ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

ASSESSING THE LEVELS OF KNOWLEDGE, ATTITUDE AND PRACTICE AMONG NURSES REGARDING INFECTION PREVENTION IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN A TERTIARY CARE HOSPITAL KARACHI

Muhammad Ahmed Noor[1], Hayat Ullah[2], Latif Ullah[3], Buriro Qadeer Sindhi[4], Farah Hussain Taj[5], Zeeshan Ali[6] , Sudais Ahmad[7], Manahil Khan[8], Syed Uzma Paiam Bukhari[9].

[1,2,3,4,5,6,7,8]GBSN Scholars Indus University of Health Sciences, Karachi, Pakistan.

*[*9]Ph.D. Scholar, Assistant Professor, Indus University of Health Sciences, Karachi, Pakistan.*

*[*uzmazmat@gmail.com](mailto:uzmazmat@gmail.com)*

Abstract

Chronic Obstructive Pulmonary Disease (COPD) is a leading cause of morbidity and mortality worldwide, with infections playing a significant role in disease exacerbations and hospital admissions. Nurses are central to infection prevention; however, deficiencies in knowledge, attitudes, and practices (KAP) may adversely affect patient outcomes. This study aimed to assess the levels of knowledge, attitudes, and practices among nurses regarding infection prevention in patients with COPD in a tertiary care hospital in Karachi, Pakistan.A descriptive cross-sectional design was adopted, and a total of 100 registered nurses were recruited using a convenience sampling technique. Data were collected through a structured, self-administered questionnaire assessing demographic characteristics and KAP domains. Statistical analysis was performed using SPSS version 23, including descriptive statistics and correlation analysis.The findings revealed that nurses demonstrated moderate to good knowledge and generally positive attitudes toward infection prevention. However, their practical adherence to infection control measures was comparatively suboptimal. Barriers such as workload burden, insufficient training, and limited resources were identified as contributing factors. A positive correlation was observed among knowledge, attitudes, and practices.The study concludes that despite adequate knowledge and favorable attitudes, gaps in practice persist. Strengthening continuous education, training programs, and institutional support is essential to improve infection prevention practices and enhance patient outcomes in COPD management.

Keywords: *Knowledge, Attitude and Practice; Nurses; Infection Prevention; Chronic Obstructive Pulmonary Disease; COPD; Tertiary Care Hospital; Karachi.*

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is a progressive and irreversible respiratory disorder characterized by persistent airflow limitation, chronic inflammation of the airways, and recurrent acute exacerbations. It is a major cause of morbidity and mortality worldwide and represents a significant burden on healthcare systems due to frequent hospital admissions, prolonged length of stay, and increased healthcare costs (Ma, 2019) (Xia, 2025). The prevalence of COPD continues to rise, particularly in low- and middle-income countries, where limited resources and delayed diagnosis further complicate disease management.Effective management of COPD requires a comprehensive and multidisciplinary approach that includes pharmacological therapy, oxygen administration, pulmonary rehabilitation, infection prevention, and patient education. Among these components, infection prevention plays a critical role, as respiratory infections are a leading cause of acute exacerbations, hospitalizations, and mortality in patients

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

with COPD (Ameen, 2022) Preventing infections in hospitalized COPD patients is therefore essential to improving clinical outcomes and reducing disease-related complications.

Nurses are central to the delivery of care for patients with COPD, particularly in hospital settings. Their responsibilities include monitoring respiratory status, administering oxygen therapy, implementing infection control measures, managing nebulization and inhaler therapy, and providing patient education regarding self-care and disease management (Gungner, 2024). Due to their continuous presence at the bedside, nurses are uniquely positioned to influence patient outcomes through effective clinical practices and adherence to infection prevention protocols.Despite their critical role, evidence from multiple studies indicates that nurses often demonstrate inadequate knowledge and inconsistent practices related to COPD management and infection prevention. Studies conducted across different healthcare settings have reported moderate to poor levels of knowledge among nurses, particularly regarding disease pathology, pulmonary rehabilitation, oxygen therapy, and infection control measures (Ma, 2019) (Staiou, 2020). These gaps in knowledge may lead to inappropriate clinical practices, increased risk of hospital-acquired infections, and suboptimal patient care.

