

Assessment of Nurses' Awareness Regarding Respiratory Syncytial Virus

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Abstract

Background: Respiratory syncytial virus is common respiratory virus that causes bronchiolitis and pneumonia, particularly in infants and older adults. Nurses, being on the frontlines of patient care, need to be well-informed about the virus, its symptoms, transmission modes, prevention strategies, and treatment options. **Aim:** This study aimed to assess nurses' awareness regarding respiratory syncytial virus. **Research design:** A descriptive design was used in this study. **Setting:** Chest Hospital and Fever Hospital of Alabasiya, Cairo Governorate. **Sample:** A convenience sample include 208 nurses. **Tool of data collection:** One tool included four parts, **1st part:** Nurses' demographic characteristics, **2nd part:** Nurses' knowledge about respiratory syncytial virus disease, **3rd part:** Nurses' attitude about respiratory syncytial virus disease, **4th part:** Nurses' reported practices regarding respiratory syncytial virus disease. **Results:** 62.7 % of the studied nurses had poor total knowledge level. While 69.7 % of them had negative total attitude level toward respiratory syncytial virus, and 59.3 % of them had inadequate total reported practices level regarding respiratory syncytial virus. **Conclusion:** There was highly statistically significant relation between studied nurses' total level of knowledge, total level of attitude, total level of reported practices and all items of demographic characteristics. **Recommendations:** Implementing health education program for nurses regarding respiratory syncytial virus.

Keywords: Assessment, Awareness, Nurses, and Respiratory Syncytial Virus.

Introduction:

Respiratory Syncytial Virus (RSV), is a common respiratory virus that infects the nose, throat, and lungs. RSV symptoms make it difficult to distinguish it from the common cold or other respiratory viruses like the flu or Coronavirus Disease (COVID-19). RSV spreads in the fall and winter along with other respiratory viruses. It usually peaks in December and January. Self-care measures are usually all that's needed to relieve any discomfort. RSV can cause severe infection in some people, including babies 12 months and younger (infants), especially premature infants, older adults, people with heart and lung disease, or anyone with a weak immune system (immunocompromised) (Ponticelli et al., 2024).

Nearly 545 million individuals currently live with respiratory syncytial virus condition, representing 7.4% of the world's population, provides additional evidence on the large health contribution of chronic respiratory diseases to premature morbidity and mortality. In Egypt, children under 5 years account for nearly 13.4% of the total population, and RSV constitutes 19 % of under-five mortality. The incidence of RSV in Egypt has been estimated at 0.11–0.20 RSV episodes per child-year (Abdelwahab et al., 2023).

The virus spreads primarily through respiratory droplets when an infected person coughs, sneezes, or talks, allowing the virus to enter the airways of others. RSV can also survive on surfaces for several hours, making it possible to contract the virus by touching contaminated objects and then touching the face, particularly the nose, mouth, or eyes. It thrives in environments where people are in close contact, such as homes, childcare settings, or healthcare facilities (Osei-Yeboah et al., 2024).

Respiratory syncytial virus typically begins with mild cold-like symptoms, such as a runny nose, cough, sore throat, and mild fever. As the infection progresses, individuals may experience more pronounced respiratory symptoms, including wheezing, nasal congestion, and difficulty breathing. In infants and young children, RSV can cause more severe symptoms like rapid breathing, flaring of the nostrils, and retractions (the pulling in of skin around the ribs and neck due to difficulty breathing) (*Strózik et al., 2024*).

Methods of diagnosis for RSV typically involves clinical evaluation based on symptoms and may include laboratory tests for confirmation. Rapid diagnostic tests, such as antigen detection or molecular assays, Reverse Transcription Polymerase Chain Reaction (RT-PCR), are commonly used to detect the presence of RSV, especially in high-risk groups. In severe cases, imaging, such as chest X-rays, may help identify complications like bronchiolitis or pneumonia (*Miraglia del Giudice et al., 2023*).

Treatment for RSV primarily focuses on supportive care, as there is no specific antiviral treatment for most cases. Supportive measures include managing symptoms through hydration, rest, and fever control. In severe cases, especially for infants and high-risk adults, hospitalization may be required to provide supplemental oxygen, intravenous fluids, and mechanical ventilation if needed. For high-risk infants, preventive measures include the administration of monoclonal antibodies like palivizumab, which can help reduce the severity of RSV infection (*See, 2023*).

