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Original Article

Relationship between Risk Perception and Preventive Practices among Secondary Technical Nursing Schools Students Regarding Respiratory Viruses

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Abstract

Background: Respiratory viruses continue to be a major public health concern, particularly in educational settings where students are in close proximity, such as secondary technical nursing schools. Students perceptions of risk significantly influence their engagement in preventive behaviors, which are critical for minimizing viruses transmission. **Aim:** This study aimed to assess the relationship between risk perception and preventive practices regarding respiratory viruses among students in secondary technical nursing schools. **Design:** A descriptive-correlational research design was employed to explore the association between students risk perceptions and their preventive behaviors. **Setting:** The study was conducted in six secondary technical nursing schools within El-Beheira Governorate. **Subjects**: Technical nursing school students (both genders) during the 2022-2023 academic year. **Tools:** Data were collected using four standardized tools. The first tool was a Student Profile Self-Administered Questionnaire. The second was a Students Knowledge of Respiratory Viruses Questionnaire. The third tool, the Respiratory Viruses Risk Perception Scale. The final tool, the Respiratory Viruses Preventive Practices Scale. **Results** The findings revealed that 50.9% of the studied students had a fair level of knowledge about respiratory viruses. Additionally, 73.3% of the studied students demonstrated a moderate level of risk perception regarding these viruses. In terms of preventive practices, 50.3% of the studied students reported good preventive behaviors, reflecting the impact of their awareness on actions taken to reduce risk. A significant positive correlation was identified between students risk perception and their preventive practices**. Conclusion:** The study concludes that there is a strong, positive relationship between students' perceptions of respiratory viruses' risk and their adoption of preventive behaviors. **Recommendation**: to strengthen infection control measures, it is recommended that schools establish a surveillance and follow-up system to monitor respiratory illnesses among students and staff.

***Keywords*:** Respiratory viruses, Prevention Practices, risk perception, Secondary technical nursing schools students, technical schools.

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Introduction:

Over the past two decades, the emergence of several highly infectious respiratory viruses has posed significant global health challenges. These viruses include Respiratory Syncytial Virus (RSV), pandemic influenza A, Middle East respiratory syndrome (MERS), Severe Acute Respiratory Syndrome (SARS), and most recently, SARS-CoV-2, the virus responsible for COVID-19. [1, 2]

School health nurse play a pivotal role on the frontlines of patient care during infectious disease outbreaks. As future health professionals, nursing students constitute a large portion of the health workforce in any country. Their clinical training requires extensive interaction with patients, placing them at a higher risk of exposure to infectious agents compared to experienced nurses. This heightened risk is attributed to students limited clinical experience and insufficient preparation to prevent accidental exposure.[1, 3]

Risk perception is a critical factor influencing people's willingness and motivation to engage in preventive behaviors. It encompasses the individual's cognitive understanding of external risks and serves as a key determinant of nursing students responses to emerging public health issues, particularly respiratory viruses. Perceived risk plays a fundamental role in shaping health behaviors, guiding infection prevention, and reducing irrational responses to health threats.[4]

Due to their direct contact with patients, nursing students are potential vectors of respiratory viruses transmission. This increased risk highlights the urgent need to improve students knowledge and awareness of preventive practices.[5] Preventive practices serve as the foundation for developing the essential clinical skills required for infection prevention and control. To support this effort, the World Health Organization (WHO) has established infection prevention and control guidelines that health authorities and healthcare facilities must implement to protect nurses and nursing students from respiratory viruses.[6]

In the context of respiratory disease outbreaks, community health nurse are indispensable due to their expanded roles in disease diagnosis, prevention, screening, symptom monitoring, patient care, and vaccination campaigns. Their contributions are essential for effective response and management of respiratory virus outbreaks.[7]

Community health nurse play an equally critical role, acting as the primary healthcare providers within educational institutions. Their responsibilities include providing health education, monitoring student health, and promoting infection prevention strategies.[8, 9] School health nurses are central figures in the implementation of school health programs, working closely with students, staff, and school administrators. When outbreaks of respiratory viruses occur, school health nurses take on additional responsibilities, such as advising on infection control strategies, planning and implementing health education, and supporting students and staff with guidance on Personal Protective Equipment (PPE). They remain at the forefront of surveillance, infection prevention measures, and routine immunization efforts. Should a vaccine for a specific respiratory viruses become available, school health nurses will play a vital role in promoting vaccine acceptance and educating school communities on its importance.[10]

