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A comparative study of primary school teachers' knowledge of childhood asthma in urban and rural schools, Bangalore

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Abstract
Background: These triggers include breathing in pollen or contracting a cold or another respiratory ailment. Inconvenient daily symptoms from childhood asthma might prevent children from playing, participating in sports, attending school, or sleeping. Uncontrolled asthma in some children can lead to life-threatening asthma attacks. Despite the fact that adult and childhood asthma are the same illness, children have unique challenges. The condition is a significant cause of hospital visits, hospitalizations, and missed school days.
Material and Methods: A survey was carried out to learn more about the school and the teachers. The school teachers were chosen using a convenient selection strategy based on the list and the samples that were available for this investigation. There were 40 items on the knowledge test for children with asthma. A knowledge questionnaire was distributed to a total of 100 participants, 50 urban and 50 rural school teachers from various Bangalore neighborhoods.
Results: Urban school teachers' overall mean knowledge scores and standard deviation were 24.34 and 5.899, respectively, while rural school teachers' scores were 22.80 and 2.955. Teachers in rural schools had a lower overall mean knowledge score than teachers in urban schools.
Conclusion: The study revealed that there is need to educate the primary school teachers regarding childhood asthma which helps to make positive knowledge regarding childhood asthma. Education for primary school teachers have to be provided using better methods of teaching and effective teaching methods.

Keywords: Childhood asthma, primary school teachers, asthma, urban schools, rural schools

Introduction
"Children are the true connoisseurs, what's precious to them has no price, only value"

Bel Kaufman

Around the world, a serious public health problem is paediatric asthma. According to recent trends, the number of persons with asthma is expected to increase to 400 million by 2025 from the current estimate of 300 million [1]. Each year, asthma may result in up to 250,000 premature deaths, the majority of which are preventable. Around the world, 0 to 0.7 children per 100,000 people pass away from asthma [2].

Children's hospital admissions and school absences are most frequently caused by asthma. According to some research, instructors only had a basic understanding of children's asthma, hence it was suggested that all primary school teachers should get asthma education during their initial training [3]. The symptoms of asthma include wheezing, coughing, difficulty breathing, and chest tightness. Due to inflammation brought on by asthma, the small airways in the lungs become more constricted. Generally speaking, it affects the quality of life and is frequently underdiagnosed and undertreated in low- and middle-income nations [4].

Most of the time a teacher spends is in the classroom, so there may not be many opportunities for discussion with the school nurse or doctor when they come to the school. It is obvious that more meetings between the instructors and the health professionals need to be conducted. Considering that many schools do not already have access to school health services, they must find other ways to provide for the medical needs of their students, such as by hiring general practitioners and nurses. To help them better deal with their asthmatic students and to allay their own concerns, school teachers need to learn more about asthma.

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Every teacher's health experience with the students they are responsible for must include dealing with asthma [5].

Children with asthma require formal disease management and monitoring to decrease DALYs and manage symptoms. One of the key factors contributing to the rising DALYs from childhood asthma is probably the absence of comprehensive health care programmes. Research on environmental factors, lifestyle choices, dietary habits, and other health risk factors can be used to successfully prevent children's asthma. But in order to raise the standard of medical care, we must have a thorough understanding of how to avoid illnesses and the risk factors that go along with them, which are dangerous and can cause incapacity. As it includes trustworthy data on paediatric asthma for the years 1990-2019, the Global Burden of Disease study dataset is valuable for risk factor quantification; results from data analysis can be used to guide regional and national health strategies [6].

The high incidence rate of asthma and the high hospitalisation rate of children under the age of 18 are caused by a number of risk factors, including poverty, environmental factors (smoking, air pollution, overpopulation, house dust, and contact with pets), psychological factors, and a lack of sanitary facilities. Other risk factors include age (boys are more likely than girls to develop asthma), family history, viral infection history, low birth weight, food allergy, and sensitivity to allergens [7].

Children with asthma miss more school days than kids without the condition, which puts academic and intellectual performance in jeopardy [8]. In addition to the issue of absenteeism from school, kids with asthma often attend the school and spend a lot of time there when they don't have severe symptoms. These children may experience acute emergencies while attending school since the signs of an asthma exacerbation are unexpected [9]. School-day exposure to triggers can make asthma symptoms worse and possibly be fatal [10].

Teachers and staff must be knowledgeable about the signs, causes, and treatment of asthma in the educational setting. All ages, including children, are susceptible to asthma; however, treatment can manage the condition. The management and control of disease in educational settings will be aided by the proper education and awareness of the disease among school personnel.