One of the most common complications of RSV is bronchiolitis is an inflammation of the small airways in the lungs, which can cause severe breathing difficulties in infants. Pneumonia is another serious complication, especially in high-risk individuals, potentially requiring hospitalization and respiratory support. In young children, RSV infection may exacerbate asthma symptoms or increase the risk of developing asthma later in life. In elderly patients or those with chronic conditions like heart or lung disease, RSV can worsen these underlying issues, leading to increased morbidity and, in severe cases, increase mortality rate (*Rzymski & Gwenzi, 2024*).

Nurses play a vital role in the prevention, identification, and management of RSV, especially in high-risk settings like neonatal and pediatric units. Awareness among nurses regarding RSV is essential, as it enables them to implement preventive measures, recognize symptoms early, and educate families effectively. Preventive measures for control PSV infection, including hand hygiene and proper use of Personal Protective Equipment (PPE). Additionally, being informed about high-risk populations, such as premature infants, older adults, and immunocompromised individuals, enables nurses to prioritize these patients for preventive interventions and vigilant monitoring (*Mortensen & Charkaluk, 2024*).

Community Health Nurses (CHN) play a critical role in preventing and managing RSV within communities, especially among vulnerable populations. Also, provide about awareness RSV transmission, symptoms, and preventive measures is essential to controlling the virus's spread in community settings like homes, schools, and childcare centers (*Bracht et al., 2023*). Nurses who are informed about RSV can educate families on the importance of hygiene practices, such as regular handwashing, proper respiratory etiquette, and cleaning frequently touched surfaces. Additionally, nurses are instrumental in identifying high-risk individuals, including infants, the elderly, and people with compromised immune systems, and advising them on preventive measures, such as limiting exposure during RSV season and recognizing early signs of infection (*Custovic et al., 2024*).

Significance of the study:

Multiple epidemiologic studies have confirmed the role of Respiratory Syncytial Virus (RSV) as the leading cause of lower respiratory tract infection in infants and young children. RSV infection develops annually in 4-5 million children, and more than 125,000 children are admitted per year for RSV-related illness. Worldwide, RSV infection is prevalent, with clinical manifestations and early occurrence of RSV comparable to those seen in the United States (*Marianne, 2021*).

In Egypt, according to a study done in Damanhur district, it conducted population-based surveillance in 3 hospitals and 3 outpatient clinics stated that, Nasopharyngeal and oropharyngeal specimens from hospitalized patients with acute respiratory illness and outpatients with influenza-like illness were tested by real-time reverse transcriptase polymerase chain reaction for RSV. Among 5342 hospitalized patients and 771 outpatients, 12 % and

5 % tested positive for RSV (*Chadha et al., 2020*).

Nurses teach patients about the disease regarding causes, signs, symptoms, complication, management and how to deal with RSV. CHN should also emphasize on the importance of isolate the patient because RSV patients consider highly contagious disease so it is very important for CHN to have knowledge and practices regarding RSV (*Kelleni, 2023*). Therefore, this study conducted to assess nurses' awareness regarding respiratory syncytial virus.

Aim of the study:

This study aimed to assess nurses' awareness regarding respiratory syncytial virus through the following objectives:

- 1-Assessing nurses' knowledge regarding respiratory syncytial virus.
- 2-Determining nurses' attitude toward respiratory syncytial virus.
- 3-Appraising nurses' reported practices regarding respiratory syncytial virus.

Research questions:

1. What is nurses' knowledge regarding respiratory syncytial virus?
2. What is nurses' attitude toward respiratory syncytial virus?
3. What are nurses' reported practices regarding respiratory syncytial virus?
4. Is there relation between nurses' knowledge, attitude, reported practices and their demographic characteristics?

Subjects& Methods:

Research design:

A descriptive research design was applied to achieve the aim of the study.

Study Setting:

The study was conducted in Chest Hospital and Fever Hospital of Alabasiya, Cairo Governorate, these hospitals provide treatment and follow-up services for patients. This hospital included many vital departments as reception department, intensive care department, intermediate care, operations department, distinguished department, blood bank with 2 blood chairs, radiology and endoscopy, dental department, sterilization department, laboratory serving the entire hospital, outpatient clinics and the Chest Hospital and Fever Hospital contain about 337 beds in the current situation.

Type of Sample: Convenience sample was used in this study.

Sample Size:

The calculated sample size was included 208 nurses from total 437 nurses working at previous mentioned hospitals (chest hospital include 210 nurses, fever hospital included 227 nurses).

The sample size was calculated according to this equation.

$$n = \frac{N}{1+N(e)^2} \quad (\text{Adam, 2020}).$$

Where:

n= Sample size

N=Total population = 437

e=Level of precision = 0.05

Based on the above equation, the actual sample size is 208 nurses.