Significance of the study:

This study holds significant value as it seeks to enhance understanding of how risk perception influences preventive practices among studied students in secondary technical nursing schools concerning respiratory viruses. Respiratory viruses such as influenza, COVID-19, and other airborne diseases present major public health challenges, particularly in educational environments where students are in close contact. Nursing students, as future healthcare providers, play a vital role in controlling disease transmission. Their perception of risk can directly impact their preventive behaviors, such as hand hygiene, mask usage, and vaccination adherence. By exploring the relationship between students risk perception and their preventive measures, this study provides critical insights that may inform strategies to strengthen nursing education and prepare students for future health crises.[11]

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Additionally, the study offers essential implications for the development of health education curricula in nursing schools. By identifying gaps in students knowledge or correcting any misconceptions about respiratory viruses, educational institutions can adjust their teaching approaches to address these deficiencies effectively. The findings may also support the design of public health campaigns aimed at promoting preventive behaviors in the wider community. As respiratory viruses continue to pose threats to global health, equipping future healthcare professionals with the necessary skills and knowledge to reduce transmission risks is paramount. The results of this study could serve as a foundation for further research on the link between risk perception and preventive practices, ultimately leading to more effective interventions during future outbreaks.[12]

Aim of the study:

Assess the relationship between risk perception and preventive practices among secondary technical nursing schools students regarding respiratory viruses.

Research Question:

What is a relationship between risk perception and preventive practices among secondary technical nursing schools students regarding respiratory viruses?

Material and methods:

Design: A descriptive-correlational research design was adopted to carry out this study.

Settings: The study was conducted in six schools out of 21 that harvest the highest numbers of students at all levels. These are the Kafr-Eldawar Secondary Nursing School for boys, Abu-Hommus Secondary Nursing School for boys, EL-Rahmania Secondary Nursing School for girls, Damanhour Secondary Nursing School for girls, EL-Dalangate Secondary Nursing School for boys, and EL-Dalangate Secondary Nursing School for girls.

Subjects: Technical nursing school students (both sex) in all scholastic levels in the 2022-2023 year and who, at the time of the collection, were enrolled and give consent to participate in the research study.

Sampling

The sample size was calculated with the following assumption: total students in the Academic Year 2022-2023 = 2898, expected frequency = 50%, acceptable error = 5%, and confidence limit = 95%, considering EPI info-7. So, the minimum sample size required was 339; it was upgraded to 360, considering possible non-response.

An equal allocation sampling technique was thus adopted, representing the student population of each school proportionately.

Sampling technique:

- El-Beheira Governorate hosts 21 secondary nursing schools.
- Six schools (constituting 25%) with the highest student numbers were purposively selected.
- The students were chosen by a systematic random sample from each school at all academic levels.

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Table (1): Sample size estimation table

School	Total Number of students	Proposed sample size
1. Kafr-Eldawar Secondary Nursing School for boys.	155	60
2. Abu-Hummus Secondary Nursing School for boys.	155	60
3. El-Rahmania Secondary Nursing School for girls.	154	60
4. Damanhour Secondary Nursing School for girls.	151	60
5. EL-Dalangate Secondary Nursing School for boys.	150	6o
6. EL-Dalangate Secondary Nursing School for girls.	149	60
Total sample size	**360**	

Source: Administration of training and schools in the Directorate of Health Affairs in El-Beheira Governorate (2022). [13]

Tools: The study used four tools for data collection:

Tool I: Students profile self-administered questionnaire:

It was developed by the researcher after reviewing the recent literature also revised by supervisors.[14-16] It included students personal data: age, gender, marital status, place of residence, educational grade, previous failure, type of family, number of family members, family income, parents' educational level, and parents' occupation.

