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(RESEARCH ARTICLE)

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Assessing knowledge and awareness of lower respiratory tract infection (LRTIs) among caregivers: A cross-sectional study

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Abstract

Lower Respiratory Tract Infection (LRTIs) is a serious medical condition that affects the airways and lungs and leads to respiratory complications even rarely death. LRTI is the leading cause of mortality and morbidity in children in resource limited settings. Caregivers have an essential role in preventing, identifying early signs/symptoms and treatment LRTI in children. Gaps in caregiver's knowledge can adversely affect child health outcomes leads to harmful disease conditions. This community-based cross-sectional study evaluated caregivers' understanding of LRTIs and examined the effects of an educational intervention. The study included 134 caregivers of children under the age of 18 years. The study was conducted by collecting the information using a structure pre-questionnaire, followed by an awareness session and post-assessment questionnaire to measure change in knowledge. The findings revealed that awareness regarding viral causes, common symptoms such as cough and preventive measures as hand hygiene improved after the awareness session. The study highlights current knowledge gaps among caregivers and demonstrates that targeted educational initiatives can successfully improve awareness and promote preventive behavior, encouraging early care-seeking and better management of LRTIs in children.

Keywords: Lower Respiratory Tract Infection; Caregivers; Awareness; Knowledge; Health Education

1. Introduction

Lower respiratory tract infection (LRTIs) is an infection affecting the lungs and air passages, resulting in inflammation and difficulties with breathing. LRTIs include acute bronchitis, acute bronchitis, and pneumonia.[1] Symptoms such as persistent coughing, difficulty breathing, chest discomfort, wheezing, fever, fatigue, and the production of mucus. [2] It is frequently carried via viruses or bacteria that enter the lungs and cause an infection. When an infected person coughs or sneezes, these viruses can spread via the air. They can also be spread by encountering contaminated surfaces and then touching their face. [3] LRTI may develop because of a weakened immune system or as a complication of an underlying respiratory condition. Understanding the causes of lower respiratory tract infections can help with the development of management and preventive strategies. [4]

Caregivers play a crucial role in the prevention, early identification, and management of lower respiratory tract infections. [5] Health-seeking behaviour and treatment adherence are heavily influenced by their awareness of causes, symptoms, risk factors, and preventative measures. [6] Inadequate information or a lack of understanding among caregivers can result in delayed care, inadequate home management, and a higher chance of serious illness and hospitalization. [7]

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Among children under five, LRTIs are a leading cause of illnesses and mortality, especially in countries with low or middle incomes. Long-term respiratory issues may arise from recurrent LRTIs in children. [8] Developing focused preventative treatments requires identifying modifiable risk factors, such as low vaccination rates and exposure to air pollution and tobacco smoking. [9] Furthermore, the existence of infections resistant to antibiotics emphasizes the necessity of well-informed treatment recommendations and efficient public health regulations. Therefore, reducing the incidence of LRTIs in children requires the implementation of comprehensive public health initiatives.[10]

Objective

The objective of this study was to assess the knowledge and to create an impact and provide awareness regarding LRTIs among caregivers in Eraviperoor Grama Panchayat, Thiruvalla, Kerala.

2. Materials And Methodology

A community-based cross-sectional study was conducted to assess the knowledge and create awareness regarding LRTIs among caregivers among 134 caregivers in Eraviperoor Grama Panchayat, Thiruvalla, Kerala. The study was conducted from December 2024- May 2025 and was approved by the Institutional Review Board of Nazareth College of Pharmacy. Caregivers of children below 18 years of age, including both male and female caregivers, were included. Caregivers unwilling to participate were excluded. After obtaining informed consent, data were collected using a pre-designed structured questionnaire to assess baseline knowledge regarding LRTIs. A pre-assessment was conducted, followed by an awareness program aimed at improving knowledge about the causes, symptoms, prevention, and management of LRTIs. Subsequently, a post-assessment questionnaire was administered to evaluate the impact of the awareness program on caregivers' knowledge. The collected data were entered into Microsoft Excel, and the results were analyzed and presented in tabular form as frequencies and percentages. Statistical analysis was performed to assess the level of knowledge among caregivers and to determine the effectiveness of the awareness intervention.