Tool for data collection:

Data was collected through the following one tool:

A structured interviewing questionnaire: was used in the study, it's developed by investigator after reviewing the national and international related literature and contains four parts:

Part 1: Nurses' demographic characteristics consisted of 7 items included nurses age (Year), sex, marital status, job grade.

Part 2: Nurses' knowledge regarding respiratory syncytial virus consisted of 11 closed ended questions included meaning of respiratory syncytial virus, causes, mode of transmission, symptoms, incubation period.

Scoring system:

Each statement was assigned score according to nurses' response were: Correct answer was scored 1 grade, and incorrect answer or don't know was scored 0 grade. Total score were 11 grades for 11 questions. Each item summed up and then converted into percent score **as the following:**

- Good knowledge ($\geq 75\%$) = ≥ 9 grades, was considered high score.
- Average knowledge ($50 - < 75\%$) = $6 - < 9$ grades, was considered moderate score.
- Poor knowledge ($< 50\%$) = < 6 grades, was considered poor.

Part 3: Nurses' attitude toward respiratory syncytial virus consisted of 12 closed ended questions included think that respiratory syncytial virus is a fatal disease, respiratory syncytial virus infection can be controlled by medical treatment, it is necessary to wear masks while caring for respiratory syncytial virus patients, increasing physical distances is important while dealing with respiratory syncytial virus patients.

Scoring system:

Each statement was assigned score according to nurses' response were " Agree", "Neutral", " Disagree", and were scored 3, 2, and 1, respectively. Total score were 36 grades for 12 items. The scores of items summed up and then converted into percentage score **as the following:**

- (≥ 60) was considered positive = ≥ 21.6 grades.
- (< 60) was considered negative = < 21.6 grades.

Part 4: Nurses' reported practices regarding respiratory syncytial virus disease consisted of 17 closed ended questions included wear properly all personal protective equipment before handling a patient, take off the personal protective equipment in the correct manner after dealing with the patient.

Scoring system:

Each statement was assigned score according to nurses' response were " Always", "Sometimes", " Rarely ", and were scored 3, 2, and 1, respectively. Total score were 51 grades for 17 items. The scores of items summed up and then converted into percentage score **as the following:**

- (≥ 60) was considered adequate reported practices = ≥ 31 grades.
- (< 60) was considered inadequate reported practices = < 31 grades.

I. Operational item:

It was included preparatory phase, content validity and reliability, pilot study and field work.

A. Preparatory phase:

Prepare the study tool based on related literature review and develop the study tool and test its content validity and reliability.

Ethical Considerations:

The research approval was obtained from the Scientific Research Ethical Committee in the Faculty of Nursing, Helwan University before starting the study. The investigator was clarified the objective and aim of the study to nurses included in the study, the investigator assured anonymity and confidentiality of subjects' data. Nurses informed that they are allowed to choose to participate or not in the study and that they have the right to withdraw from the study at any time.

Content Validity:

The revision of the tool for clarity, relevance, comprehensiveness, understanding and applicability was done by a panel of three experts all of them from Faculty of Nursing, Community Health Nursing Department to measure the content validity of the tool and the necessary modification was done accordingly.

Tool Reliability

Reliability was tested statistically using the appropriate statistical tests to assure that the tools are reliable before data collection. Answers from the repeated testing were compared r- test reliability was 0.82 for knowledge, and Cronbach's Alpha reliability was 0.890 for reported practices and 0.858 for attitude.

Pilot study:

A pilot study conducted on 10 % of the samples equal 21 nurses under study to assess the feasibility, practicability, clarity and objectivity of the tool. Nurses in the pilot study were included in the main study sample because no modifications were done.

Field work:

- An official letter issued from the dean of Faculty of Nursing Helwan University, and nurses Chest Hospital and Fever Hospital of Alabasiya, Cairo Governorate including the aim of the study to obtain permission after establishing a trustful relationship, each subject interviewed individually by the investigator to explain the study purpose.
- Data collected within 3 months from first of January until end of March 2023 two days /week (Saturday and Monday), from 9am - 2pm, till the needed sample completed, informed consent obtained from nurses after the investigator introduce himself for each nurse, then explain the purpose of the study to assess knowledge, attitude and reported practices for nurses' awareness regarding respiratory syncytial virus. Study collected through structure face to face interview and the entire tool filled by the investigator.
- The investigator utilizes one tool, was need 20 -30 minutes for meeting the nurses.
- The investigator taken 16-17 nurses every two days each week consists about 69 nurses per month, total number of nurses = 208 nurses.

III- Administrative item:

An official Permission was obtained from Dean of Faculty of Nursing Helwan University and directed to the General Manager of Chest Hospital and Fever Hospital of Alabasiya in which the study was conducted. This letter included a permission to collect the necessary data and explain the purpose and nature of the study.