Tool II: Students Knowledge about respiratory viruses Self-administered Questionnaire:

Students Knowledge about respiratory viruses Self-administered Questionnaire was developed by the researcher after reviewing recent literature also revised by supervisors.[17-22] To assess students knowledge about respiratory viruses it involved 14 questions. It included data as the type of most prevalent respiratory viruses, mode of transmission, risk factors, high-risk group, manifestations, complications, severity, preventive measures, and treatment of the respiratory viruses.

Scoring system:

The students knowledge regarding respiratory viruses was calculated for each item. It involved 14 items. A complete correct answer took (2), a correct but incomplete answer took (1), and an incorrect or don't know answer took (0). The total knowledge score was calculated and converted into percentages as follows:

Percent	Interpretation
< 50 %	Poor knowledge
50 %- <75%	Fair knowledge
≥75%	Good knowledge

- An additional question (not involved in the total score) was added concerning sources of information regarding respiratory viruses.

Tool III: Respiratory viruses risk perception scale:

It was adapted from the Effective Communication in Outbreak Management (ECOM) project (2015)[14, 23] It included 10 items to develop an evidence-based risk perception assessment tool for infectious diseases. Each item was rated on a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. Examples of risk perception items included: I am concerned and worried about being affected by respiratory viruses; it is likely that I will be affected by respiratory viruses in the next 6 months. I have felt that infection with respiratory viruses is hazardous with serious complications.

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Percent	Interpretation
< 50 %	Low risk perception
50 %- <75%	Moderate risk perception
≥75%	High risk perception

Scoring system:

The total score was summed and converted into percentages as following:

Tool IV: Respiratory viruses preventive practices scale:

It was developed by the researcher after reviewing recent literature also revised by supervisors.[18-22] It included 18 items to assess the students reported preventive practices concerning respiratory viruses. Each item was rated on a five-point Likert scale ranging from never (1) to always (5). Examples of preventive practices items included washing my hands with soap and water or hand sanitizer to decrease the risk of respiratory viruses infection, wearing a mask to reduce the risk of respiratory viruses infections, and trying to maintain a social distance of more than one meter when dealing with other people to reduce the risk of respiratory viruses infection.

Scoring system:

The total score was summed and converted into percentages as following:

Percent	Interpretation
< 50 %	Poor preventive practices
50 %- <75%	Fair preventive practices
≥75%	Good preventive practices

Methods:

- Official approvals: An official letter was issued from the Faculty of Nursing at Damanhour University to the Health Affairs Directorate in El-Beheira Governorate. The letter outlined the study's objectives and sought formal permission to conduct the research in the designated settings.
- Tool translation: The questionnaire was translated into Arabic by the researcher to ensure it was comprehensible and suitable for the educational level of the students.
- Pilot study: A pilot study was conducted with 36 randomly selected students, representing 10% of the total sample. These participants were not included in the main study sample. The pilot test aimed to assess the clarity, applicability, and comprehensibility of the questionnaire, as well as to identify and address any potential issues before the primary data collection phase.
- Content validity: A panel of five experts from the Faculty of Nursing, specializing in community health and pediatric nursing, reviewed the study tools. The review focused on comprehensiveness, accuracy, clarity, and relevance. Based on their feedback, clarifications were made to certain questions that were deemed ambiguous.
- Tool reliability: The reliability of the study tools was evaluated using Cronbach's alpha coefficients. The results demonstrated satisfactory reliability with coefficients of 0.716 for knowledge, 0.824 for risk perception, and 0.843 for preventive practices, indicating that the tools were dependable for measuring the intended constructs.

Data collection process

- Collection of data covers a period of three months (from March 2023 to May) 5 days /week.

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- Students were selected by systemic random sampling from the different educational grades.
- The data were collected from nursing students after a brief explanation the purpose of the study to gain their cooperation.
- Written informed consent was obtained from the students before data collection.
- The data were collected from the studied students during their breaks in the laboratory, library, and classes after briefly explaining the research purpose and nature.
- Each questionnaire took about 20 minutes to be completed by each student.

