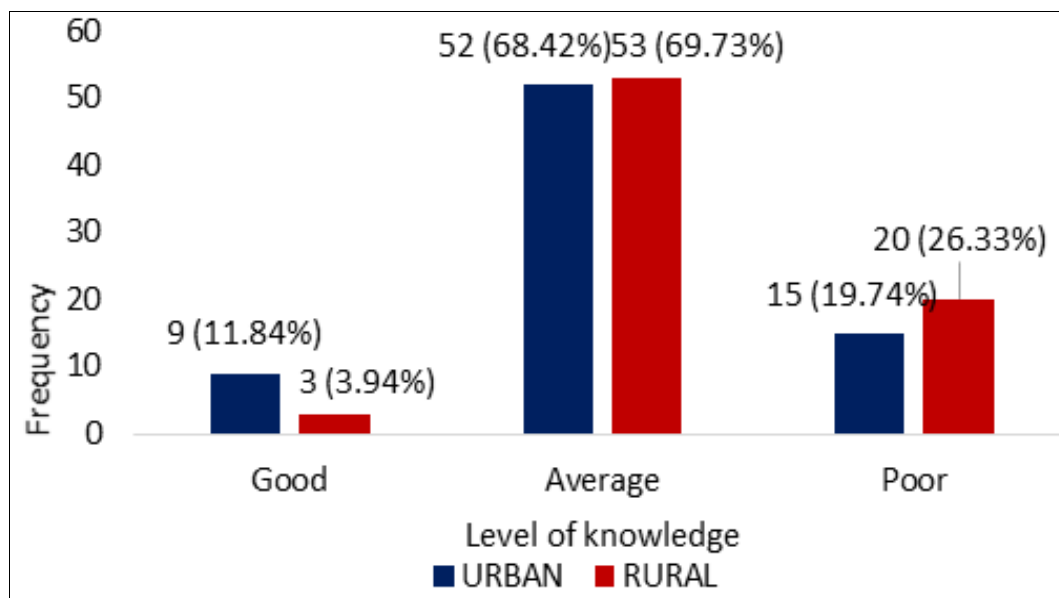


Fig 1: Distribution of participants according to level of knowledge regarding COVID-19 vaccine for children

Figure 1 depicts that 11.84% of urban and 3.94% of rural caregivers have good knowledge and 19.74% of urban and

26.33% of rural have poor knowledge. The Mean \pm SD of urban and rural is 10.25 ± 1.91 and 9.39 ± 1.63 respectively.

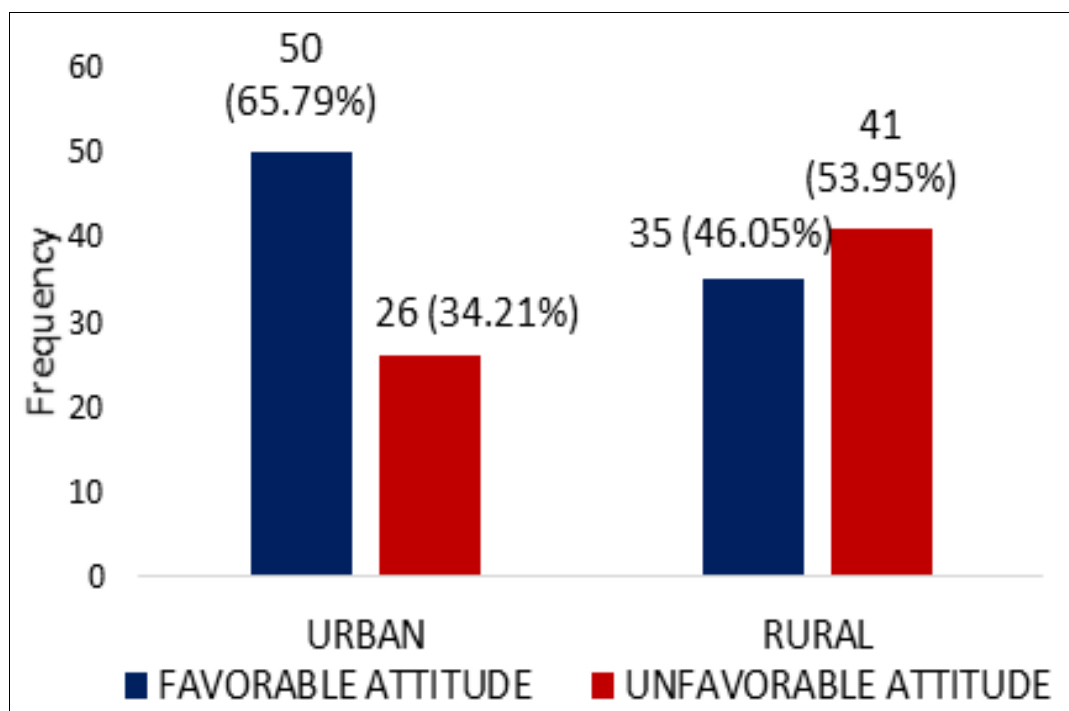


Fig 2: Distribution of participants according to level of attitude towards COVID-19 vaccine for children

The data presented in fig 2 depicts that the urban caregivers have favourable attitude towards COVID-19 vaccine for

children compare to rural caregiver with the Mean \pm SD of attitude score is 43.20 ± 5.16

Table 2: Independent T-test to compare the knowledge of the urban and rural caregivers of children (12-17 years) regarding COVID-19 vaccine for children, N=152

Area	Max. Score Obtained	Participant's Knowledge		Independent T-Test
		Mean	SD	
Urban	15	10.25	± 1.90	0.003*
Rural	14	9.39	± 1.62	

*p-value ≤ 0.05 significance

The data presented in table 2 shows that there is significant difference in knowledge between the caregivers of children (12-17 years) residing in urban and rural areas of

Meghalaya. It can be concluded that urban participants have good knowledge compare to rural participants.