3. Result

3.1. Distribution of Age Group of Subjects

Among 134 caregivers in the study, 24 were aged below 25 years, 68 were aged 25–30 years, 35 were aged 31–40 years, and 7 were aged above 40 years, with the highest occurrence of LRTI noted among children cared for by caregivers aged 25–30 years.

3.2. Distribution Of Educational Status of Caregivers

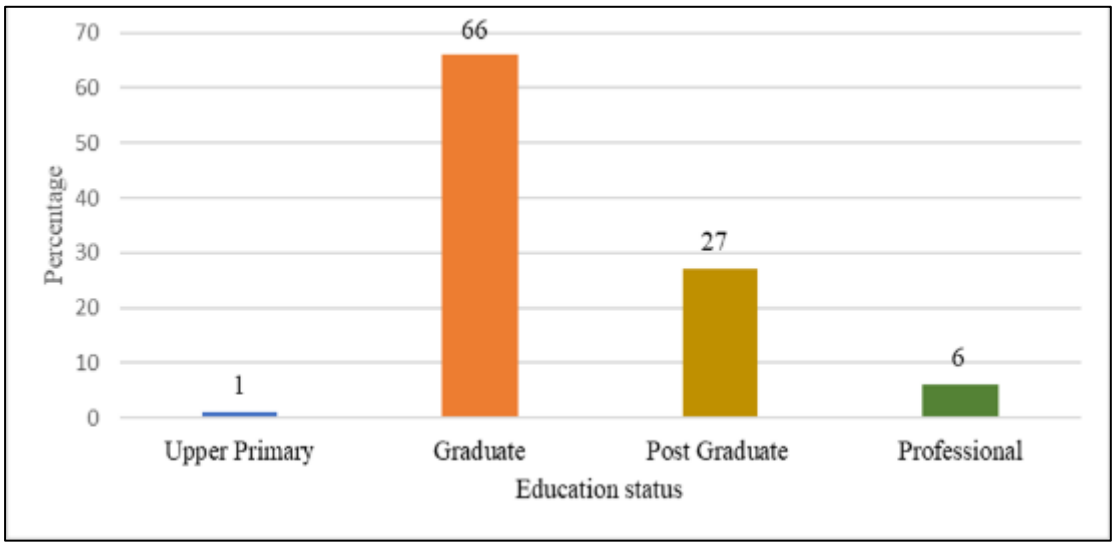

Figure 1 Distribution of educational status of caregivers/parents

Among the 134 participants, the majority of caregivers, 88 individuals (66%) were graduates, followed by 36 individuals (27%) were postgraduates,8 individuals (6%) were professionals, and a small proportion of 2 participants (1%) had upper primary education.

