

Nurse's knowledge about Respiratory Syncytial Virus in Emergency Unit: A Descriptive Study

Magda Maher Ahmed¹, Hoda Ahmed Makhoul² & Ghada Shalaby khalaf³

¹ Nursing Specialist at Bani Hussein Nursing Institute, Assiut, Egypt.

² Professor of Pulmonology, Faculty of Medicine, Assiut University, Egypt.

³ Assistant Professor of Critical Care and Emergency Nursing Department, Egypt.

Abstract

Background: The respiratory syncytial virus (RSV) is a leading cause of severe lower respiratory tract illness. **Aim of the study:** To assess nurses' knowledge about respiratory syncytial virus in emergency unit **Research design:** Descriptive research design was employed to conduct the study. **Setting:** The study was conducted at Assiut University's Emergency Departments and the Assiut Chest Hospital. **Sample:** Convenient sample consisted of 32 nurses were included in the study. **Tool:** Nurses Knowledge Assessment tool, the tool includes 2 parts **Part 1:** Emergency Nurse's Socio-Demographic Data. **Part 2:** Emergency Nurse's Knowledge Questionnaire about RSV Include 30 questions 15 multiple choice question (MCQ) then 15 (False or True) question on RSV. **Results:** The findings revealed that (68%) of the nurses surveyed had a good level of knowledge about respiratory syncytial virus. **Conclusion:** The most of nurses of critical care had good knowledge about respiratory syncytial virus in emergency unit. **Recommendation:** Encourage additional research about the nurses' role regarding respiratory syncytial virus in emergency units. Orientation and in-service training programs for newly joined nurses in the emergency unit regarding respiratory syncytial virus are needed to increase and Updated nurses' knowledge.

Keyword: Emergency unit, Knowledge & Respiratory Syncytial Virus.

Introduction:

Respiratory Syncytial Virus (RSV) is a single-stranded, negative strand, RNA virus one of the Paramyxoviridae family, and is in the genus Pneumovirus. In 1955, RSV found in chimpanzees and then it was confirmed to be a human pathogen shortly afterward (Jain et al., 2022). Respiratory syncytial virus (RSV) is a frequent contributor to respiratory diseases across various age groups, particularly affecting the elderly and young children who experience the most severe symptoms. (Falsey et al., 2022).

Respiratory syncytial virus is typically transmitted from person to person via respiratory droplets produced when a person sneezes or coughs, as well as through direct contact with the nose or eyes after touching a contaminated object or surface.

Respiratory syncytial virus can survive on hard, non-porous surfaces for up to 12 hours, but on soft surfaces like palms and tissues, it usually lasts much shorter.

The respiratory syncytial virus has a 3-5 day incubation period and can make patients contagious for 3-8 days following infection. Contagiousness can occur a day or two before symptoms manifest. Virus shedding can last up to four weeks in young children, newborns, the

elderly, and persons with weaker immune systems (Dhagat & Rohde, 2023).

The symptoms of an RSV infection closely resemble those of a typical cold and can consist of a runny nose, fever, stuffiness, sneezing, coughing, and a sore throat. Generally, healthy adults may only exhibit mild symptoms or none at all. However, infants who contract RSV will always show symptoms. In young infants, these symptoms may initially present as irritability, reduced activity, and breathing difficulties. After a few days, the symptoms may extend to the lungs, leading to coughing and wheezing. In high-risk infants and older adults, RSV can lead to more serious conditions, including bronchiolitis, inflammation of the small airways in the lungs, and pneumonia. These symptoms can cause other symptoms may include: difficulty breathing, shortness of breath, rapid breathing, a bluish tint to the skin, and wheezing. (Gill & Cafasso, 2023).

The Food and Drug Administration granted approval in 1998 for palivizumab, a humanized monoclonal antibody designed to target RSV (Pham, et al 2021). Nurses have an important role in promoting knowledge about the risk factors for severe RSV sickness and the availability of palivizumab as a prophylactic strategy. Families and caregivers of high-risk infants and children should be educated about the need of adherence to RSV immune prophylaxis for optimum benefit, as well as general

disease prevention techniques such as avoiding overcrowded settings, practicing excellent hand cleanliness, and reducing exposure to tobacco smoke (Staebler et al., 2020) .