Infection prevention remains a significant challenge in the care of patients with COPD. Research has shown that although nurses generally possess positive attitudes toward infection prevention, their actual practices often fall short of recommended standards (Harun, 2022) (Tafere, 2024). Factors such as lack of formal training, heavy workload, limited availability of resources, and absence of regular supervision have been identified as major barriers to effective implementation of infection prevention measures (Ameen, 2022).

The Knowledge–Attitude–Practice (KAP) model provides a theoretical framework for understanding healthcare professionals' behavior. According to this model, adequate knowledge forms the foundation for positive attitudes, which in turn influence clinical practices. Several studies have demonstrated a significant positive relationship between knowledge, attitude, and practice among nurses involved in COPD care, suggesting that improving knowledge through structured education can lead to better attitudes and safer clinical practices (Li, 2020) (Wu, 2024). Educational and theory-based interventions have been shown to improve nurses' knowledge and competence, ultimately enhancing patient outcomes.

In the context of tertiary care hospitals, where patients with COPD are often admitted with severe disease and multiple comorbidities, adherence to infection prevention practices is particularly important. However, limited local data are available regarding nurses' knowledge, attitudes, and practices related to infection prevention in patients with COPD. Assessing these factors is essential to identify existing gaps and guide the development of targeted educational and training programs. Therefore, this study aims to assess the knowledge, attitudes, and practices of nurses regarding infection prevention in patients with Chronic Obstructive Pulmonary Disease in a tertiary care hospital. The findings of this study will provide valuable insights for hospital administrators, nurse educators, and policymakers to strengthen infection prevention strategies, enhance nursing competencies, and improve the quality of care provided to patients with COPD.

Research objective

To assess relationship between nurses' level of knowledge, attitude & practice among nurses regarding infection prevention in patients with chronic obstructive pulmonary disease.

Research Questions

What is the relationship of knowledge, attitude, and practice among nurses regarding infection prevention in patients with chronic obstructive pulmonary disease?

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

Research Hypotheses

Alternate Hypothesis (H1): There is a **significant relationship** between nurses' knowledge, attitudes, and practices regarding infection prevention in patients with Chronic Obstructive Pulmonary Disease (COPD).

Null Hypothesis (H0): There is **no significant relationship** between nurses' knowledge, attitudes, and practices regarding infection prevention in patients with Chronic Obstructive Pulmonary Disease (COPD).

Problem Statements

Chronic Obstructive Pulmonary Disease (COPD) is a progressive respiratory condition that significantly contributes to morbidity, mortality, and healthcare burden worldwide. Patients with COPD are highly vulnerable to respiratory and hospital-acquired infections, which often lead to acute exacerbations, prolonged hospital stays, and increased healthcare costs. Effective infection prevention is therefore a critical component of COPD management, particularly in hospital settings where the risk of nosocomial infections is high. (Ma, 2019) (Xia, 2025).

Nurses play a central role in infection prevention through the implementation of standard precautions, patient education, and adherence to clinical guidelines. However, evidence suggests that despite having adequate knowledge and positive attitudes, nurses often demonstrate inconsistent infection prevention practices. A study conducted in a tertiary care hospital in Lahore reported that although 90% of nurses had good knowledge and 86% had positive attitudes, only 57% consistently followed recommended infection control practices, highlighting a significant gap between knowledge and practice. Furthermore, the study identified a statistically significant positive correlation between knowledge, attitude, and practice, indicating that improvements in knowledge may influence better clinical behavior, yet practical implementation remains suboptimal. (Ameen, 2022) (Wu, 2024).