Analysis of data

- Data Preparation: The collected data was coded and formatted for entry into a computer system.
- Data Entry and cleaning: Data entry was conducted using IBM SPSS Statistics version 23.0. Frequency analysis, cross-tabulation, and manual data reviews were performed to check for and correct any errors in data entry.
- Descriptive statistics: Descriptive analysis was applied to summarize the data. Frequencies, percentages, means, and Standard Deviations (SD) were used to describe quantitative data that followed a normal distribution.
- Inferential statistics: The statistical analysis included: Pearson's correlation coefficient to measure the relationship between normally distributed quantitative variables.
- Significance level: A p-value of ≤ 0.05 was considered statistically significant for all analyses

Ethical considerations

- Ethical clearance was obtained from the Ethics Committee at the Faculty of Nursing, Damanhour University.
- Approval was also secured from the directors of the selected schools where the study was conducted.
- Informed written consent was obtained from each participant following an explanation of the study's purpose, ensuring that participation was voluntary.
- Privacy and confidentiality were upheld by anonymizing participant data using unique code numbers instead of personal identifiers.
- Students were assured that participation was entirely voluntary, with no consequences, penalties, or rewards associated with participation.

Results:

Table 1 shows that slightly more than three quarters of the studied students (79.7%) were between 17 and 18 years old, with an average age of 17.16 ± 0.79 years. The gender distribution was balanced, with 50% males and 50% females. Almost all (99.4%) of the studied students were single. In terms of residence, less than three-quarters (72.5%) of the studied students lived in rural areas. Regarding academic standing, that more than one-third (38.9% and 42.8%) of the studied students were in second and third grade. Concerning prior academic performance, most of the studied students (99.2%) had not failed any courses before. When considering family structure, nearly two-thirds (64.7%) of the studied students came from nuclear families. In terms of family size, more than three-quarters (81.9%) of the studied students had between four and six family members. Finally, regarding family income, more than three-quarters (87.2%) of the studied students reported that their household income was enough.

Table (1): Distribution of the studied students according to their socio-demographic data (n = 360).

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Socio-demographic data	No.	%
Age		
15- 16-	70	19.4
17 – 18	287	79.7
>18	3	0.9
Min. – Max.	15.0 – 19.0	
Mean ± SD.	17.16 ± 0.79	
Gender		
Male	180	50.0
Female	180	50.0
Marital status		
Single	358	99.4
Married	2	0.6
Residence		
Rural	261	72.5
Urban	99	27.5
Educational grade		
First grade	66	18.3
Second grade	140	38.9
Third grade	154	42.8
Pervious failure		
Yes	3	0.8
No	357	99.2
Family type		
Nuclear	233	64.7
Extended	127	35.3
Number of Family members		
1-3	14	3.9
4-6	295	81.9
>6	51	14.2
Min. – Max.	2.0 – 20.0	
Mean ± SD.	5.51±1.95	
Family income		
Enough	314	87.2
Not enough	46	12.8

Table 2 indicates that the overall average knowledge score was (19.45 ± 3.92). A significant majority with (87.2%, 89.7%, 86.1%, and 90.3%)of the studied students demonstrated a strong understanding of various aspects related to respiratory viruses, correctly answering questions on the concept of respiratory viruses, their direct modes of transmission, procedures for managing confirmed cases, and the complications associated with these infections, respectively. Additionally, more than half (55.8%, 55.6% and 59.4%) gave correct complete answers regarding measures taken when exposed to someone with respiratory viruses infection, survival of respiratory viruses on surfaces and measures for fighting respiratory viruses infection.

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Table (2): Distribution of the studied students according to their knowledge about respiratory viruses (n = 360)

Knowledge about respiratory viruses	Incorrect answer/Don't know		Correct but incomplete answer		Correct complete answer	
	No	%	No	%	No	%
Concept of the respiratory viruses	46	12.8	0	0	314	**87.2**
Direct mode of transmission of the respiratory viruses	37	10.3	0	0	323	**89.7**
Indirect mode of transmission of the respiratory viruses	49	13.6	146	40.6	165	**45.8**
Treatment of the respiratory viruses	194	53.9	0	0	166	**46.1**
Procedure used for confirmed cases of respiratory viruses infection	50	13.9	0	0	310	**86.1**
Measures done when exposed to someone with respiratory viruses infection	159	44.2	0	0	201	**55.8**
Complications of the respiratory viruses infection	35	9.7	0	0	325	**90.3**
Precautions done when exposed to someone with respiratory viruses infection	19	5.3	200	55.6	141	**39.1**
High risk group for respiratory viruses infection	5	1.4	333	92.5	22	**6.1**
Preventive measures for respiratory viruses infection	1	0.3	221	61.4	138	**38.3**
Incubation period for respiratory viruses infection	115	31.9	0	0	245	**68.1**
Survival of respiratory viruses on surfaces	160	44.4	0	0	200	**55.6**
Symptoms associated with respiratory viruses infection	4	1.1	275	76.4	81	**22.5**
Measures for fighting respiratory viruses infection	8	2.3	138	38.3	214	**59.4**
Total mean score of Knowledge about respiratory viruses						
Min. – Max.	2.0 – 27.0					
Mean ± SD	**19.45±3.92**					

