Microbes and Infectious Diseases 2025; 6(3): 6076-6082

Microbes and Infectious Diseases

Journal homepage: https://mid.journals.ekb.eg/

Original article

Assessment of knowledge and attitudes regarding pneumonia disease among patients at AL-Suwaira General Hospital in AL-Suwaira City

Fatima Samir Abdel Razak*[1], Mayada Mohammed Obaid[1], Nagham Saadi Mohammed[2]

1- *Department of Medical Laboratory Techniques, Suwaira-Technical Institutes,Middle Technical University, Wassit, Iraq*
2- *Department of Pharmacology and Toxicology. College of Pharmacy, Mustansiriyah University*

ARTICLE INFO

Article history:
Received 18 April 2025
Received in revised form 21 May 2025
Accepted 24 May 2025

Keywords:
Pneumoniae
autoimmune diseases
lung.

ABSTRACT

Background: Pneumonia is an inflammatory condition that affects the lung and mainly affects the microscopic air sacs known as alveoli. They usually occur as a result of infections caused by viruses or bacteria, and to a lesser extent other microbes, some medications, and other medical conditions such as autoimmune diseases. Bacterial causes of pneumonia the most common bacterial causes of community-acquired pneumonia include Streptococcus pneumoniae. Pneumonia can be caused by many different types of microorganisms, including: Viruses (most common) Bacteria or germs. The severity of pneumonia can range from mild to very severe and life-threatening. It is more dangerous for infants and young children, people older than 65, and people with health problems or a weak immune system. **Methods:** A cross-sectional study of 100 a random sample of residents was conducted in this study. During February to March 2024. Knowledge and attitudes were assessed by using typical self-administered questionnaire. Descriptive analyses were used to express the results. **Results:** A total of 100 participants responded to the questionnaire, Overall, participants demonstrated good knowledge and positive attitudes towards Pneumonia. In this study, the demographic characteristics of the study participants indicate a predominance of younger individuals, with the majority aged less than 29 years. Middle-aged individuals (23–40 years) constitute a smaller proportion, while those aged 41–50 years and over 50 years are relatively fewer. There is a slightly higher representation of females compared to males. **Conclusion:** Participants exhibit diverse educational backgrounds, ranging from no formal education to bachelor's degrees, with the majority holding bachelor's degrees.

Introduction

The lungs are one of the most important organs of the respiratory system, and their primary function is to supply the body with oxygen and get rid of carbon dioxide, in addition to protecting the body from viruses, bacteria, or any foreign bodies. Each lung can perform its function through several parts that work in harmony, but the lungs may be exposed to some diseases that affect them [1].

The respiratory system performs several vital functions in the human body. It is responsible for supplying the body's cells and tissues with oxygen and getting rid of carbon dioxide gas, in addition to several other functions such as: protecting the body from inhaling any foreign and harmful bodies, and preparing the inhaled air to be appropriate to the temperature and humidity level in the human body [2] .

DOI: 10.21608/MID.2025.376860.2715
* *Corresponding author:* Fatima Samir Abdel.Razak
E-mail address: *fatema_samirr@mtu.edu.iq*

Pneumonia presents with a variety of symptoms that can range in severity depending on the cause, the patient's age, and general health. These symptoms include chest pain when breathing or coughing, confusion or changes in mental awareness especially in adults over 65 years of age, a cough that may produce phlegm, fatigue, fever, sweating and shivering, a lower body temperature than normal especially in the elderly or those with a weakened immune system, nausea, vomiting and diarrhea [3].

Pneumonia is transmitted by infection and can spread in multiple ways. Through airborne particles, such as droplets released when an infected person coughs or sneezes, or through bodily fluids, such as blood during childbirth, or by touching contaminated surfaces. Whether caused by bacteria or viruses, pneumonia can spread from person to person[4].

The risk of transmission increases with bacterial pneumonia, as bacteria are passed from an infected person to a healthy person. If pneumonia is caused by a virus, it spreads similarly to other viral infections, such as the common cold or flu [5].

There are several types of pneumonia, each classified based on where and how the infection is acquired. Community-acquired pneumonia occurs outside of hospitals or healthcare facilities, and can be caused by bacteria, viruses, or fungi, with vaccinations available to help prevent some types. Hospital-acquired pneumonia develops during a hospital stay and is often more serious because of the presence of antibiotic-resistant bacteria. Viral pneumonia, the second most common type, is caused by various viruses, including the viruses responsible for the common cold, influenza, and COVID-19. Its symptoms are often flu-like and may include fever, chills, dry cough that can progress to mucus production, nasal congestion, muscle aches, headache, fatigue, and weakness, with severity ranging from mild to severe.