In Pakistan, limited research has specifically explored nurses' knowledge, attitudes, and practices regarding infection prevention in patients with COPD, particularly in tertiary care settings. The absence of sufficient local data makes it difficult to identify existing gaps and implement targeted interventions. Therefore, there is a need to assess the levels of knowledge, attitude, and practice among nurses regarding infection prevention in COPD patients and to examine the relationship among these variables. This will help in identifying deficiencies in clinical practice and provide a basis for developing effective training programs and policies to improve patient outcomes. (Bibi, 2025).

LITERATURE REVIEW

Chronic Obstructive Pulmonary Disease (COPD) is a major global public health concern that requires comprehensive, multidisciplinary management. Nurses play a central role in COPD care, particularly in areas such as patient education, pulmonary rehabilitation, oxygen therapy, infection prevention, and management of acute exacerbations. Numerous studies have examined the knowledge, attitudes, and practices (KAP) of nurses, healthcare professionals, and patients regarding COPD management, highlighting persistent gaps between knowledge and clinical practice.Several studies have demonstrated that nurses' knowledge of COPD and its management is often suboptimal despite their frequent involvement in patient care. (Ma, 2019) found that internal medicine nurses had insufficient COPD-related knowledge, particularly in areas such as epidemiology, breathlessness, inhaled therapy, and steroid use. Although respiratory nurses performed better than non-respiratory nurses, notable knowledge deficits were evident in both

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

groups, suggesting a need for structured education regardless of clinical placement. Similar findings were reported by (Gungner, 2024) who observed moderate COPD knowledge among healthcare professionals and students in Nepal, with critical gaps related to spirometry use, disease irreversibility, and preventive vaccination. These studies indicate that limited disease-specific knowledge may negatively affect patient education and self-management support.

Pulmonary rehabilitation (PR) is a key component of COPD management; however, both nurses and patients demonstrate inadequate knowledge and participation. (Xie, 2020) reported poor patient knowledge regarding PR, with less than half of COPD patients perceiving a need for rehabilitation and fewer than one-quarter having participated in PR programs. Low educational level, income, and limited access were significant barriers to utilization. On the healthcare provider side, (Wang, 2025) found that medical staff had positive attitudes toward early PR during acute exacerbations of COPD, but knowledge and practice levels were only moderate. Likewise, (Yin, 2025)highlighted suboptimal knowledge among thoracic nurses regarding postoperative pulmonary rehabilitation, particularly in high-risk patient management and pain control. These findings consistently support the KAP theoretical model, demonstrating significant positive correlations between knowledge, attitude, and practice.

The effectiveness of theory-based and structured nursing interventions has been supported by interventional studies. (Li, 2020) demonstrated that continuous nursing care based on the Information–Knowledge–Attitude–Practice (IKAP) model significantly improved quality of life among COPD patients compared with routine care. Improvements were sustained over time, indicating that structured educational interventions can enhance patient outcomes through improved self-management behaviors. Educational interventions targeting nurses have also shown positive effects. (Staiou, 2020) reported significant and sustained improvement in nurses' COPD knowledge following an evidence-based educational program, while (Fradelos, 2023) found that a brief online educational intervention effectively improved COPD knowledge among nursing students.

Oxygen therapy is another critical aspect of COPD management where knowledge and practice gaps are evident. (Bibi, 2025) found that nurses in a Pakistani tertiary hospital demonstrated high knowledge and generally appropriate practices regarding oxygen therapy; however, deficiencies were noted in documentation and confidence. In contrast, (Abd Allatif, 2025) and (Aloushan, 2019) reported unsatisfactory knowledge and incompetent practices among nurses and emergency healthcare workers, particularly in device selection, oxygen indications, and monitoring. (Demilew, 2022) further identified gaps in arterial blood gas interpretation and oxygen indication despite moderate practice levels. Across these studies, training and availability of clear guidelines were consistently associated with better performance, reinforcing the importance of ongoing professional development.

