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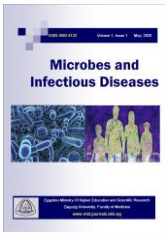

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Original article

Practices of mothers toward home care of acute respiratory infection of their children under five

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ABSTRACT

Background: Acute respiratory infection (ARI) is an acute infection of the respiratory tract that is usually caused by viruses or bacteria. Represented one of the most common illnesses in children under five years old. Many factors affect morbidity and mortality due to ARIs, including the child's health, socioeconomic status, and environmental conditions. Mother's knowledge, attitudes, and practices have an important role in influencing the morbidity and mortality caused by ARIs in children under five years of age. **Aims**: To assess mothers' practices toward home care of acute respiratory infection of their children under five. As well as to find out the relationship between mothers' practices toward home care of acute respiratory infection and sociodemographic characteristics. **Methods**: A cross-sectional descriptive study design was used in the current study. This study was conducted at health institutions of the health directorate of Babylon province for the period of January 15, 2025, to March 12, 2025. The target population includes (250) mothers with their children under five who have acute respiratory infections. Data was collected through using a modified questionnaire and analyzed electronically by using SPSS version 23. **Results**: Results of this study revealed that 48% of participants are in the 20-29 age group, and the overall evaluation of mothers' practices toward home care of acute respiratory infection of their children under five was moderate. There is a significant relationship between mothers' practices and some sociodemographic characteristics factors such as mother's marital status, educational level, occupation, resident and socio-economic. **Conclusions**: The overall assessment of mother's practices toward home care of acute respiratory infection of their children was moderate. Health education of mothers toward home care of acute respiratory infection of their children under five in model health care centers, educational programs for nurses to expand their respiratory infection care knowledge and mass media is recommended to educate the public about acute respiratory infection, prevention strategies, and how to acquire knowledge for home care of children with the disease. Television and radio, as well as lectures at various community associations or health centers, all provide information about acute respiratory infection prevention.

Introduction

Acute respiratory infections (ARIs) are the most frequent cause of morbidity and mortality in children under five years, with an average of 3.27 ARI episodes per year, which carries a significant financial burden and is the primary reason why children are admitted to health facilities. Also, ARTIs represent a major public health concern among children of this age in developing countries [1, 2].

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The second most common cause of death for infants and young children in Indonesia is ARI, with an emphasis on pneumonia, which is closely followed by diarrhea [3].

The term "acute respiratory infection" describes an acute infection of the respiratory system, predominantly brought on by bacteria such as *Streptococcus pneumoniae*, *Haemophilus influenzae* type b (Hib), *Staphylococcus aureus*, or viruses such as the measles virus, respiratory syncytial virus (RSV), influenza virus, or human parainfluenza viruses [1]. Acute respiratory diseases claim the lives of over 12 million children in underdeveloped nations each year before they turn five, with many of them passing away in their first year of life. Malnutrition, diarrheal illnesses, and ARI are the main causes of death and morbidity in children under five in underdeveloped nations [4].

Most deaths in developing countries in Asia and Africa in variable rates, occur in India (48%), Indonesia (38%), Ethiopia (4.4%), Pakistan (4.3%), China (3.5%), Sudan (1.5%), and Nepal (0.3%) [5]. For every 1,000 live births of children under five years, there are 15.6 deaths in Jordan. Furthermore, ARI-related symptoms account for 60.9% of Jordanian children in these ages who are admitted to hospitals [6]. According to estimates, pneumonia killed 758 children under the age of five years in Iraq in 2021, with 28 of the deaths occurring in the Wasit Governorate, excluding the Kurdistan area [7].

Both lower and upper respiratory infections (LRIs and URIs) are a part of ARIs. URI involves the paranasal sinuses and middle ear that affect the airways from the nostril to the vocal cords. More than 9% of all primary care consultations involve them, making them the most prevalent respiratory diseases, especially in young children [8]. Upper respiratory tract infections can affect any of the upper airway's components and include the common cold, sinus infection, tonsillitis, pharyngitis, laryngitis, otitis media, and nasal blockage [9].

Bronchitis, bronchiolitis, bronchopneumonia, and pneumonia are cases of LRTI. The diagnosis of viral and bacterial pneumonia can sometimes be complex to determine by chest X-ray and clinical findings. Due to the host resistance is compromised after an upper respiratory tract disease, pathogenic pathogens enter the lower respiratory tract [10].