Materials and Methods
To find out more about the school and the teachers, a survey was conducted. Based on the list and the availability of samples in this experiment, a convenient sampling approach was used to select the school teachers. The childhood asthma knowledge questionnaire consisted of 40 items. The question includes general information on childhood asthma, causes, clinical manifestations, diagnosis and complications, and management. A knowledge questionnaire was given to 100 participants in total, 50 urban and 50 rural school teachers from different areas of Bangalore.

Results
Demographic variable of school teacher
The sample consists of 100 school teachers based on specified inclusion criteria. Convenient sampling techniques were used to select the school teachers. Data was collected regarding age, gender, income, education, marital status, religion, place, experience, in-service education and source of information regarding childhood asthma.

Table 1: Frequency and percentage of the sample characteristics n=100

Sl. No	Demographic Variables		Urban		Rural	
			Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1.	Age in years	22-25	2	4	14	28
		26-29	9	18	19	38
		Above 30	39	78	17	34
2.	Gender	Female	44	88	39	78
		Male	6	12	11	22
3.	Educational Qualification	TCH	8	16	14	28
		B.Ed.	16	32	9	18
		D.Ed.	4	8	10	20
		Other	22	44	17	34
4.	Income	5000-10000	16	32	33	36
		10001-15000	30	60	10	20
		Above 15001	4	8	7	14
5.	Marital status	Married	47	94	33	66
		Unmarried	3	6	17	34
6.	Religion	Hindu	41	82	41	82
		Muslim	7	14	5	10
		Christian	2	4	4	8
7	Place of living	Rural	14	28	29	58
		Urban	36	72	21	42
8.	Teaching experience	1 year	3	6	5	10
		2 years	8	16	9	18
		3 years & above	39	78	36	72
9.	Any in-service education	Yes	0	0	0	0
		No	50	100	50	100
10.	Source of information	Mass media	32	64	33	66
		Contact with health personnel	6	12	7	14
		Information from others	12	24	9	18
		Any other	0	0	1	2

Table 2: Area wise mean knowledge score of teachers in urban schools n=50

Sl. No	Assessment Variables	Total Score Assigned	Mean Scores	Standard Deviation	Percentage Mean
1.	General Information	7	5.10	1.568	72.86
2.	Causes	3	1.68	0.741	56.00
3.	Clinical manifestations, diagnosis, management	6	3.54	1.432	59.00
4.	Complications	24	14.02	3.248	58.42
	Total Score	40	24.34	5.899	60.85
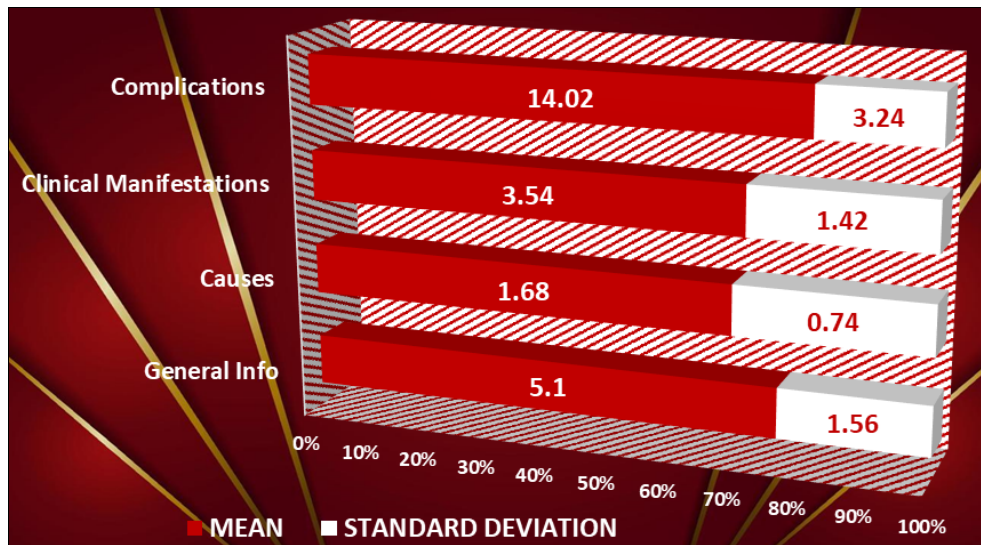
Fig 1: Mean knowledge score of teachers in urban schools

Table 2 and Figure 1 depicts that area wise mean knowledge score of teachers in urban schools on General information, causes, clinical manifestations, diagnosis, management and complications are 5.10, 1,68, 3.54 and 14.02 respectively.

Mean knowledge scores 14.02 is highest in the area of complications and least 1.68 in the area of causes. Overall mean knowledge score is 24.34 and standard deviation 5.899.