IV- Statistical item:

The collected data from the studied sample was revised, coded and entered using Personal Computer (PC). Computerized data entry and statistically analyzed using SPSS program (Statistical Package for Social Science) version 24. Data were presented using descriptive statistics in the form of frequencies and percentages. Chi square test (X^2) was used to calculate difference variables. Spear man correlation measures the strength and direction of association between two rank variables.

Degrees of significance of the results were:

- Non-Significant (NS) if $p > 0.05$.

-Significant (S) if $p < 0.05$.

-High Significant (HS) if $p < 0.01$.

Result:

Table (1): Shows that, 52.9 % of studied nurse their age group from 30- < 40 was mean \pm SD was 37.4 ± 1.7 years. 88.9 % of them was male and 74.00 % of them were married. Additionally, 62.5 % of them job grade was head nursing unit, 52.4 % of them, years of experience was less than five years and 78.4 % of them lived at urban area.

Figure (1): Shows that, 62.7 % of the studied nurses had poor total knowledge level regarding respiratory syncytial virus, and 24.9 % of them had average total knowledge level regarding respiratory syncytial virus. While, 12.4 % of them had good total knowledge level regarding respiratory syncytial virus.

Figure (2): Shows that, 69.7 % of the studied nurses had negative total attitude level regarding respiratory syncytial virus. While, 30.3 % of them had positive total attitude level regarding respiratory syncytial virus.

Figure (3): Shows that, 40.7 % of the studied nurses had adequate level in total reported practices regarding respiratory syncytial virus. While 59.3 % of them had inadequate total reported practices.

Table (2): Shows that, there were highly statistically significant relation between studied nurses' total knowledge level regarding respiratory syncytial virus and all items of demographic characteristics, where ($P = < .0001$).

Table (3): Shows that, there were highly statistically significant relation between studied nurses' total attitude level regarding respiratory syncytial virus and all items of demographic characteristics, where ($P = < .0001$).

Table (4): Shows that, there were highly statistically significant relation between studied nurses' total reported practices level regarding respiratory syncytial virus and all items of demographic characteristics, where ($P = < .0001$).

Table (5): Illustrates that, there were statistically significant positive correlation between total knowledge, total reported practices and total attitude level regarding respiratory syncytial virus.

Table (1): Frequency Distribution of the Studied Nurses according to Demographic Characteristics (n=208).

Item	No.	%
Nurses age (Year)		
< 20 years old	27	13.0
20- < 30 years old	45	21.6
30- < 40years old	110	52.9
≥ 40	26	12.5
Mean ± SD 37.4 ± 1.7 years		
Sex		
Male	185	88.9
Female	23	11.1
Marital status		
Single	39	18.8
Married	154	74.0
Divorced	9	4.3
Widowed	6	2.9
Job grade		
Nurse	55	26.4
Shift supervisor	23	11.1
Head nursing unit	130	62.5
Years of experience		
< 5	109	52.4
5- < 10	47	22.6
10- < 15	21	10.1
≥ 15	31	14.9
Mean ± SD 4.2 ± 0.6 years		
Place of residence		
Rural	45	21.6
Urban	163	78.4

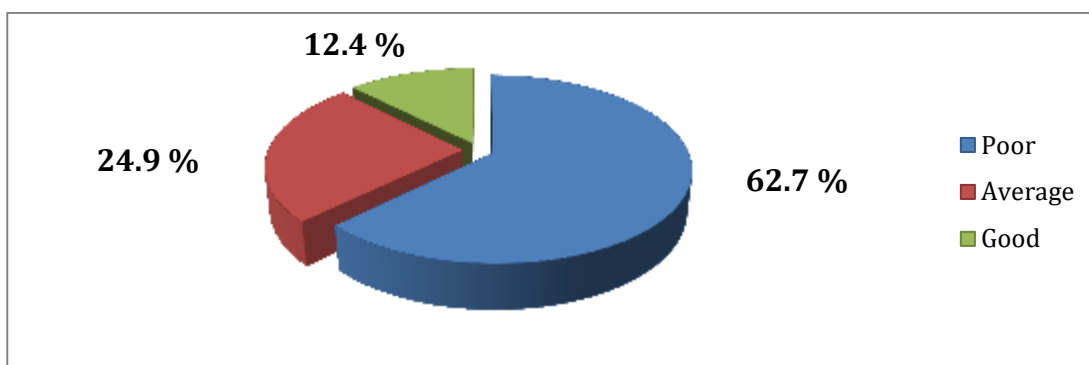


Figure (1): Percentage Distribution of the Studied Nurses' Total Knowledge Level Regarding Respiratory Syncytial Virus (n=208).