3.3. Distribution of causes of LRTIS

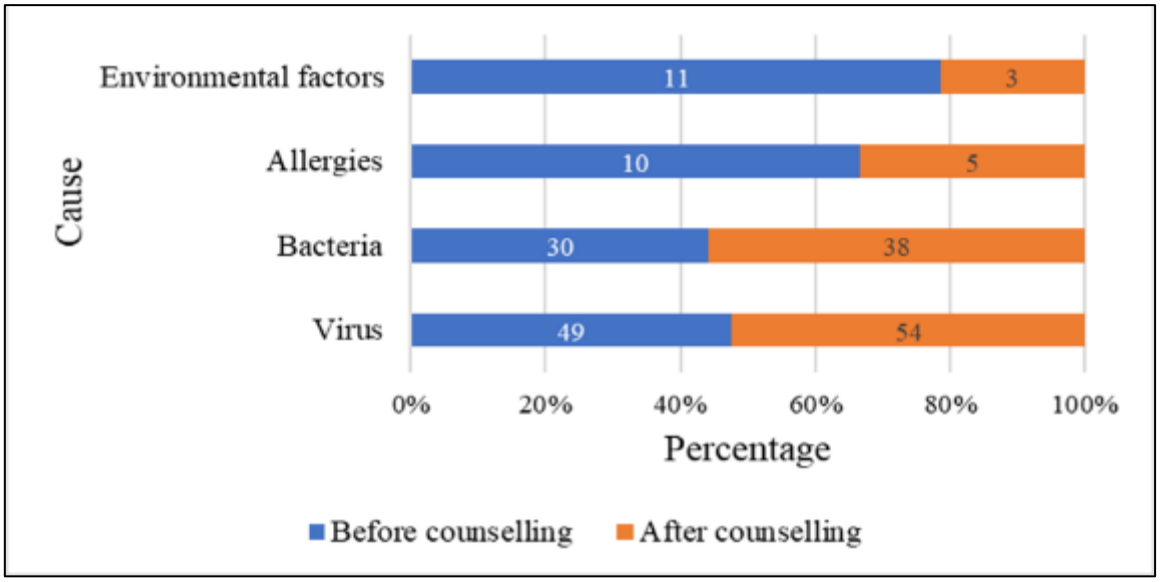

Figure 2 Distribution of Causes of LRTIS

In our study, pre-counseling data showed that 78 individuals (49%) attributed LRTI to viruses and 18 (11%) to environmental factors. After counselling, a significant increase was 94 individuals (54%) identifying viruses as a cause and 5 (3%) identifying environmental factors.

3.4. Distribution of Respondents who have taken Preventive Measures among LRTIs

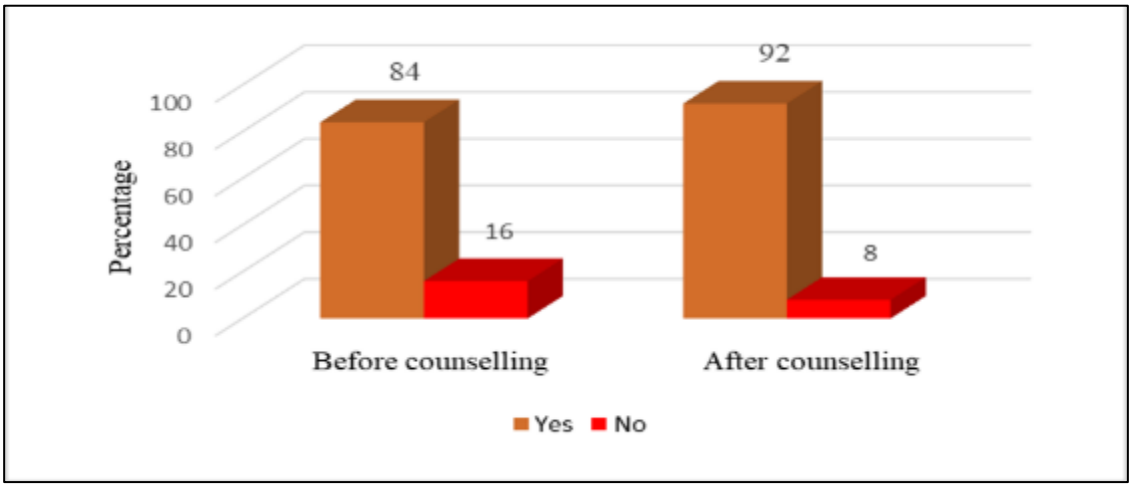

Figure 3 Distribution of respondents who taken preventive measures among LRTIs

Among the 134 individuals, before giving counselling 112 individuals (84%) reported taking preventive measures, while 22 individuals (16%) didn't. After counselling, there was a notable increase in the adoption of preventive measures, with 123 individuals (92%) taking steps to prevent LRTI and 11 individuals (8%) still not taking preventive measures.