Mothers' actions can have an impact on their children. For example, in many developing and underdeveloped nations, where a sizable percentage of people manage or treat their illnesses without a doctor's advice, mothers frequently prescribe medication for their ill children. This practice, regrettably, is becoming more and more common every day. In addition, some people prefer to use smartphone apps and conduct online searches for solutions to symptoms; these actions can have serious long-term or short-term health consequences [11].

Objectives of the study

To assess mothers' practices toward home care of acute respiratory infection of their children under five.

To find out the relationship between mothers' practices toward home care of acute respiratory infection and sociodemographic characteristics.

Materials and methods

Design and sampling

A quantitative, cross-sectional descriptive design is used for the assessment of the mothers' practices toward home care of acute respiratory infection of their children under five in the Babylon province from January 15 to March 12, 2025. The sample of the study was selected purposively (non-probability) and made up of 250 mothers whose children have acute respiratory infection.

Data collection

The questionnaire used for data collection was altered to achieve the objectives of the current study. It is divided into two sections that are intended to discuss all aspects of the research. Mothers' demographic information is collected in the first section, and their practices of several topics, such as medications, nutrition, crowded places, temperature, personal hygiene, rest and sleep and environment are is covered in the second section.

Results

Distribution of study sample by their socio-demographic variables (SDVs)

Table 1 displays the distribution of study sample by their socio-demographic variables. The mean and standard deviation (SD) of age was 29.76±6.855; where participants were distributed according to their ages into four categories: <20 years, 20-29 years, 30-39 years, and ≥40 years. The highest percentage of participants was 48.0% in the

20-29 category, while the lowest percentage was 6% in the <20 category, the results of statistical analysis showed non-significant differences (p=0.405). According to the marital status, the study sample was divided into three groups: married, divorced, and widowed. Significantly (p=0.019), the majority of the study sample was in the married group, representing 98.8%.

In the context of education level, participants in the current study were divided into six categories: Illiterate, Read and Write, Primary School, Intermediate Graduate, High School Graduate, and Institute or College Graduate; the highest percentage was in the primary school category, while the lowest percentage was 6.8 in the institute or college graduate category, with a significant differences (p=0.041). Regarding occupation, participants were divided into three groups: Employed, Unemployed and Students; the significantly (p=0.026) highest percentage was 88.8% of Unemployed, compared to only 0.4% of Students. According to the residency, 58.8% of the participants reside in urban areas, and 41.2% of them in rural areas, with significant (p=0.001) differences. As for socio-economic status, participants were divided into three categories: Satisfied, satisfied with certain limit, and unsatisfied, with a significantly (p=0.049) highest percentage being 68.0% in the Satisfied to a certain limit category.

With regard to family type, there were four categories including Nuclear, Extended, Single Parent and Mixed, with the highest percentages being in the Nuclear and Extended categories, at 46.8% and 51.6%, respectively; the results of statistical analysis showed non-significant differences (p=0.885). Finally, mothers were divided according to the number of children into groups 1, 2, 3 and >3. The highest percentages were within the two categories of groups 2 and >3, at 28.8% and 33.2%, respectively, with no significant differences (p =0.652).

Distribution of mothers practice towards home care of acute respiratory infection of their children under five

Results in **table (2)** exhibits the distribution of mothers practice towards home care of acute respiratory infection of their children under Five. In first practice: giving the medications prescribed by the doctor when infected with a respiratory infection, 58.4 % sometimes administer doctor-prescribed medications, while 30.4% never do this.

A similar pattern has been noted in efforts to strengthening my child's immune system through proper nutrition during illness, at 59.2% do so sometimes, while 10.4% always. Notably, 61.2% avoid giving medications without consulting the doctor, revealing a strong adherence to the medical guidance, as reflected by its high mean score (M.S = 2.34), which classify as high (H). Other practices, like keeping my child away from crowded places to avoid the spread of infection (66.8%) and Regularly measuring my child's temperature during a respiratory infection (68.0%), also exhibit adherence with a moderate level (M.S around 1.8). Additionally, the practices of taking the child to the doctor if symptoms persist for a long time, monitoring the child's condition to ensure that no complications occur, and keeping the child's surrounding environment clean and ventilated during infection are from practices that recording high percent as "sometimes" responses among participants, suggesting moderate awareness of respiratory infections management.

Overall assessment of mothers practice towards home care of acute respiratory infection of their children under five

Table 3 shows the mothers' practice towards home care of acute respiratory infection of their children under five. These practices are divided into three groups: Inadequate, Moderate, and Adequate; where the high percent of mothers follow moderate pattern of home care at percent of 55.2%.

Table 1. Distribution of study sample by their socio-demographic variables (SDVs) (N = 250).