Table 3: Independent t-test to compare the attitude of urban and rural caregivers of children (12-17 years) towards COVID-19 vaccine for children, N=152

Area	Maximum Score	Participant Attitude		Independent T-Test
		MEAN	SD	
Urban	60	45.33	±6.53	0.05*
Rural	60	43.24	±6.51	

* P-Value ≤ 0.05 significance

The data presented in table 3 shows that there is significant difference in attitude between the caregivers of children (12-17 years) residing in urban and rural areas of Meghalaya. It

can be concluded that urban participants have favourable attitude towards COVID-19 vaccine for children (12-17 years) compare to rural participants.

Table 4: Association between selected demographic variables and knowledge score of the participants, N=152

		Total Knowledge Score			Fisher exact test
		Good F (%)	Average F (%)	Poor F (%)	
Educational Status	Primary level	0	14 (9.21)	8 (5.26)	0.02*
	Middle level	2(1.32)	14 (9.21)	9 (5.92)	
	Secondary level	4 (2.63)	28 (18.42)	9 (5.92)	
	Higher secondary level	5 (3.29)	15 (9.87)	4 (2.63)	
	Undergraduates and above	1(0.66)	25 (16.45)	3 (1.97)	
	Illiterate	0	9 (5.92)	2 (1.32)	
Occupation	Private job	1 (0.66)	16 (10.53)	8 (5.26)	0.04*
	Daily wage earner	10 (6.58)	37 (24.34)	15 (9.87)	
	Government job	0	12 (7.89)	1 (0.66)	
	Unemployed	1 (0.66)	40 (26.32)	11 (7.24)	

* P-Value ≤ 0.05 significance

The data in table 4 shows that there is an association between educational status and occupation with total knowledge score of the participants. It can be concluded that

knowledge of caregivers depend on their educational status and occupation.

Table 5: Association between selected demographic variables and attitude of the participants towards COVID-19 vaccine for children (12-17 years), N=152

		Total attitude score		Fisher Exact test
		Favorable	Unfavorable	
Educational Status	Primary level	03(1.97)	19(12.50)	0.001*
	Middle level	15(9.87)	10(6.58)	
	Secondary level	31(20.39)	10(6.58)	
	Higher secondary level	17(11.18)	07(4.61)	
	Undergraduates and above	14(9.21)	15(9.87)	
	Illiterate	05(3.29)	06(3.95)	
Occupation	Private job	07(4.60)	12(7.89)	0.05*
	Daily wage earner	32(21.05)	30(19.73)	
	Government Job	15(9.87)	04(2.63)	
	Unemployed	31(20.39)	21(13.82)	

*P-Value ≤ 0.05 significance

The data in table 5 shows that there is an association between attitude towards COVID-19 vaccine for children (12-17 years) with educational status and occupation of

participants. It can be concluded that attitude of the caregivers depend upon their educational status and occupation.

Table 6: Correlation between knowledge and attitude of the caregivers

Variables	Correlation Co-Efficient	P-Value	Strength
Knowledge-Attitude	0.177	0.029	Weak Correlation

Table 6 shows a weak positive correlation between knowledge and attitude of the caregivers regarding COVID-19 vaccine for children.

Discussion

In the present study, 53 (69.74%) of urban caregivers and 35 (46.05%) of rural caregivers are planning to vaccinated their children. A similar study conducted by Grace Sparks *et al.* (2021) Found that out of 1,146 urban participants and 427

rural participants, 80% of urban participants and 47% of rural participants were willing to vaccinate their children^[7].

In the present study, 20 (37.53%) of urban caregivers and 2 (5.71%) of rural caregivers have already vaccinated their child. A study conducted by Grace Sparks *et al.* (2021) found out that 64% of urban participants and 26% of rural participants have already vaccinated their child^[7].

In the present study, 26 (34.21%) of urban caregivers and 41 (53.95%) of rural caregivers have unfavourable attitude

towards COVID-19 vaccine for children. A similar study conducted by Verena Barbieri *et al* found out that out of 824, 145 (17.6%) of rural and out of 602, 77 (12.8%) of urban residence have reported hesitancy towards COVID-19 vaccine^[8].

In the present study, association was found between educational status and attitude of the participants I.e. $P=0.004$ which is similar to the study conducted by Verena Barbieri *et al.* (2022) found out that there was association between education of rural and urban residence with hesitancy towards COVID-19 vaccine I.e. $P<0.001$ ^[8].

Conclusion

The study concludes that most of the participants have average knowledge, however urban caregivers have good knowledge about COVID-19 vaccine for children compare to the rural caregivers. The study also shows that Urban caregivers have favourable attitude towards COVID-19 vaccine for children compare to rural caregivers. The study shows that there knowledge of caregivers of children (12-17 years) depends on the educational status and occupation of the caregivers. And attitude of caregivers of children (12-17 years) depends on educational status of caregivers. Majority of the participants from both community accept that COVID-19 vaccine is important to prevent the spread of COVID-19 infection. And majority of the caregivers accept that COVID-19 vaccine does not affects the child's infertility.

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How to Cite This Article

Yakang D, Tase N, Myrthong CE. Knowledge and attitude among caregivers of children (12-17 years) regarding COVID-19 vaccine for children in selected urban and rural areas of Meghalaya. *International Journal of Research in Paediatric Nursing*. 2024;6(1):01-05.

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