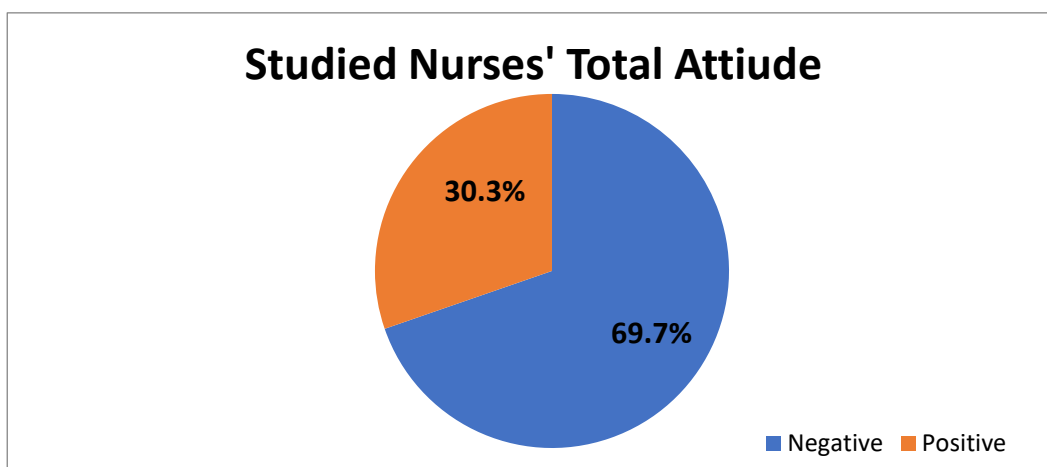


Figure (2): Percentage Distribution of the Studied Nurses' Total Attitude toward Respiratory Syncytial Virus (n=208).

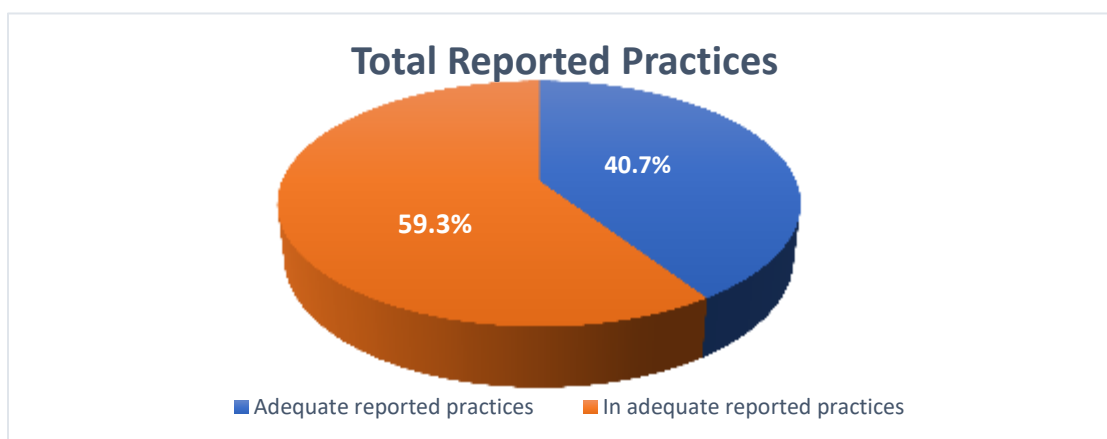


Figure (3): Percentage Distribution of the Studied Nurses' Total Reported Practices Level Regarding Respiratory Syncytial Virus (n=208).

Table (2): Relation between Studied Nurses' Demographic Characteristics and their Total Knowledge Level regarding Respiratory Syncytial Virus (n=208).