Variables		Ranks			$^{b}\chi^2$	Sig.
	Classification	No.	%	Mean Rank		
Age	<20	15	6.0	128.43	2.916	.405
	20-29	120	48.0	118.76		
	30-39	77	30.8	135.05		
	≥40	38	15.2	126.29		
Marital status	Married	247	98.8	224.82	13.313	.019
	Divorced	2	.8	152.50		
	Widowed	1	.4	138.50		
Education level	Illiterate	33	13.2	133.89	13.321	.041
	Read and write	37	14.8	112.20		
	Primary school	98	39.2	124.29		
	Intermediate	42	16.8	136.05		
	High school	23	9.2	125.48		
	Institute or college	17	6.8	179.12		
Occupation	Employed	27	10.8	212.04	22.630	.026
	Unemployed	222	88.8	127.48		
	Students	1	0.4	50.50		
Residents	Rural	103	41.2	133.05	12.309	.001
	Urban	147	58.8	171.21		
Socio-economic	Satisfied	42	16.8	171.49	11.025	.049
	Satisfied limited	170	68.0	125.97		
	Unsatisfied	38	15.2	116.78		
Family type	Nuclear	117	46.8	124.12	.245	0.885
	Extended	129	51.6	128.27		
	Single Parent	2	.8	126.44		
	Mixed	2	.8	144.50		
No. children	1	46	18.4	122.01	1.634	.652
	2	72	28.8	129.53		
	3	49	19.6	116.34		
	>3	83	33.2	129.35		

Table 2. Distribution of mothers practice towards home care of acute respiratory infection of their children under five (N = 250).

List	Practices items	Never		Sometime		Always		M.s	Ass.
		No.	%	No.	%	No.	%		
1	Giving the medications prescribed by the doctor when infected with a respiratory infection.	76	30.4	146	58.4	28	11.2	1.81	M
2	Strengthening my child's immune system through proper nutrition during illness.	76	30.4	148	59.2	26	10.4	1.80	M
3	Avoid giving medications without consulting a doctor.	67	26.8	30	12.0	153	61.2	2.34	H
4	Taking my child to the doctor if symptoms persist for a long time.	75	30.0	147	58.8	28	11.2	1.81	M
5	Keeping my child away from crowded places to avoid the spread of infection.	55	22.0	167	66.8	28	11.2	1.89	M
6	Regularly measuring my child's temperature during a respiratory infection.	64	25.6	170	68.0	16	6.4	1.81	M
7	Regularly observing my child's personal hygiene during illness.	68	27.2	150	60.0	32	12.8	1.86	M
8	Encouraging my child to rest and sleep during a respiratory infection.	76	30.4	141	56.4	33	13.2	1.83	M
9	Monitoring my child's condition to ensure that no complications occur.	74	29.6	143	57.2	33	13.2	1.84	M
10	Keeping the child's surrounding environment clean and ventilated during infection.	83	33.2	138	55.2	29	11.6	1.78	M

Table 3. Overall assessment of mothers practice towards home care of acute respiratory infection of their children under five (N = 250).

	Categories	No.	%	Mean±SD
Practices	Inadequate (≤16.66)	83	33.2	18.77±5.597
	Moderate (16.67-23.33)	138	55.2	
	Adequate (>23.33)	29	11.6	
	Total	250	100.0	

Discussion

Distribution of study samples by their socio-demographic variables

The present study shows that the less than half of mothers are in the 20-29 age category, this finding aligns with a previous study conducted in a city in southeast Nigeria on (400) children with acute respiratory infections, which revealed that more than half of the mothers are between the ages of 20 and 29 [12]. In addition, the present study in line with another one conducted in Viet Nam population, which found that among (172) mothers more than half were in age less than 30 years with a mean age of (29.2) [2]. The higher percentage of mothers at 20-29 age category in our investigation likely reflects biological, social, and economic aspects. Where, at this age range is a peak childbearing period. Mothers in their 20s may get their first child, so they less experienced to manage the infections compared to older mothers, who have more experience from previous parenting. In addition, socioeconomic factors, such as health literacy and financial constraints affect the quality of childcare and get to healthcare.

The overwhelming percentage of married mothers in our study is likely due to various societal and demographic factors. Marriage is an important family structure worldwide, and in different cultures, childbearing is linked with marriage, makes it more likely that mothers of young children are married rather than divorced and widowed [13]. Furthermore, married mothers oftentimes have more constant support systems, including financial and emotional purses, which can participate to better healthcare-consideration behavior and home care practice for children infected with acute respiratory infections [14]. Additionally, widowed or divorced mothers might represent a smaller portion due to lower fertility rate or alterations in household dynamics that affect child-rearing trends [15]. Our result is supported by a cross-sectional descriptive design study on (100) conducted in the Mansoura University Children Hospital, which showed the almost of mothers are married [16]. Another study conducted in Maternal and child health care center (East Nile Medical Center) at Beni-Suef City, which showed that the vast majority of mothers are married [17].