3.5. Distribution of Symptoms of LRTIs

Table 1 Distribution of Symptoms of LRTIs

Sl. No	Response	Before Counselling		After Counselling	
		Frequency	Percentage	Frequency	Percentage
1	Cough	66	33	70	31.3
2	Fever	32	16	30	13.4
3	Shortness of breath	46	23	39	17.4
4	Chest pain	34	17	35	16
5	Wheezing	23	11	49	21.9
	Total	201	100	223	100

The table illustrates the distribution of symptoms associated with LRTI as reported by individuals. Before counselling, the most common symptoms were initially 66 individuals (33%) with cough followed by 23 individuals (11%) with wheezing. After counselling the distribution shifted slightly; cough remained the most common symptom with 70 individuals (31.3%) followed by fever with 30 individuals (13.4%).

3.6. Distribution of Preventive Methods for LRTIs in Children

Table 2 Distribution of Preventive Methods for LRTIs in Children

Sl. No	Response	Before Counselling		After Counselling	
		Frequency	Percentage	Frequency	Percentage
1	Vaccination	3	1	45	20.4
2	Hand Hygiene	74	34	80	36.2
3	Avoiding close contact with infected individuals	55	25	65	30
4	Using face mask	16	7	8	4
5	Improve ventilation	30	14	14	5.4
6	Avoid Allergens	42	19	8	4
	Total	220	100	220	100

In our study, the knowledge of preventive measures for LRTI in children, before counselling, the most identified preventive measure was 74 individuals (34%) with hand hygiene and 3 individuals (1%) undergone vaccination. After counselling, there was a significant shift with 80 individuals (36.2%) with hand hygiene, and 8 individuals (4%) avoiding allergens.

4. Discussion

This study aimed to evaluate knowledge and impact of awareness of caregivers across the Eraviperoor, Grama Panchayat, Thiruvalla. Although no prior study examined caregivers' understanding of LRTIs, the results show that caregivers' knowledge of LRTIs was poor and that enhancing caregivers' awareness of LRTIs had a greater impact on children. Caregivers aged 25 to 30 had the greatest incidence of LRTIs among the children.

Our study further explores the essential need for understanding the underlying causes and preventive measures of LRTIs in children. Structured counselling sessions and public interventions increase the knowledge among caregivers about home management and the prevention of LRTIs in children.

In our study, pre-counselling and post-counselling data from our study, the most common cause of LRTIs is a virus. Our results were similar to research by Kini Sandesh et al. that identified viral infections as the primary cause of LRTIs. [11]

Our study further shows the knowledge of preventive measures for LRTIs in children. Before counselling, the most identified preventive measure was hand hygiene, and after counselling, it remained the same with an increased percentage. Our study supports the findings of Gash-Warren Charlotte et al. (2013), highlighting the importance of hand hygiene in reducing community transmission of LRTIs. [7] In our study, before giving counselling, they reported that taking preventive measures is less, and after counselling, there was a notable increase in the adoption of preventive measures. Our findings were similar to the research of Birhanu Windemere Demissie et al., who found that counselling plays a major role in increasing taking preventive measures and unvaccinated children are more vulnerable to LRTIs. [12]

Overall, these results highlight the caregivers' knowledge of LRTIs in children varied, and the awareness program improved their comprehension of early symptoms, risk factors, preventative strategies, and the significance of prompt medical attention.

Abbreviations

- LRTI: Lower Respiratory Tract Infection;
- WHO: World Health Organization;
- ALRI: Acute Lower Respiratory Infection;

5. Conclusion

The research study evaluated caregiver's knowledge and awareness of LRTIs in Eraviperoor Grama Panchayat, Thiruvalla. The results show that the caregiver's initial knowledge of LRTI cause, symptoms and preventative strategies was inadequate. Caregiver's knowledge significantly improved after the awareness and counselling intervention, especially in identifying frequent symptoms, identifying viral etiology, and implementing preventive measures like hand hygiene. The increased uptake of preventive measures after counselling highlights the positive influence of structured educational programmed at the community level. These findings highlight the importance of improving caregiver education to encourage early detection, prompt healthcare-seeking behavior, and successful LRTIs prevention in children. LRTIs related hospitalization, complication, and disease burden can all be decreased by applying regular awareness campaigns into action. Counselling sessions have a wider impact on the prevention of LRTIs in children.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

The authors certify that they have obtained consent from the participants in this study, and their details will be kept confidential with due diligence.

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