Table 3: Area wise mean knowledge score of teachers in rural schools n=50

| Sl. No	Assessment Variables	Total Score Assigned	Mean Scores	Standard Deviation	Percentage Mean
1.	General Information	7	5.24	1.135	74.86
2.	Causes	3	1.62	0.697	54
3.	Clinical manifestations, diagnosis, management	6	3.12	0.849	52
4.	Complications	24	12.82	2.292	53.42
	Total Score	40	22.80	2.955	57
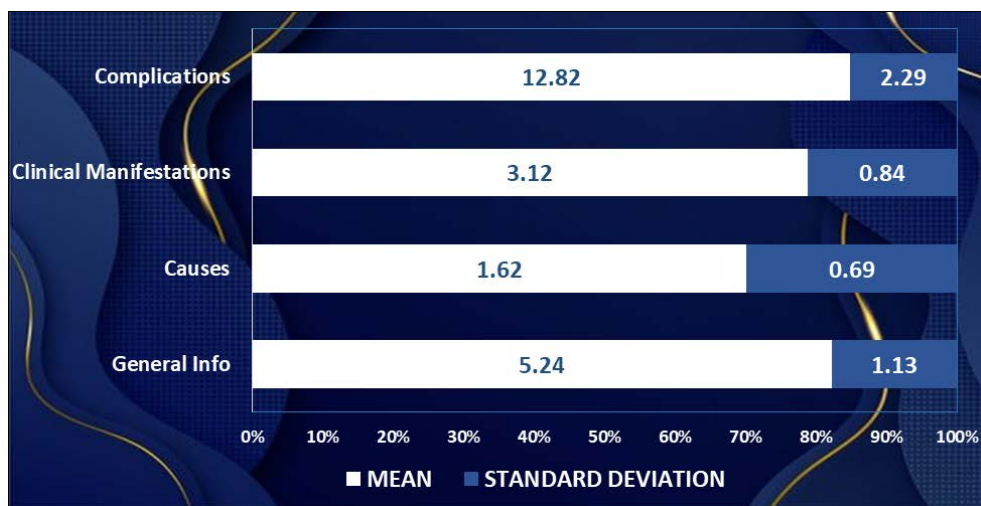
Fig 2: Mean knowledge score of teachers in rural schools

Table 3 and Figure 2 depicts that area wise mean knowledge score of teachers in rural schools on General information, causes, clinical manifestations, diagnosis, management and complications are 5.24, 1,62, 3.12 and 12.82 respectively.

Mean knowledge scores 12.82 is highest in the area of complications and least 1.62 in the area of causes. Overall mean knowledge score is 22.80 and standard deviation 2.955.

Table 4: Comparison of the knowledge scores of urban and rural school teachers regarding childhood asthma n=100

Sl. No	Assessment Variables	Urban school teachers		Rural school teachers		t- value	P value
		Mean	Standard Deviation	Mean	Standard Deviation		
1.	General Information	5.10	1.568	5.24	1.135	0.511	0.610
2.	Causes	1.68	0.741	1.62	0.697	0.417	0.677
3.	Clinical manifestations, diagnosis, management	3.54	1.432	3.12	0.849	1.785	0.077
4.	Complications	14.02	3.248	12.82	2.292	2.134	0.035
	Over all Knowledge Score	24.34	5.899	22.80	2.955	1.650	1.660
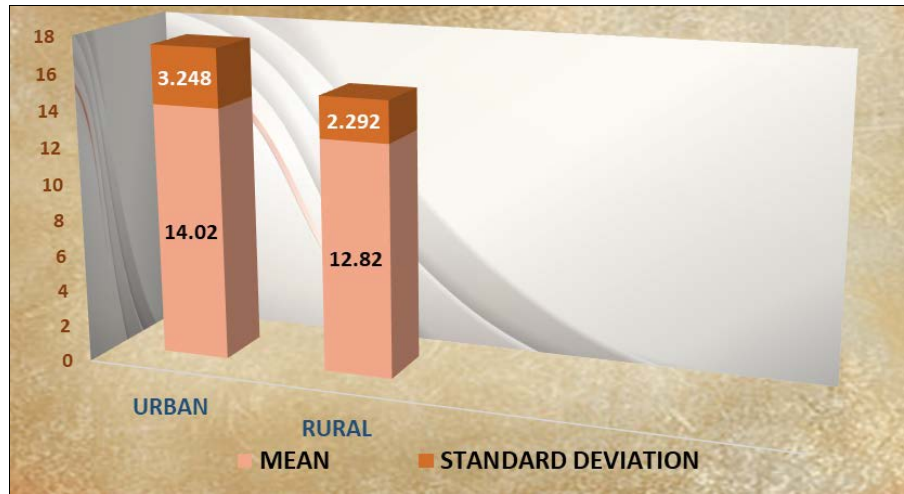
Fig 3: Comparison of the knowledge scores of urban and rural school teachers

Table 4 and Figure 3 depicts that comparison of area wise mean knowledge score and standard deviation of urban & rural school teachers. Overall mean knowledge scores and standard deviation of urban school teachers were 24.34 and 5.899 and rural school teachers were 22.80 and 2.955 respectively. The overall mean knowledge score of teachers in rural school were less than urban school teachers.