Diagnosis begins by taking the patient's medical history and asking about symptoms, followed by a physical examination in which the doctor listens to the lungs for abnormal sounds such as crackles or vibrations [6,7].

To confirm pneumonia and determine its cause, your doctor may order blood tests to detect infection, a chest X-ray to detect inflammation or fluid, and a sputum culture to identify the microorganism responsible. If symptoms appear during a hospital stay or if the condition is severe, additional tests may be needed, including an arterial blood gas test to measure oxygen levels, bronchoscopy to check the airways for any blockages, a CT scan of the chest to get more detailed lung images, and a pleural fluid culture to detect bacteria in the fluid surrounding the lungs [8,9].

Materials and Methods:

A descriptive, cross-sectional study was conducted from February to March 2024, among samples of residents in Al-Suwaira city, Wasit governorate, the Middle East of Iraq. These samples include different experiences ranging from unable to read and write to, bachelor's degree.

The data were collected by research students, and they were also responsible for explaining to the participants, in case of any request, by a self-administered questionnaire which was distributed to suitable participants for their responses. The questionnaire was tested before. After comprehensively reviewing for content validity, the initial draft was sent to three experts for their opinion on the relativity, simplicity, and importance of the content.

It was divided into 4 sections. The first section investigated the demographic information of participants, like gender, age, occupation status, qualification, marital status, and residence. The second section included 23 questions that evaluated the knowledge of these samples about Pneumonia. Questions on knowledge were used to assess the general knowledge of participants about Pneumonia and its components. It assessed information like causes, signs and symptoms, transmission, incubation period, and prevention. The attitudes were evaluated based on seven statements. The practices of participants were assessed based on 7 questions. In the last section, the information sources of contributors about Pneumonia were explored.

Results

Distribution of the study sample according to the demographic characteristics

As indicated in Table (1.1), the age distribution in the study sample was less than 29 years =61 (61%), 23 – 40 years =26 (26%), 41-50 years =10(10%), and more than 50 years= 3(3%). The distribution of sexes in the study sample was male =43 (43%) and female =57 (57%). The distribution of educational level in the study sample

was not read and write =14 (14%), primary education =13 (13%% %), secondary education =26 (26%), and bachelor's =47 (47%). The distribution of marital status in the study sample was married = 53 (53%), single = 40 (40%), widow (5%), and divorced =2 (2%). The distribution of Addresses in the study sample was rural =46 (46%) and urban =54 (54%). The distribution of the work in the study sample was unemployed =31 (31%), employee 44(44%), and student =25 (25%).

The reliability of the study measures

In Table 1.2, the alpha coefficient values for two measures related to study participants about pneumonia are presented. The alpha coefficient for " Knowledge of study participants about pneumonia " is calculated to be 0.81, indicating very good internal consistency and reliability for this measure. The alpha coefficient for " Study participants' orientation about pneumonia infection " is computed to be 0.73, indicating good internal consistency and reliability for this measure.

Distribution of the study sample according to the Knowledge of study participants about Pneumonia

As shown in Table 1.3, which included the knowledge of study participants about pneumonia, the participants' answers were distributed as follows: I know, I'm not sure, or I do not know, according to the percentages shown in Table 1.3.

Distribution of the study sample according to the study participants' orientation about pneumonia infection

As shown in Table 1.4, which included the study participants' orientation about pneumonia infection, the participants' answers were distributed as follows: I know, I'm not sure, or I do not know, according to the percentages shown in Table 1.4.

Distribution of the study sample according to the source of information about the Pneumonia infection

The distribution of the study sample according to the source of information about Pneumonia infection was Television =28 (28%), Radio =13 (13%), Internet =47(47%), Books =8 (8%), and journal and newspaper =4(4%) as shown in figure1.1**.**

Table 1. Distribution of the study sample according to the demographic characteristics