Table 3 indicates that the average score for risk perception was (35.72 ± 4.70). More than half (53.3%) of the studied students strongly agreed that adhering to preventive measures could significantly reduce the risk of contracting respiratory diseases. Additionally, the table reveals that a substantial proportion (50.3%)of the studied students expressed concern about the impact of respiratory viruses, with acknowledging their worry about being affected, and (64.7%) recognizing the seriousness of the emerging respiratory virus issue.

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Table (3): Distribution of the studied students according to their risk perception regarding respiratory viruses (n = 360)

Items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree	
	No	%	No	%	No	%	No	%	No	%
The problem of the emerging respiratory viruses is serious	7	1.9	8	2.2	18	5.0	233	**64.7**	94	26.2
I am concerned and worried about being affected by respiratory viruses	10	2.8	17	4.7	54	15.0	181	**50.3**	98	27.2
It is likely that I would be affected by respiratory viruses in the next 6 months	15	4.2	59	16.4	153	**42.5**	108	30.0	25	6.9
It is likely that my friends and family would be affected by respiratory viruses in the next 6 months	14	3.9	42	11.7	167	**46.4**	109	30.2	28	7.8
I have felt that infection with respiratory viruses is very dangerous with serious complications.	3	0.8	8	2.2	52	14.4	160	**44.4**	137	38.2
Adherence to preventive measures could decrease the risk of contracting the disease	3	0.8	6	1.8	30	8.3	129	35.8	192	**53.3**
Respiratory viruses will continue to affect future generations.	7	1.9	61	16.9	131	**36.4**	116	32.3	45	12.5
If I am infected by respiratory viruses, I think I could die	26	7.2	71	19.7	157	**43.6**	84	23.3	22	6.2
Everything related to respiratory viruses frightens me	32	8.9	109	**30.3**	108	30.0	88	24.4	23	6.4
Respiratory viruses will become increasingly dangerous over time	20	5.6	46	12.8	123	**34.2**	119	33.1	52	14.3
Total mean score of Respiratory viruses risk perception										
Min. – Max.	21.0 – 50.0									
Mean ± SD	**35.72±4.70**									

Table 4 shows that the average score for preventive practices was (70.49 ± 11.07). The data reveals that the highest percentages (77.5%) of the studied students consistently engaged in preventive actions such as always washing vegetables, fruits, and items brought from outside the home, (69.7%) wearing gloves when handling cases infected with respiratory viruses, (69.3%) covering their mouth and nose with a flexed elbow or tissue when coughing or sneezing, and disposing of used tissues immediately, (56.4%) washing their hands with soap, water, or hand sanitizer to reduce the risk of respiratory viruses infections. Additionally, a significant number (55.3%) of the studied students reported avoiding close contact with individuals who were sick with respiratory viruses, (55.0%) disposing of used face masks and tissues in separate bags before discarding them, and (50.0%) avoiding being in enclosed spaces with smokers to minimize the risk of infection.