Demographic characteristics	Poor (n= 130)		Average (n= 52)		Good (n= 26)		X ²	P – value
	No.	%	No.	%	No.	%		
Age (year)								
< 20	20	15.4	5	9.6	2	7.7	11.391	0.000*
20 < 30	20	15.4	10	19.2	15	57.7		
30 < 40	80	61.5	25	48.1	5	19.2		
≥ 40	10	7.7	12	23.1	4	15.4		
Sex								
Male	120	92.3	44	84.6	21	80.8	15.558	0.001**
Female	10	7.7	8	15.4	5	19.2		
Educational level								
Nursing Diploma	3	60.0	1	20.0	1	20.0	17.239	0.000**
Nursing Technical institute	15	83.3	3	16.7	0	0.0		
Bachelor of Nursing	83	63.8	25	48.1	5	19.2		
Postgraduate studies in nursing	29	22.3	23	44.2	20	76.8		
Marital status								
Single	20	15.4	10	19.2	9	34.6	16.274	0.000**
Married	102	78.5	42	80.8	10	38.5		
Divorced	2	1.5	0	0.0	7	26.9		
Widowed	6	4.6	0	0.0	0	0.0		
Job grade								
Nurse	30	23.1	15	28.8	10	38.5	18.199	0.000**
Shift supervisor	20	15.4	3	5.8	0	0.0		
Head Nursing Unit	80	61.5	34	65.4	16	61.5		
Years of experience								
< 5	88	67.7	15	28.8	6	23.1	19.177	0.000**
5 < 10	20	15.4	20	38.5	7	26.9		
10 < 15	1	0.8	10	19.2	10	38.5		
≥ 15	21	16.2	7	13.5	3	11.5		
Place of residence								
Rural	20	15.4	20	38.5	5	19.2	18.199	0.000**
Urban	110	84.6	32	61.5	21	80.8		

**Highly statistically significant

Table (3): Relation between Studied Nurses' Demographic Characteristics and their Total Attitude Level regarding Respiratory Syncytial Virus (n=208).

Demographic characteristics	Negative (n= 145)		Positive (n= 63)		X ²	P – value
	No.	%	No.	%		
Age (year)						
< 20	20	13.8	7	11.1	12.654	0.000*
20- < 30	30	20.7	15	23.8		
30- < 40	83	57.2	27	42.9		
≥ 40	12	8.3	14	22.2		
Sex						
Male	130	89.7	55	87.3	14.254	0.001**
Female	15	10.3	8	12.7		
Educational level						
Nursing Diploma	4	2.8	1	1.6	11.002	0.000**
Nursing Technical institute	12	8.3	6	9.5		
Bachelor of Nursing	80	55.2	33	52.4		
Postgraduate studies in nursing	49	33.8	23	36.5		
Marital status						
Single	30	20.7	9	14.3	15.120	0.000**
Married	110	75.9	44	69.9		
Divorced	5	3.4	4	6.3		
Widowed	0	0.0	6	9.5		
Job grade						
Nurse	30	20.7	25	39.7	17.548	0.000**
Shift supervisor	20	13.8	3	4.8		
Head Nursing Unit	95	65.5	35	55.5		
Years of experience						
< 5	80	55.2	29	46.0	17.555	0.000**
5 < 10	30	20.7	17	27.0		
10 < 15	4	2.8	17	27.0		
≥ 15	31	21.4	0	0.0		
Place of residence						
Rural	5	3.4	40	63.5	12.458	0.000**
Urban	140	96.6	23	36.5		

**Highly statistically significant

Table (4): Relation between Studied Nurses' Demographic Characteristics and their Total Reported Practices Level regarding Respiratory Syncytial Virus (n=208).

Demographic characteristics	Adequate (n= 85)		In adequate (n= ١٢٣)		X ²	P – value
	No.	%	No.	%		
Age (year)						
< 20	18	21.2	9	7.3	12.999	0.000*
20- < 30	30	35.3	15	12.2		
30- < 40	20	23.5	90	73.2		
≥ 40	17	20.0	9	7.3		
Sex						
Male	74	87.1	111	90.2	14.666	0.001**
Female	11	12.9	12	9.8		
Educational level						
Nursing Diploma	3	3.5	2	1.6	12.072	0.000**
Nursing Technical institute	15	17.6	3	2.4		
Bachelor of Nursing	40	47.1	73	59.3		
Postgraduate studies in nursing	27	31.8	45	36.7		
Marital status						
Single	25	29.4	14	11.4	15.890	0.000**
Married	50	58.8	104	84.6		
Divorced	4	4.7	5	4.0		
Widowed	6	7.1	0	0.0		
Job grade						
Nurse	20	23.5	35	28.5	18.023	0.000**
Shift supervisor	10	11.8	13	10.6		
Head Nursing Unit	55	64.7	75	60.9		
Years of experience						
< 5	40	47.1	69	56.1	18.405	0.000**
5 < 10	30	35.3	17	13.8		
10 < 15	15	17.6	6	4.9		
≥ 15	0	0.0	31	25.2		
Place of residence						
Rural	40	47.1	5	4.1	12.779	0.000**
Urban	45	52.9	118	95.9		

**Highly statistically significant

Table (5): Correlation between Studied Nurses' Total Knowledge, Total Reported Practices and Total Attitude (n= 208).