Significance of the study:

Based on an Emergency Unit patient records at Assiut University Hospital about 150 cases in 2022, and based on an Emergency Unit patient record at chest hospital at Assiut about 600 cases in 2022. RSV is the most common cause of lower respiratory tract infection. Respiratory syncytial virus can be serious for some high-risk adults. Annually in the United States, it is estimated that between 60,000 and 120,000 elderly individuals are admitted to hospitals, with 6,000 to 10,000 die due to respiratory syncytial virus infections (American Lung association, 2023). Respiratory syncytial virus is highly contagious and spreads through close contact via droplets that carry the virus, released when an individual coughs or sneezes. Additionally, it can be transmitted by touching contaminated objects and surfaces, like doorknobs and toys, and subsequently touching the nose or eyes (Fernandes et al. ,2022) . Therefore, it is vital to assess nurses' knowledge about this dangerous risk.

Aim of the study:

This research sought to assess nurses' knowledge about respiratory syncytial virus in emergency unit.

Subjects and Method:

Research Design:

This research employs a descriptive research design.

Research question:

What is the current level of nurse's knowledge about respiratory syncytial virus?

Setting:

The research was carried out in the Emergency departments of Main Assiut University Hospital and the Chest Hospital at Assiut.

Sample:

The convenient sample included 32 participants, determined based on a significance level ($\alpha=0.05$), a power of ($1-\beta=0.8$), and an effect size ($ES=0.70$) using G-Power version 3.0.

Tool of the Study :

The study tool designed and used by the researcher composed mainly of multiple-choice questions (MCQ) and (True or False) questions.

Tool 1: Nurses Knowledge Assessment Tool:

The researcher developed this tool following a review of the literature. (American Lung association, 2023) and consists of a multiple-choice and True or False question to evaluate the level of emergency nurses knowledge regarding respiratory syncytial virus, this tool consists of 2 parts:

Part (1): Emergency Nurse's Socio-Demographic Data include personal information about the population of the study as code, gender, age, marital status, years of experience, and level of education.

Part (2): Emergency Nurse's Knowledge Questionnaire about RSV which consists of Multiple-choice and True or False questions to evaluate the level of emergency nurses knowledge regarding Respiratory Syncytial Virus include 30 questions 15 multiple choice question (MCQ) and 15 (True or False) question on RSV include:

- 2 questions MCQ and 2 questions true or false about symptoms of RSV.
- 3 questions MCQ and 2 questions true or false about causes of RSV.
- 2 questions MCQ and 2 questions true or false about risks for RSV.
- 2 questions MCQ and 2 questions true or false about diagnosis of RSV.
- 2 questions MCQ and 4 questions true or false about management of RSV.
- 2 questions MCQ and 2 questions true or false about prevention of RSV.
- 2 questions MCQ and 1 question about complications of RSV.

Scoring System:

The nurses' knowledge is considered very low knowledge (less than 50%), low knowledge (50-59%), satisfactory knowledge (60-69%), good knowledge (70-95%), and very good knowledge (95-100%) .

Methods:

A descriptive research design was employed to accomplish the study's objectives on 32 nurses in emergency departments at Assiut University and Chest Hospital at Assiut through a convenient sample through the use of nurse's knowledge assessment questionnaire.

Validity:

Face validity was done by five specialists who evaluated the tools for clarity, relevance, comprehensiveness, and understanding. It included three professors and two assistant professors from the department of critical care nursing staff. Minor modifications were made and the tool was then designed in its final version.

Reliability:

The reliability of the developed tool was tested using Cronbach's alpha of 0.86 to evaluate the reliability of the tools.

Pilot Study:

A pilot study was conducted on (10%) of the research population to evaluate the applicability and visibility of the tools and to allow time for any necessary correction before conducting the research study.

Ethical Considerations:

The study received ethical approval from the Ethical Committee at the Faculty of Nursing, Assiut University, at 29/5/2023 number 1120230629, there was no risk to study participants during application of the research, Participants provided informed oral consent, and their rights to refuse or withdraw were respected. The study maintained confidentiality, anonymity, and privacy, adhering to clinical research ethics principles.

Technique for Data Collection:

The researcher introduced herself to the study nurses, described the purpose of the study, and explained to the nurses how to complete the questionnaire; verbal consent was obtained and cooperation was requested.

The researcher met with each nurse individually during work shifts to distribute the questionnaires, where the questionnaire sheet took 15 to 20 minutes. Throughout the data collection process, the researcher was present to answer all questions from the study sample.

Statistical Design:

Statistical Package for the Social Sciences (SPSS) Inc., Chicago, IL, USA's Statistical Package for the Social Sciences, version 22, was used to collect, analyze, arrange, and tabulate the data. For quantitative data, the range, mean, and standard deviation were calculated.