Association between the knowledge and demographic variables of urban and rural school teachers
The chi-square value was significant at the 0.05 level, indicating that there was a relationship between the teachers' age in years and knowledge level. The gender and level of knowledge among urban school teachers were related, according to the Fischer's Exact test, which was significant at the 0.05 level (Fischer's Exact Test= 0.006). There is no significant association between knowledge level and demographic variable like education, income, marital status, religion, place of living, teaching experience, in-service education and source of information among urban school teachers.
Among teachers in rural schools, there is no correlation between knowledge level and demographic factors like age, education, income, marital status, religion, place of residence, teaching experience, in-service training, and information source.

Discussion
Comparing teachers from urban and rural schools in terms of their average knowledge scores and standard deviation. In general, instructors in urban schools scored an average of 24.34 and had a standard deviation of 5.899, while those in rural schools scored 22.80 and had a standard deviation of 2.955. Rural school teachers scored lower on the overall knowledge test than their urban counterparts.
The area wise mean knowledge score of rural school teachers on general information, causes, clinical manifestations, diagnosis, management and complications are 5.10, 1.68, 3.54 & 14.02 respectively. Mean knowledge scores 14.02 is highest in the area of complications and least 1.68 in the area of causes. Overall mean knowledge score is 22.80 and standard deviation is 2.955. Thus, it was determined that there was a considerable knowledge gap between urban and rural school teachers.
Among teachers working in urban schools, there is no correlation between knowledge level and demographic factors like education, income, marital status, religion, place of residence, teaching experience, in-service training, and information source. There is no statistically significant correlation between the level of knowledge and any demographic factors among teachers in rural schools.

Conclusion
The research showed that primary school teachers need to be educated on childhood asthma in order to spread awareness of the condition. Better and more efficient teaching techniques must be used to train elementary school teachers. The study revealed that there is knowledge deficit regarding childhood asthma among primary school teachers.

Conflict of Interest
Not available

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References

1. Masoli M, Fabian D, Holt S, Beasley R. The global burden of asthma: Executive summary of the GINA Dissemination Committee report. Allergy. 2004;59(5):469-478. DOI:10.1111/j.1398-9995.2004.00526.x [PubMed] [CrossRef] [Google Scholar]

2. Nakayasu H, Araga S, Takahashi K, Otsuki K, Murata M. Two cases of adult Down's syndrome presenting parietal low uptake in 123I-IMP-SPECT. Clinical Neurology. 1991;31(5):557-560. [PubMed] [Google Scholar]

3. Bahari MB, Nur NM, *et al*. Knowledge of Asthma in School Children. Singapore Med Jour. 2003;44(3):131-5.

4. MacNeil J, Loves RH, Aaron SD. Addressing the misdiagnosis of asthma in adults: Where does it go wrong? Expert Rev Respir Med. 2016;10:1187-98. [PubMed] [Google Scholar]

5. Singh U. Knowledge and practices of teachers about asthma among primary school children. Nightingale Nursing Times; c2005 Oct.

6. GBD. Risk Factor Collaborators. Global, regional, and national comparative risk assessment of 84 behavioral, environmental and occupational, and metabolic risks or clusters of risks for 195 countries and territories, 1990-2017: A systematic analysis for the global burden of disease study 2017. Lancet. 2018;392:1923-94. DOI: 10.1016/S0140-6736(18)32225-6.

7. Moussa MA, Skaik MB, Yaghy OY, *et al*. Factors associated with asthma in school children. Euro J Epidemiol. 1996;12(6):583-8.

8. Al Kindi Z, McCabe C, McCann M. School nurses' available education to manage children with asthma at schools: A scoping review. J Pediatr Nurs. 2021;60:46-57. DOI: 10.1016/j.pedn.2021.01.027. [PubMed] [Cross Ref] [Google Scholar]

9. Kuyinu YA, Adeyeye OO, Ozoh OB. Assessment of the knowledge of teachers about asthma and the availability of facilities for asthma care in public secondary schools in Lagos, Nigeria. Afr J Thorac Crit Care Med. 2018;24(2):76-81. DOI: 10.7196/SARJ.2018.v24i2.192. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

10. Reznik M, Greenberg E, Cain A, Halterman JS, Avalos IM. Improving teacher comfort and self-efficacy in asthma management. J Asthma. 2020;57(11):1237-43. DOI: 10.1080/02770903.2019.1640732. [PubMed] [CrossRef] [Google Scholar]