Total Knowledge and Total Attitude	Total knowledge and Total reported practices			
	Total Knowledge		Total reported practices	
	r	P	r	P
Total Knowledge	-----	----	0.168	0.094
Total Attitude	0.588	0.000	0.662	0.000

Discussion:

Respiratory Syncytial Virus (RSV), is a common viral infection that primarily affects the respiratory tract, especially in infants and young children. It is a major cause of bronchiolitis and pneumonia, leading to significant morbidity in this age group. RSV spreads through respiratory droplets and can survive on surfaces for several hours, making it easily transmissible. Symptoms typically include a runny nose, cough, wheezing, and difficulty breathing, which can escalate in severity for vulnerable populations. While most healthy patients recover without complications, high-risk groups, as premature infants and those with underlying health conditions, may require hospitalization (*Moore & Hughes, 2024*).

Nurses play a critical role in managing and preventing RSV infections, particularly in pediatric settings. Nurses' awareness about RSV is essential for early identification and intervention. Comprehensive training and education about RSV transmission, risk factors, and appropriate care strategies are vital for nurses to effectively support affected patients and families (*Faico-Filho et al., 2024*). Nurses often serve as educators, helping to raise awareness among patients and caregivers about RSV's symptoms and the importance of seeking timely medical attention (*Riccò et al., 2022*).

Regarding demographic characteristics of the studied nurses. The present study findings revealed that mean age of the studied nurses was 37.4 ± 1.7 years (**Table 1**). This result is similar to a study conducted by *Nyawanda et al., (2023)* who conducted a study in Kenyan (n= 106) about "Respiratory Syncytial Virus (RSV) disease and prevention products: Knowledge, attitudes, and preferences of Kenyan healthcare workers in two counties in 2021". They found that, the mean age of studied samples was 38.19 ± 2.33 years.

Concerning sex, the current study revealed that, majority of studied nurses were male. This result in the same line with *Mohammed et al., (2023)* who carried out a study conducted in Egypt (n= 59) about " Effect of Self learning Package on Nurses' Performance regarding Care of Children Suffering from Respiratory Syncytial Virus", they found that 81.2 % of the studied samples were male. **From the investigator point of view**, positions in these hospitals may involve physically demanding tasks or high-stress situations, which can done accurately male workers.

Regarding marital status the current study showed that, more two thirds of the studied nurse were married. This result in the same line with *Ponticelli et al., (2024)* who carried out a study conducted in Italy (n= 197) about " Respiratory Syncytial Virus (RSV) and Intention to Recommend RSV Vaccination: A Cross-Sectional Survey of Cardiologists and Cardiac Nurses in Southern Italy ", they showed that 73.4 % of the studied samples were married. **From the investigator point of view**, married nurses might seek stable employment in healthcare for financial security to support their families.

Concerning years of experience, the current study revealed that, more than half of the studied nurses had years of experience less than 5 years. This result in the same line with *Sayed et al., (2024)* who carried out a study conducted in Egypt (n= 70) about " Enhancement of Nurses' Performance Regarding Care of Newborns at NICUs: An Assessment Study ", they found that 56.4 % of the studied nurses had years of experience less than 5 years.

Regarding studied nurses' total knowledge regarding respiratory syncytial virus, the current study showed that,

more than three fifths of them had poor knowledge, nearly one quarter of them had average knowledge and more than tenth of them had good knowledge (**Figure 1**), this result disagrees with **La et al., (2024)** who conducted a study in United States (n= 210) about “Respiratory syncytial virus knowledge, attitudes, and perceptions among Nurses in the United States”, they found that, 62.1 % of the studied sample had good total knowledge. Also, 25.0 % had average knowledge and 12.9 % of them had poor knowledge. **From the investigator point of view**, the field of medicine evolves quickly, and if nurses do not keep up with the latest research and guidelines, their knowledge may become outdated.

Regarding studied nurses’ total attitude regarding respiratory syncytial virus, the current study showed that, more two thirds had negative total attitude level toward respiratory syncytial virus and less one third of them had positive total attitude level (**Figure 2**). This result agrees with **Ahmad et al., (2023)** who conducted a study in Iraq (n= 136) about “Evaluate the Knowledge of Nurses at Qala Hospital in Kalar, Iraq, Regarding the Prevention and Management of Pneumonia in Patients with respiratory syncytial virus”, they found that, 31.9 % of the studied sample had positive total attitude toward respiratory syncytial virus. Also, 68.1 % had negative total attitude. **From the investigator point of view**, this may be due to lack of knowledge about respiratory syncytial virus led to negative attitude.