Result**Table (1): Distribution of Socio Demographic Data for Studied Nurses(n=32)**

	No	%
Hospital		
Main Assiut University Hospital	16	50.0
Chest Hospital	16	50.0
Gender		
Male	9	28.1
Female	23	71.9
Age		
20-30 years	25	78.1
30-40 years	6	18.8
40-50 years	1	3.1
Mean±SD(range)	29.01±4.32(21-42)	
Marital Status		
Single	11	34.4
Married	20	62.5
Divorced	1	3.1
Years of Experience		
Less than 5 years	13	40.6
5-15 years	18	56.3
25-35 years	1	3.1
Education Level		
Institute	16	50.0
Bachelor	15	46.9
Master/PhD	1	3.1

Table(2): Mean and Standard Deviation of the Studied Nurses Knowledge Regarding Respiratory Syncytial Virus in the Emergency Unit (n=32)

	Max Score	Mean±SD	Range	Mean%	Knowledge Level
Symptoms	4	2.34±0.94	1-4	58.59	Low
Causes of Respiratory Syncytial Virus	5	4.13±0.87	2-5	82.50	good
Risk for Respiratory Syncytial Virus	4	3.28±0.73	1-4	82.03	good
Diagnosis of Respiratory Syncytial Virus	4	2.69±0.82	1-4	67.19	Satisfactory
Medical Management	6	3.41±1.32	1-6	56.77	Low
Prevention	4	2.34±0.97	1-4	58.59	Low
Complication	3	2.59±0.67	1-3	86.46	good
nursing knowledge about respiratory syncytial virus in emergency unit	30	20.78±3.24	13-26	69.27	Satisfactory

Table(3): Total Nurses Knowledge Regarding Respiratory Syncytial Virus among Studied Nurses (n=32)

Nurses Knowledge about Respiratory Syncytial Virus in Emergency Unit	NO	%
Very Low	1	3.1
Low	6	18.8
Satisfactory	3	9.4
Good	22	68.8
Mean \pm SD(range)	20.78 \pm 3.24(13-26)	

Table (1): Shows that; total number of nurse is (32) from emergency care unit .The majority of nurses, 78.1%, were aged between 20-<30 years, with an average age of 29.01 + 4.32 (21-42), (18.8%) in the age group of 30-40 years, and (3.1%) in the age group of 40-50 years. 28.1% of them are males and 71.9% are females. As for marital status, 62.5% of them are married. Most nurses 56.3% having experience from 5-15 years. As regarding (50%) were having nursing institute.

Table (2): Show nurses knowledge about respiratory syncytial virus in emergency unit . It observed from this table that total knowledge score of respiratory syncytial virus of studied nurses were 30 with mean and Std. deviation 20.78 \pm 3.24with range from 13-26.

Table (3): Shows that (68%) of the studied nurses have a good level of knowledge regarding respiratory syncytial virus.

Discussion

This study show that the studied nurses have a good level of knowledge regarding respiratory syncytial virus in emergency unit this may be due to their clinical experience or they may attend regular audit or training about the disease.

Respiratory Syncytial Virus (RSV) can be a serious seasonal infection in people with risk factors and comorbidities, such as immunocompromised individuals and the elderly (Name & Ison, 2021) . Following the SARS_CoV_2 pandemic, a variation in the seasonal pattern of RSV infections was noticed. T his trend was accompanied by a considerable increase in the annual number of RSV-related Lower Respiratory Tract Infection LRTI. (Lodi et al ., 2024).

RSV was discovered more than 60 years ago, and it h as since become one of the most important infections causing respiratory disorders worldwide (shang et al., 2021). The current study indicated that, nearly three quarters of the examined emergency care nurses were female, about three quarters of them were between the ages of 20 and 30, and two-thirds Married, more than half of nurses had 5 to 15 years of experience, and half of the studied nurses attended a technical institute.

These findings were consistent with the study done by Mohamed et al., (2023),who stated that the majority of them were female. More over half of the studied nurses attended a technical institute of nursing. The data shows that of nurses have more than ten years of experience.

As regards The findings of this study on critical care nurses' knowledge of respiratory syncytial virus revealed that the majority of nurses had a good level of knowledge on respiratory syncytial virus, with only having a low level of knowledge about respiratory syncytial virus. This study contradicts that of (Ponticelli et al., 2024), who discovered a poor level of awareness and attitudes toward RSV among cardiac health care worker (HCWs) .

Conclusion

The most of critical care nurses showed a good level of knowledge regarding respiratory syncytial virus.