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The table further indicates that over one-quarter (33.6%) of the studied students frequently practiced healthy lifestyles, (30.8%) maintained a social distance of more than one meter from others, (28.6%) canceled or postponed meetings with friends, dining out, and attending sports events in closed spaces to reduce exposure to respiratory viruses. Furthermore, (24.8%) of the studied students reduced their use of public transportation to minimize the risk of infection

Table (4): Distribution of the studied students according to their preventive practices regarding respiratory viruses (n = 360)

Respiratory viruses preventive practices scale	Never		Rarely		Sometimes		Often		Always	
	No	%	No	%	No	%	No	%	No	%
I am confined with healthy lifestyle	8	2.3	16	4.4	95	26.4	121	**33.6**	120	33.3
I wash my hands with soap and water or hand sanitizer to decrease the risk of respiratory viruses Infection	4	1.1	13	3.6	55	15.3	85	23.6	203	**56.4**
I avoid touching my face and eyes with unwashed Hands	7	1.9	17	4.7	79	21.9	112	31.2	145	40.3
I have worn a mask to reduce the risk of respiratory viruses infection	12	3.3	37	10.3	112	**31.1**	103	28.6	96	26.7
I covered mouth and nose with flexed elbow or tissue when coughing or sneezing and dispose used tissue immediately	3	0.8	7	1.9	43	11.9	58	16.1	249	**69.3**
I throw my used face masks and tissue papers in separate bags and then in a bin.	11	3.1	16	4.4	59	16.4	76	21.1	198	**55.0**
I clean frequently touched surfaces and objects with disinfectant to reduce the risk of respiratory viruses infection	9	2.5	25	6.9	67	18.6	103	28.7	156	43.3
I have tried to maintain social distance more than one meter when dealing with other people to reduce the risk of respiratory viruses infection	10	2.8	44	12.2	98	27.3	111	**30.8**	97	26.9
I avoid close contact with people who are sick with respiratory viruses.	2	0.6	17	4.7	58	16.1	84	23.3	199	**55.3**
I get the optional vaccination to prevent seasonal Influenza	45	12.5	30	8.3	77	21.4	84	23.4	124	34.4
I canceled or postponed meetings with friends, eating out, and sports events in closed place to reduce the risk of respiratory viruses infection	51	14.1	38	10.6	94	26.1	103	**28.6**	74	20.6
I reduced the use of public transportation to reduce the risk of respiratory viruses infection	64	17.8	53	14.7	97	26.9	89	24.8	57	15.8
I went shopping less frequently to reduce the risk of respiratory viruses infection	45	12.5	41	11.4	111	**30.8**	78	21.7	85	23.6

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Avoid going to public spaces, such as restaurants or department stores to reduce the risk of respiratory viruses infection	45	12.5	39	10.8	110	**30.6**	93	25.8	73	20.3
I avoid being in closed places with smoker to avoid the risk of respiratory viruses infection	10	2.8	25	6.9	60	16.7	85	23.6	180	**50.0**
I offer advice and guidance to my family and neighbors about the seriousness of respiratory viruses	7	1.9	14	3.9	91	25.3	80	22.2	168	46.7
I wash vegetables, fruits and any materials I bring from outside the house	4	1.1	11	3.1	20	5.6	46	12.8	279	**77.5**
I wear gloves in case of dealing with a case infected with respiratory viruses	5	1.4	12	3.3	37	10.3	55	15.3	251	**69.7**
Total mean score of Respiratory viruses preventive practices Min. – Max. Mean ± SD	35.0 – 90.0 **70.49±11.07**									

Table 5 It is evident that there was a positive significant strong correlation between respiratory viruses risk perception and respiratory viruses preventive practices (r= 0.750, P<0.001).

Table (6): Correlation between student's knowledge, preventive practices and risk perception. (n = 360)

	r	p
Knowledge VS risk perception	0.644*	<0.001*
Knowledge VS preventive practices	0.714*	<0.001*
Risk perception VS preventive practices	0.750*	<0.001*

r: Pearson coefficient

*: Statistically significant at p ≤ 0.05

0.00 - 0.19 "very weak"

0.20 - 0.39 "weak"

0.40 - 0.59 "moderate"

0.60 - 0.79 "strong"

0.80 - 1.0 "very strong"