Concerning studied nurses’ total reported practices, the current study showed that, more than two fifth of the studied nurses had adequate level of total reported practices toward respiratory syncytial virus and more than half of them had inadequate level (**Figure 3**), this result agrees with **Abdelwahab et al., (2023)** who conducted a study in Egypt (n= 322) about “Nurses’ Knowledge and Practices Regarding Care of Children with Respiratory Syncytial Virus”, they found that, 44.9 % of the studied sample had adequate level of total reported practices toward respiratory syncytial virus. Also, 55.1 % of them had inadequate level total of reported practices. **From the investigator point of view**, there may be a lack of awareness or access to updated guidelines on how to prevent and manage RSV transmission in healthcare settings. If workers are not familiar with the latest recommendations from health organizations, nurses might not implement the correct preventive measures.

Regarding relation between studied nurses’ demographic characteristics and their total knowledge, the current study revealed that there was statistically significant relation between nurses’ total knowledge and all items of demographic characteristics (**Table 2**). This result agrees with the study done by **Papagiannis et al., (2024)** who conducted a study in Greece (n= 104) about “Assessment of Knowledge, Attitudes, and Vaccination Practices Regarding the New RSV Vaccine among Health Professionals in Greece”, they showed that, there were highly statistically significant relation between studied samples’ total knowledge and all items of demographic characteristics. **From the investigator point of view**, understanding which demographic factors correlate with knowledge can help identify gaps in education or access to information, allowing for more tailored and effective health education strategies.

Concerning relation between studied nurses’ demographic characteristics and their total attitude, the current study revealed there were statistically significant relation between nurses’ total attitude and all items of demographic characteristics (**Table 3**). This result agrees with the study done by **Kherfan & Sallam, (2023)** who conducted a study in Jordan (n= 68) about “Prospective attitudes towards respiratory syncytial virus (RSV) vaccination: validation of a survey instrument among young nurses in Jordan pending vaccine authorization”, they found that, there were highly statistically significant relation between studied samples’ total attitude and all items of demographic characteristics. **From the investigator point of view**, the fact that there is a highly statistically significant relationship suggests that the demographic characteristics of the studied sample had a substantial influence on their overall attitudes. For instance, nurses or those with more experience in the field may had positive attitudes compared to younger or less experienced nurses.

Regarding relation between studied nurses’ demographic characteristics and their total reported practices, the current study revealed there were statistically significant relation between nurses’ total reported practices and all items of demographic characteristics (**Table 4**). This result agrees with the study done by **Nigatu et al., (2022)** who conducted a study in Ethiopia (n= 107) about “Assessment of Knowledge, Practice, and Associated Factors Towards Airway and Breathing Management Among Nurses Working in the Emergency Departments of Selected Public Hospitals in Addis Ababa, Ethiopia: A Cross-Sectional Study”, they found that, there were highly statistically significant relation

between studied samples' total reported practices and all items of demographic characteristics. **From the investigator point of view**, the significant relationship suggests that the demographic characteristics of nurses as their age, education, or experience, have a considerable impact on how they perform their duties and adhere to recommended healthcare practices. For instance, more experienced nurses might have better practice habits, while younger or less experienced nurses might require additional training or guidance.

Concerning the present study revealed to there were positive statistically significant correlation between total knowledge, total attitude and total reported practices (**Table 5**). This result agrees with the study done by **Curran et al., (2023)** who conducted a study in British n= 99 about "A Survey of Community Nurses' Knowledge and Strategies Used to Relieve Breathlessness in People with Chronic Obstructive Pulmonary Disease", they found that, there were high statistically significant positive correlation between total knowledge, total reported practices and total attitude. **From the investigator point of view**, this correlation suggests that as knowledge increases, attitudes towards the subject (as infection control, patient safety, or specific diseases) improve, leading to better reported practices. In other words, nurses with more knowledge are likely to have a more positive attitude and engage in better practices.

Conclusion:

Based on the results of the present study and research questions the following conclusion includes:

Less than two thirds of the studied nurses had poor total knowledge level, and nearly quarter of them had average total knowledge level regarding respiratory syncytial virus. More than two thirds of the studied nurses had negative total attitude level toward respiratory syncytial virus, less one third of them had positive total attitude. While more than half of them had inadequate total reported practices level. There was highly statistically significant relation between studied nurses' total level of knowledge, total level of attitude, total level of reported practices and all items of demographic characteristics. Also, there were positive statistically significant correlation between total knowledge, total attitude and total reported practices regarding respiratory syncytial virus.

Recommendations:

In the light of the result of this study, the following recommendations were suggested:

1. Implementing health education program for nurses regarding respiratory syncytial virus.
2. Dissemination of booklets regarding respiratory syncytial virus.
3. Design posters to be available for nurses to improve their knowledge, attitude and practices regarding respiratory syncytial virus.
4. Further research should be applied on large sample and in other different settings for generalization.

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