Recommendations:

- Encourage additional research about the nurses' role regarding respiratory syncytial virus in emergency units.
- Orientation and in-service training programs for newly joined nurses in the emergency unit regarding respiratory syncytial virus are needed to increase and Updated nurses' knowledge.
- Redemonstrate this research on a large sample size from other geographical areas in Egypt to ensure generalization.

References:

- American Lung Association (2023): RSV in adult. <https://www.lung.org/lung-health-diseases/lung-disease-lookup/rsv/rsvin-adults>
- Dhagat, P.and Rohde, RE. (2023): Respiratory Syncytial Virus (RSV) Tis season. <https://asm.org/Articles/2022/December/Respiratory-Syncytial-Virus-RSV-Tis-the-Season>
- Falsey, AR. ,Cameron, A. , Branche, AR., & Walsh, EE.(2022): Perturbations in Respiratory Syncytial Virus Activity During the SARS-CoV-2 Pandemic. J Infect. Dis;227(1):83-86.
- Fernandes, L. (2022): What is Respiratory Syncytial Virus (RSV)?

- <https://womenshealth.ucsf.edu/coe/news/article/what-respiratory-syncytial-virus-rsv>
- **Gill, K & Cafasso, J. (2023):** RSV timeline: What to expect. <https://www.medicalnewstoday.com/articles/rsv-infectiontimeline#timeline>
 - **Jain, H., Schweitzer, JW. , & Justice, NA. (2022):** Respiratory Syncytial Virus Infection. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK459215/>
 - **Lodi, L., Catamerò, F., Voarino, M., Barbati, F., Moriondo., Nieddu, F., Sarli, W., Citera, F., Astorino, V., Pelosi, C., Quaranta, F., Stocco, S., Canessa, C., Lastrucci, V., Ricci, S., Indolfi, G., Azzari, C. (2024):** Epidemiology of respiratory syncytial virus in hospitalized children over a 9-year period and preventive strategy impact. *Front Pharmacol.* 22;15:1381107. Doi: 10.3389/fphar.2024.1381107. PMID: 38841370; PMCID: PMC11150665.
 - **Mohamed, IF., Ahmed, G., & Abd El aziz, MS. (2023):** Effect of Self learning Package on Nurses' Performance regarding Care of Children Suffering from Respiratory Syncytial Virus. vol. 11(38):88-99.
 - **Name, H., & Ison, M. (2021):** Respiratory Syncytial Virus .Seminars in Respiratory and Critical Care Medicine 42(06):788-799. DOI:10.1055/s-0041-1736182
 - **Osei-Yeboah, R., Amankwah, S., Begier, E., Adedze, M., Nyanzu, F., Appiah, P., Ansah, Job., Campbell, H., Sato, R., Jodar, L. , Gessner, BD., & Nair, H. (2024):** Burden of Respiratory Syncytial Virus (RSV) Infection Among Adults in Nursing and Care Homes: A Systematic Review. *Influenza Other Respir Viruses.* 18(9):e70008. Doi: 10.1111/irv.70008. PMID: 39284784; PMCID: PMC11405123.
 - **Pham, J. , Nageotte, S., Detterich, J., & Kung, G. (2021):** Effects of Palivizumab Guideline Changes on RSV Admissions in Patients with Congenital Heart Disease and Prematurity. *World Journal of Cardiovascular Diseases* Vol.11 No.1.
 - **Ponticelli, D., Losa, L., Antonazzo, I.C., Zampella, A., Di Marino, F., Mottola, G., Fede, M.N., Gallucci, F., Magliuolo, R., & Rainone, A., (2024):** Respiratory Syncytial Virus (RSV) and Intention to Recommend RSV Vaccination: A Cross-Sectional Survey of Cardiologists and Cardiac Nurses in Southern Italy. *Infect. Dis.* 16, 128-141. <https://doi.org/10.3390/idr16010010>
 - **Shang, Z., Tan, S., & Ma, D. (2021):** Respiratory syncytial virus: from pathogenesis to potential therapeutic strategies. *Int. J. Biol. Sci.* 17 (14), 4073-4091. DOI: 10.7150/ijbs.64762.
 - **Staebler, S. & Blake, S. (2021):** Respiratory Syncytial Virus Disease: Immuno prophylaxis Policy Review and Public Health Concerns in Preterm and Young Infants. *Policy Polit Nurs Pract.* 22(1):41-50 .

This is an open access article under
[Creative Commons by Attribution Non-Commercial \(CC BY-NC 3.0\)](https://creativecommons.org/licenses/by-nc/3.0/)
 (<https://creativecommons.org/licenses/by-nc/3.0/>)