Patient knowledge and self-management practices also remain inadequate. (Xia, 2025)observed insufficient patient knowledge regarding acute exacerbations of COPD, particularly in inhaler technique, warning sign recognition, and preventive strategies. Similarly, (Zhao, 2023) found that individuals at high risk for COPD had moderate awareness but poor preventive practices, such as smoking cessation, vaccination, and physical activity. These findings indicate a significant gap between awareness and behavior, underscoring the need for targeted patient education interventions.

Infection prevention and control is another area closely linked to COPD outcomes, particularly in hospitalized patients. Multiple studies have reported knowledge–practice gaps among nurses

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

regarding infection prevention. (Ameen, 2022) and (Ahmad, 2025) identified unsatisfactory knowledge and poor practices related to infection control and nebulizer therapy, despite nurses recognizing the importance of these measures. Similarly, (Harun, 2022), (Tafere, 2024), and (Gupta, 2020) reported that although nurses often had adequate knowledge and attitudes, actual practice was inconsistent. Resource limitations, workload, and lack of regular training were common barriers to compliance.

Several studies have explored the knowledge, attitude, and practices (KAP) of nurses and other healthcare professionals regarding infection prevention and the management of chronic respiratory diseases, including chronic obstructive pulmonary disease (COPD). Evidence from studies conducted among nurses and nursing students indicates that although attitudes toward patient care are generally positive, significant gaps exist in knowledge and clinical practices related to infection prevention and respiratory disease management (Ali, 2024) (Rizwan, 2025) (Tongariya, 2022) (Yazie, 2019). Research focusing specifically on COPD and other chronic respiratory conditions has reported inadequate understanding of disease management, oxygen therapy, and rehabilitation practices among healthcare professionals, which may negatively affect patient outcomes (Hallit, 2020) (Rishipathak, 2020) (Riley, 2021). Additionally, studies assessing nurses' knowledge of respiratory disease management, including asthma and COPD, have highlighted insufficient theoretical preparation and inconsistent application of evidence-based practices in clinical settings (Islam, 2024). These findings collectively indicate persistent deficiencies in nurses' knowledge and practices related to COPD management, particularly in clinical care settings, thereby emphasizing the need for the present study to assess the levels of knowledge, attitude, and practice regarding COPD management among nurses in a private hospital.

The relationship between education level and clinical competence has been consistently highlighted. Studies conducted in Pakistan, Egypt, Ethiopia, and China showed that nurses with higher educational qualifications or prior training demonstrated significantly better knowledge and practices (Bibi, 2025) (Abd Allatif, 2025) (Tafere, 2024) (Wu, 2024) further contributed by developing a validated KAP questionnaire for perioperative pulmonary rehabilitation, providing a reliable tool for identifying training needs and guiding targeted interventions.

Overall, the literature reveals consistent deficiencies in knowledge and practice related to COPD management, pulmonary rehabilitation, oxygen therapy, and infection prevention among nurses and healthcare professionals. Although attitudes are generally positive, inadequate training, limited resources, and lack of structured educational programs hinder effective practice. The strong positive correlations between knowledge, attitude, and practice across multiple studies emphasize that improving knowledge through structured, evidence-based education is essential for enhancing nursing performance and patient outcomes. These findings support the need for targeted educational interventions and reinforce the rationale for further research focusing on nurses' knowledge and practice in COPD management.

METHODOLOGY

Study Design

A descriptive cross-sectional study design was be used to assess the knowledge, attitude, and practices (KAP) of nurses regarding infection prevention in patients with Chronic Obstructive Pulmonary Disease (COPD)**.** This design allowed the assessment of variables at a single point in time without any intervention.