According to the current survey, one-third of the mothers had only a primary education, this finding aligns with a previous a qualitative study in Indonesia, which reported that more than half of mothers who had children with acute respiratory infections were in elementary school[18]. Two-fifths of the 5,289 mothers whose children had acute respiratory infections were in lower middle school, according to another study by [19], which used a cross-sectional study methodology. Numerous factors that the researchers observed could be associated with the fact that these women were not given the chance to appropriately complete their education. Education is essential for mothers because educated mothers will be able to manage any infection or illness that the child might be exposed to, it is not surprising that the rate of this disease and its complications increases among children who have mothers with low educational levels. A woman may develop the ability to recognize between actual information and misconceptions during her studies, which helps her in making better decisions regarding her child's health. Educated women are more likely to search for symptoms and cures from trustworthy sources, including physicians or medical studies, which helps them identify problems early.

According to the results of the current study, the majority of mothers do not have an occupation. This finding agrees with a previous investigation found that majority mothers who children with acute respiratory infection were unemployed [20]. As well, this result is consistent with the findings of a research conducted by [21], they found the more than three quarters of mothers were housewives. This may be explained by the fact that women are not encouraged to work or complete their education in the culture of the society from which the sample was collected, particularly if they have children. This is especially relevant for those

who are sick and require continuous care. In fact, employed women are better able to manage their time and take care of their children, including attending appointments with their physicians and taking their medications on time. So, she may come into contact with employees who have gone through similar things in their jobs, which will enable her to share knowledge and gain insight from their experiences with sick children.

According to residency, more than half of mothers in the current study reside in urban areas. The present finding compatibles with a study conducted by [22] in Gondar, Northwest Ethiopia, on (422) children who had acute respiratory infections, which reported that more than half of mothers live in urban areas. Also, our finding in line with another study in Egypt included (4,745) mothers their children (under 5 years of age) suffered from acute respiratory infections, where this investigation showed that more than two thirds of them living in rural areas. Cities offer better services than rural areas, including clean water, power, healthcare, and education [23]. Living in a city provides numerous possibilities for social and cultural interactions, including interacting with people from different backgrounds, being receptive to new opinions, and engaging in part in various activities.

According to the present study, 68% of families are satisfied to a certain extent with their financial situation. This finding was confirmed by [24], who discovered that the economic situation of two-fifths of the study group was between 2000 and 3499 ETB. Another study on (270), also found that more than two thirds of the economic state was sufficient [25]. In fact, the standard of living is very important for dealing with children with respiratory infections because those with higher incomes can see physicians and have continuing consultations to help properly recognize the disease. They may provide a healthy home environment, including air purifiers, adequate heating and cooling, and a reduction in pollutants that could exacerbate a child's respiratory problems.

According to the study's findings, the highest percentages of mothers being in the Nuclear and Extended families. Supportive evidence is a cross-sectional survey conducted in Department of Pediatrics, Allied hospital, Faisalabad, which conducted on (335) mothers showed more than half for mothers are Joint family [26]. Another cross-sectional study provided conducted in Bangladesh revealed that majority of mothers are nuclear family [27]. Many newlyweds choose to live with their husband's family so as to lessen the financial burden of the high cost of living and the challenge of finding independent housing. Additionally, some families feel that the wife's living with their husband's family maintains traditional values and improves family cohesion.

Regarding the number of children, the highest proportion of investigated mothers have 2 and >3, at 28.8% and 33.2%. This trend in line with a cross-sectional study conducted in the pediatric outpatient clinic at Zagazig University Hospitals Egypt which conducted on (297), which reported that more than two thirds of mothers have more than three children [28]. Another study conducted by Basiouny and Hamad on 400 mothers whose children had acute respiratory infections in Taif City, Saudi Arabia indicated that more than two-thirds of mothers have fewer than three children [29]. This finding may be due to the fact that some families consider children as a future investment since they are expected to provide for their parents financially when they become older, or due to a lack of knowledge about ways to prevent pregnancy.