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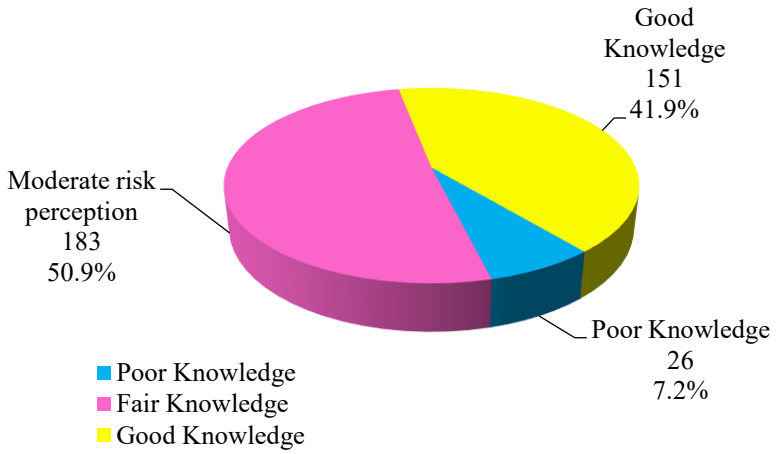

Figure 1: **Total level of knowledge concerning respiratory viruses**

The figure portrays that slightly more than half (50.9%) of the studied students had fair knowledge.

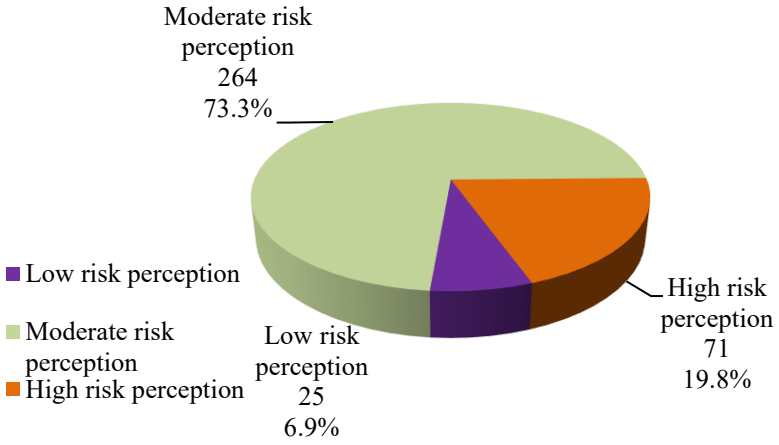

Figure 2: Total level of risk perception concerning respiratory viruses

The figure revealed that less than three-quarters (73.3%) of the studied students had a moderate risk perception concerning respiratory viruses. Additionally, approximately one-fifth (19.8 %) of them had high risk perception and only (9.6%) of them had low risk perception concerning respiratory viruses.

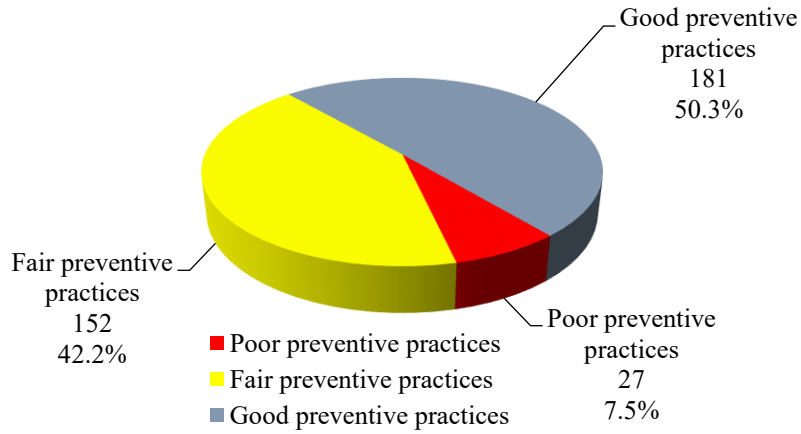

Figure 3. Total level of preventive practices regarding respiratory viruses

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Indicated that slightly more than half (50.3%) of the studied students had good preventive practices concerning respiratory viruses.

Discussion

Since being declared a global health emergency, respiratory viruses have caused widespread negative effects across multiple sectors worldwide, including nursing education.[24] Nursing students, like other healthcare workers, are particularly at risk of exposure to infectious respiratory diseases due to their clinical training. Therefore, it is essential for nursing students to follow recommended preventive measures to help reduce the transmission of these infections.[25] Thus, This study aimed to examine the relationship between risk perception and preventive practices among secondary technical nursing school students in relation to respiratory viruses.