Age	***F***	***%***
< 29 years	61	61%
23 – 40 years	26	26 %
41-50 years	10	10 %
> 50 years	3	3 %
Total	**100**	**100 %**
Sex		
Male	43	43 %
Female	57	57 %
Total	**100**	**100 %**
Educational level		
Not read or write	14	14 %
Primary education	13	13 %
Secondary education	26	26 %
Bachelor's	47	47 %
Postgraduate	0	0 %
Total	**100**	**100 %**
Addresses		
rural	46	46 %
urban	54	54 %
Total	**100**	**100 %**
Marital status		
Married	53	53 %
Single	40	40%
Widow	5	5 %
Divorced	2	2 %
Total	**100**	**100 %**
Work		

Unemployed	31	31 %
employee	44	44 %
student	25	25 %
Total	**100**	**100%**

F: Frequency; %: Percentage

Table 1.2. Testing the reliability of the study measures using the Alpha Cronbach test

Study topics	*No.*	*α*
Knowledge of the study participants about pneumonia	19	0.81
Study participants' orientation about pneumonia infection	7	0.73
Total	26	0.84

No: Number of questions; α: Alpha Cronbach

Table 1.3. Shows the distribution of the Knowledge of study participants about Pneumonia

No.	***Question***	***Answers***					
		I know		***I'm not sure***		***I don't know***	
		F	***%***	***F***	***%***	***F***	***%***
1	Is pneumonia a genetic disease?	56	56%	24	24%	20	20%
2	If the patient has pneumonia, do you feel anxious about members of the patient's family or close friends if they have pneumonia?	56	56%	30	30%	14	14%
3	When you treat pneumonia, are you aware of whether the patient's culture can affect the transmission of pneumonia?	70	70%	18	18%	12	12%
4	Is it strongly recommended to take preventive treatments against pneumonia?	68	68%	21	21%	11	11%
5	Can you prevent the transmission of infection?	41	41%	47	47%	12	12%
6	Do you do follow-up tests after treating a pneumonia infection?	43	43%	43	43%	14	14%
7	Is pneumonia a chronic disease?	38	38%	32	32%	30	30%
8	Do environmental factors affect pneumonia?	70	70%	20	20%	10	10%
9	Is there a vaccine for pneumonia?	57	57%	23	23%	20	20%
10	Are there high rates of infection among the elderly?	32	32%	42	42%	26	26%
11	Is pneumonia treated with antibiotics?	52	52%	32	32%	16	26%
12	Is pneumonia contagious?	63	63%	23	23%	14	14%
13	Is pneumonia life-threatening if not treated?	71	71%	15	15%	14	14%
14	Can a pneumonia infection live in the body for years before symptoms start?	45	45%	35	35%	20	20%
15	Is pneumonia a very dangerous disease?	61	61%	25	25%	14	14%
16	Does pneumonia affect specific ages?	64	64%	36	36%	18	18%
17	Are there symptoms that indicate pneumonia?	67	67%	24	24%	9	9%
18	Is it possible to treat pneumonia through medications?	63	63%	28	28%	9	9%
19	Does pneumonia affect people who suffer from immunodeficiency?	70	70%	20	20%	10	10%

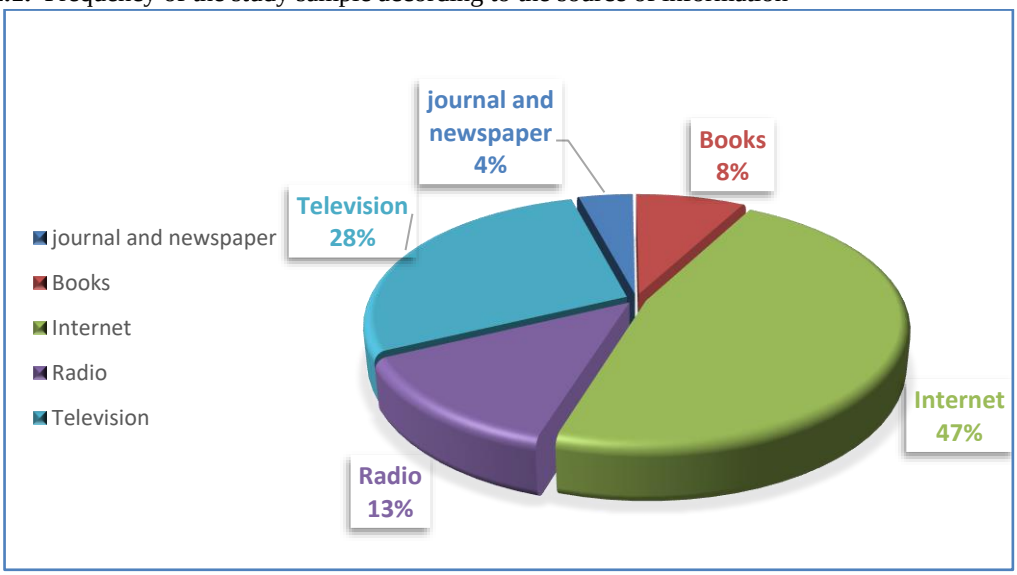
F: Frequency; %: Percentage

Table 1.4:. Shows the distribution of the study sample according to the study participants' orientation about pneumonia infection.