Distribution of mothers practice towards home care of acute respiratory infection of their children under five

The results in **table (2)** suggest that mother’s adherence with recommended health practices to manage respiratory infection in children is mostly moderate, with some practices (such as avoiding giving medications without consulting a doctor) displaying higher adherence levels, where it had the highest M.S at 2.341, which indicates a strong adherence. This finding is in line with a previous investigation by **Albayrak et al.** [30], who demonstrated that most mothers avert self-medicate their children and preferred the professional medical instruction. Similarly, the practice of keeping the child away from crowded places to avoid the spreading of infection was moderately followed up (M.S=1.89), which is compatible with study of **Leung et al.** [31], who revealed that mother’s awareness of hygiene principles significantly related with minimized rates of respiratory infections. However, some other practices like taking my child to the doctor if symptoms persist for a long time and monitoring the child's condition to ensure that no complications occur, displayed moderate adherence; which is somewhat under than expected, as research

has shown that early medical consultation is important to prevent severe complications [13]. Generally, the adherence levels may be affected by some factors like the socioeconomic status, education levels of parents, alongside cultural beliefs, as demonstrated by **Al-Tarawneh et al.** [32], who showed that treatment adherence differs according to demographic determinants.

Overall assessment of mothers practice towards home care of acute respiratory infection of their children under five

The findings in **table (3)** suggest that while a majority of mothers are engaged in reasonable home care practice, but still there is a considerable percentage of them that require increased awareness and education. Mothers' home care practice had a considerable role in determining the health outcome of their children, particularly in managing the cases with acute respiratory infections. Correct home care can minimize complications, boost recovery time, and prevent disease spreading, whereas inadequate practice may exacerbate symptoms and lead to severe infections. Research had demonstrated that maternal knowledge and their practice significantly affect the administration of a child's respiratory infections; **Bham et al.** reported that a higher percentage of mothers had moderate awareness of acute respiratory infections and their management [14], which agrees with present findings. Similarly, another investigation of **Aung et al.** revealed that mothers in rural and urban areas showed moderate levels of knowledge and home care practices regarding acute respiratory infections [33], which strengthen the trend observed in our study. Similar to present findings, a previous study was carried out in Egypt reported that some mothers performed inadequate practices for managing acute respiratory infections in their infants [34]. Our results are consistent with another study on Egyptian mother's practices that indicated that a comparable percentage of mothers had moderate practice in managing acute respiratory infections in their infants [35]. Additionally, **Alanazi et al.** showed that mother's practices in Saudi Arabia regarding acute respiratory infections management were affected by socioeconomic as well as cultural factors, which leads to varied levels of committing to recommended home care practice [13]. This statement reinforces our observation that external factors may cause moderate adherence. The World Health Organization (WHO) emphasized that proper education notably improved home care practices towards respiratory infections, pointing out that interventions could boost the proportion of mothers presenting adequate care [36]. Moreover, Newbould et al. reported that mothers often find it difficult to determine when home care is adequate and when medical intervention is substantial [15], which may justify the moderate pattern levels of home care observed in our study. In fact, all these studies indicate that several mothers are not aware of the significance of preventative health care, including regular immunizations, checkups, and healthy eating, since they lack health awareness, which support our observation in present study. Families that are struggling financially may decide to cut back on health care expenses, which might result in postponing or ignoring children's medical care. Accessing the required medical care may be delayed by the absence of efficient health centers or those nearby, particularly in rural and isolated areas. What's more, certain cultural practices, such using traditional medicine or delaying treatment until an illness is life-threatening, have an impact on health care.

Conclusion

The following conclusions are attracted from the study's interpretation and discussion of its findings. The overall evaluation of practice of mothers toward home care of acute respiratory infection of their children under five was moderate and there was an extremely notable difference between mothers' sociodemographic and practices (marital status, education status, occupation, residence and socio-economic satisfaction).

Recommendations

Health education of mothers toward home care of acute respiratory infection of their children under five years in model health care centers: nurses should educate mothers on their management in home; nurses advise mothers to visit health centers to gain sufficient information on how to care children under five years, educate mothers about the signs and symptoms of respiratory infection, which include noticeable trouble nursing, educational programs for nurses to expand their respiratory infection care knowledge. The public is educated about acute respiratory infections, prevention techniques, and how to find home care for children with illness through mass media. Acute respiratory infection prevention is also covered in lectures at different community associations or health centers, as well as on television and radioed further studies

are needed to cover various aspects of acute respiratory infection.

Conflict of interest

None.

Funding

None.

Data availability

Data is available on reasonable request.

Authors' contribution

Both authors should have made substantial contributions to the conception and design of the study, analysis and interpretation of data, drafting and writing the article, and approval of the final submitted version.

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