The age of the studied students in this study ranged from 17 to 18 years, with a mean age of 17.16 ± 0.79 years. This finding is consistent with the study by **Bayomi R et al,. (2021)[26]** in Egypt to determine the effect of teaching gridline on knowledge and preventive practices regarding COVID-19 among nursing students which found a similar age distribution among nursing students . In terms of gender, the study found an equal distribution between male and female studied students, with 50% in each category. This outcome aligns with findings from **Begum F., (2020)[27]** in Saudia Arabia who assess knowledge and practices regarding respiratory viruses among nursing students who also observed an equal gender distribution among nursing students.

Additionally, the majority of the studied students in the present study were single, which is consistent with the findings of **Abd-El Aziz A & Hamdi S., (2021)[28]** in Egypt who studied knowledge and preventive practices of COVID-19 among nursing students , who reported that the majority of participants were single.

In terms of knowledge, the current study found that just over half of the studied students had a fair level of knowledge. This is consistent with the findings of **Alshdefat A et al., (2021)**[29] who conducted a study in Oman to assess knowledge, attitudes and practices of nursing students toward respiratory viruses and reported that more than half of nursing students had a fair level of knowledge about respiratory viruses. However, two recent studies presented contrasting results. The first, by **Kp A et al., (2022)**[30] in Italy to determine preventive practices towards respiratory viruses and its knowledge among nursing students showed that most nursing students had good knowledge about respiratory viruses. The second, by **Akhter et al., (2022)**[31] in Bangladesh to identify the level and predictors of knowledge among nursing students toward the respiratory viruses, found that more than half of nursing students had poor knowledge regarding respiratory viruses. These discrepancies may be attributed to differences in educational systems and settings, as well as the timing of the studies.

Regarding risk perception, the current study revealed that nearly three-quarters of the studied students had a moderate perception of risk. This aligns with findings from **Reis R et al., (2021)[32]** in Brazil to analyze knowledge, behavior, and perception of risk regarding respiratory viruses and associated factors among nursing students who also found that a majority of nursing students considered themselves at high risk of acquiring respiratory viruses. The variation in risk perception could be explained by the fact that nursing students often have access to the most current and updated information during their studies.

Finally, concerning preventive practices, the study indicated that more than half of the studied students exhibited good preventive behaviors. This result is consistent with the study by **Shrestha S et al., (2021)**[33] in India to assess knowledge, practices and anxiety related to COVID-19 among nursing students where over half of nursing students reported good preventive practices related to COVID-19. However, it contrasts with the study **Alshdefat A et al., (2021)[29]** in Oman who determine the level of knowledge, attitudes, and practices regarding COVID-19 pandemic among nursing students which found that a majority of participants did not follow adequate preventive measures. These differences could be attributed to variations in the knowledge levels and risk perception regarding respiratory viruses within the populations studied.

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One of the most notable findings of this study was the strong and significant positive correlation between risk perception and preventive practices. This result aligns with the study by **Cihan E et al., (2020)**[34] in Turkey which explored knowledge, preventive behaviors, and risk perception regarding COVID-19 among medical university students. Their study found a strong relationship between students risk perception and their adoption of preventive measures

Conclusion:

The findings of this study indicate that slightly more than half of the studied students demonstrated a moderate level of knowledge regarding respiratory viruses. Additionally, nearly three-quarters of the students had a moderate perception of the risk associated with these viruses. On a positive note, slightly more than half of the students exhibited good preventive practices concerning respiratory viruses. Furthermore, the study found a moderate yet significant positive correlation between students knowledge and their risk perception, as well as a strong positive correlation between knowledge and preventive practices. A similar strong and significant correlation was also observed between students risk perception and their preventive practices.

Recommendations:

- Implement comprehensive educational programs on respiratory viruses for nursing students, ensuring that the content is current and includes the latest preventive guidelines.
- Develop and distribute clear guidelines for educational institutions, outlining specific measures to prevent the spread of respiratory viruses among students and staff.
- Educators should demonstrate proper respiratory hygiene practices, including the correct use of masks and hand hygiene, to serve as positive role models for students.
- Conduct additional studies to explore barriers to adherence to infection prevention and control measures among nursing students, with the aim of enhancing compliance

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