No.	*Question*	*Answers*					
		I know		*I'm not sure*		*I don't know*	
		F	*%*	*F*	*%*	*F*	*%*
1	Does pneumonia cause a health problem in local communities?	71	71%	22	22%	7	7%
2	Is pneumonia severe in your region?	24	24%	56	56%	20	20%
3	Should local communities actively participate in controlling pneumonia infection in Iraq?	71	71%	16	16%	13	13%
4	Is it possible to treat people with pneumonia infection with the disease?	62	62%	24	22%	14	14%
5	Should there be a complete treatment for pneumonia?	83	83%	15	15%	2	2%
6	Are we at risk of pneumonia?	68	68%	21	21%	11	11%
7	Do you find that pneumonia is a general threat to society?	70	70%	23	23%	7	7%

F: Frequency; %: Percentage

Figure 1.1. Frequency of the study sample according to the source of information



Discussion

In this study, the demographic characteristics of study participants indicate a predominance of younger individuals, with the majority younger than 29 years of age. Middle-aged individuals (23-40 years) constitute a smaller proportion, while those aged 41-50 years and above 50 years are comparatively lower. There is a slightly higher representation of females than males. Participants demonstrate diverse educational backgrounds, ranging from no formal education to bachelor's degrees, with the majority holding bachelor's degrees. The distribution of marital status shows a large proportion of married participants, followed by single individuals, with smaller proportions of widowed or divorced individuals. The housing distribution is relatively balanced between rural and urban addresses. In terms of occupation, the study sample consists of a mixture of unemployed individuals, employees, and students. In a previous survey study, the importance of demographic characteristics in a survey study on pneumonia was addressed [10,11].

Previous studies have emphasized the important role of communities in raising awareness of pneumonia, as indicated by (Bakare et al., 2020) and (Chen et al., 2022) in a survey. The results of this survey shed light on various aspects of knowledge and attitudes related to pneumonia among participants. A significant number of

respondents demonstrated a thorough understanding by recognizing pneumonia as a non-hereditary disease and acknowledging concerns about its potential transmission to family members or close contacts. Furthermore, the majority of participants acknowledged the impact of patient culture on disease transmission, highlighting the importance of cultural competency in healthcare delivery. There has been widespread recognition of the importance of preventive treatments against pneumonia, although confidence in preventing transmission of infection has been variable. It is worth noting that a large percentage of respondents reported undergoing follow-up tests after pneumonia treatment, indicating adherence to the treatment's effectiveness. Contrary to misconceptions, only a minority considered pneumonia a chronic disease, underscoring its acute nature. The influence of environmental factors on pneumonia was widely acknowledged, and the majority of participants were familiar with pneumonia vaccines. Concerns about pneumonia were prevalent among the elderly, and the majority of participants acknowledged treatment with antibiotics. Furthermore, the majority correctly identified pneumonia as an infectious disease and considered it life-threatening without treatment. Furthermore, awareness of asymptomatic infection was evident, with a significant proportion acknowledging the possibility of latent infection [12,13] .

In this survey, participants generally perceived pneumonia as a serious health problem in local communities. While opinions varied on its severity, there was strong support for active community engagement in controlling pneumonia infections. Most participants emphasized the importance of comprehensive treatment options for pneumonia and expressed concerns about personal susceptibility to the disease. Furthermore, many considered pneumonia a threat to society as a whole. These findings highlight the importance of raising awareness, applying preventative measures, and ensuring access to high-quality health care services to treat pneumonia within communities. In this study, TV and the Internet emerged as the main sources of information, followed by radio, books, and newspaper/magazine articles. Understanding the diffusion of these informational sources can provide insights into the dissemination of knowledge and perceptions of pneumonia among patients. This diverse distribution highlights the importance of using different media channels to effectively educate patients and address misconceptions surrounding pneumonia. This is what was explained by (Eshwara et al., 2020) (Cillóniz et al., 2021) in a previous study that demonstrated the importance of communities in treating and managing pneumonia control [14,15].

Conclusion

The study revealed Participants demonstrated accurate knowledge and positive attitudes toward pneumonia, accurately identifying it as a non-hereditary disease and emphasizing the need for preventive treatment and regular health care. There was strong support for community engagement in the fight against pneumonia, highlighting the importance of public awareness, prevention strategies, and the provision of health care services. In addition, television and the Internet were the main sources of information, underscoring the critical role of diverse media channels in educating the public and correcting misconceptions about pneumonia.

Conflict of interest

None declared

Financial disclosure

None declared

References

1. Chaudhry R, Omole AE, Bordoni B. Anatomy, thorax, lungs. In: Stat Pearls [Internet]. Stat Pearls Publishing; 2024.
2. Goyal MR, Bedoya J, Choksi T, Guo H, Pita A. Biofluid Dynamics of the Human Respiratory System. In: Biofluid Dynamics of Human Body Systems. Apple Academic Press; 2025. p. 347–74.
3. Singh AK, Kumar S, Singh S, Bhardwaj M. Pneumonia segmentation for infection detection using image processing technique. In: Artificial Intelligence and Information Technologies. CRC Press; 2024. p. 148–55.
4. Olopade IA, Akinola EI, Philemon ME, Mohammed IT, Ajao SO, Sangoniyi SO, et al. Modeling the mathematical transmission of a pneumonia epidemic model with awareness. J Appl Sci Environ Manag. 2024; 28(2): 403–13.

5. Howroyd F, Chacko C, MacDuff A, Gautam N, Pouchet B, Tunnicliffe B, et al. Ventilator-associated pneumonia: pathobiological heterogeneity and diagnostic challenges. Nat Commun. 2024; 15(1): 6447.
6. Lempesis IG, Tarantinos K, Sklapani P, Trakas N, Spandidos DA. Atypical pneumonia. Exp thGeorgakopoulou, Vasiliki Epameinondas erapeutic Med. 2024; 28(5): 424.
7. Park YS, Yun I, Jang S-Y, Park E-C, Jang S-I. Association between nurse staffing level in intensive care settings and hospital-acquired pneumonia among surgery patients: result from the Korea National Health Insurance cohort. Epidemiol Infect. 2024; 152: e62.
8. Ibrahim AU, Ozsoz M, Serte S, Al-Turjman F, Yakoi PS. Pneumonia classification using deep learning from chest X-ray images during COVID-19. Cognit Comput. 2024;16(4):1589–601.
9. Anwar S, Alhumaydhi FA, Rahmani AH, Kumar V, Alrumaihi F. A Review on Risk Factors, Traditional Diagnostic Techniques, and Biomarkers for Pneumonia Prognostication and Management in Diabetic Patients. Diseases. 2024;12(12):310.
10. De Paz PI V, Amistoso RRP, Baylon AY, Lamoste HJR, Saniel JDR, Tangpuz MFL, et al. Socio-demographic Correlates of Knowledge, Attitude, and Health Seeking Behavior on Pneumonia Prevention among Mothers with Under-Five Children in a Rural Setting in the Philippines. Libr Progress-Library Sci Inf Technol Comput. 2024;44(3).
11. Idigo AJ, Wells JM, Brown ML, Wiener HW, Griffin RL, Cutter G, et al. Socio-demographic and comorbid risk factors for poor prognosis in patients hospitalized with community-acquired bacterial pneumonia in southeastern US. Hear Lung. 2024; 65:31–9.
12. Togunwa TO, Babatunde AO, Fatade OE, Olatunji R, Ogbole G, Falade A. Detection of Pneumonia in Children through Chest Radiographs using Artificial Intelligence in a Low-Resource Setting: A Pilot Study. medRxiv. 2024;2012–24. **Q5**
13. Demsash AW, Abebe R, Gezimu W, Kitil GW, Tizazu MA, Lembebo A, et al. Data-driven machine learning algorithm model for pneumonia prediction and determinant factor stratification among children aged 6–23 months in Ethiopia. BMC Infect Dis. 2025; 25(1): 647.
14. Eshwara VK, Mukhopadhyay C, Rello J. Community-acquired bacterial pneumonia in adults: An update. Indian J Med Res. 2020;151(4):287–302.
15. Cillóniz C, Torres A, Niederman MS. Management of pneumonia in critically ill patients. bmj. 2021;375.