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

Sampling Technique

The study population was consisted of registered nurses working in the selected tertiary care hospital who are involved in the care of patients with COPD.A total of 100 nurses was be included in the study. The sample size was be determined based on feasibility and by following a previously published descriptive cross-sectional study conducted in a tertiary care hospital in Lahore.

A convenience sampling technique was be used. Nurses who meet the inclusion criteria and are available during the data collection period was be recruited until the required sample size of 100 participants is achieved.

Inclusion Criteria

• Nurses who are registered
• Clinical department nurses
• Nurses who directly provide patient care
• Nurses who have worked for at least six months
• Nurses who are open to taking part in the research

Exclusion Criteria

- Nursing students
- Nurses in administration
- Nurses who do not provide direct patient care
- Nurses who don't show up for data collecting
- Nurses who are unwilling to take part

Data Collection Tool

Data was collected using a structured, self-administered questionnaire, adapted from a previously validated instrument used in a similar study.The questionnaire consisted of four sections. Section A is Demographic characteristics (age, gender, education level, years of experience, department).Section B covers the assessment of knowledge related to infection prevention in COPD patients, including hand hygiene, use of personal protective equipment (PPE), and modes of infection transmission.Similarly section C deals with attitudes toward infection prevention practices, perceived risk of infection, and compliance with infection control guidelines.Section D has questions related to self-reported infection prevention practices, including hand hygiene, PPE usage, respiratory care precautions, and disposal of infectious materials.

Ethical Considerations

Ethical considerations were carefully followed throughout the study to protect the rights, dignity, privacy, and well-being of the participants. Permission was obtained from the relevant authority before data collection, and the purpose of the study was clearly explained to all participants. Informed consent was obtained, and participation was voluntary, with the right to withdraw at any time without any penalty. Confidentiality and anonymity were maintained by ensuring that no personal identifying information was disclosed, and the collected data were used only for academic and research purposes. The study involved no physical or psychological harm, and participants were allowed to skip any question they did not wish to answer. All data were securely handled and reported honestly in aggregate form, following the ethical principles of respect, beneficence, non-maleficence, and justice**.**

Data Analysis

Data was entered and analyzed using Statistical Package for Social Sciences (SPSS) version 23**.**
Descriptive statistics, including frequencies and percentages, were used to summarize

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

demographic variables and KAP levels. Firstly descriptive analysis is performed to see the clear picture of data. Secondly inferential statistics is run. Correlation analysis was performed to assess the relationship between knowledge, attitude, and practice.A p-value < 0.05 was be considered statistically significance.

Table 1: Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic
knowledge	100	5.00	9.00	5.1900	.05631	.56309
Attitude	100	10.00	15.00	14.0200	.12389	1.23893
Practice	100	9.00	15.00	14.1400	.15243	1.52435
Valid N (listwise)	100					

An overview of the participants' knowledge, attitude, and practice scores is given by the descriptive statistics of the study variables. The survey comprised 100 respondents in total. The knowledge scores varied from 5 to 9, with a mean of 5.19 and a standard deviation of 0.56. This result suggests that participants' understanding of the study issue was moderate. The knowledge scores were closely clustered around the mean, indicating that the majority of participants had comparable levels of knowledge, as indicated by the comparatively modest standard deviation. Put differently, the respondents' knowledge varied very little.The attitude scores varied from 10 to 15, with a mean score of 14.02 and a standard deviation of 1.23. This implies that the respondents' attitudes toward the topic under study were largely favorable. The majority of participants had a positive attitude, as evidenced by the mean score being around the highest possible score of 15. The majority of respondents had favorable views, but there was some variety in how strongly they expressed these attitudes, as indicated by the standard deviation of 1.23, which shows a considerable degree of variation in attitude ratings.Similarly, scores varied from 9 to 15, with a mean practice score of 14.14 and a standard deviation of 1.52. This suggests that overall, the individuals' practice levels were good. Additionally, the mean practice score was near the maximum score, indicating that a large number of respondents reported using recommended or suitable practices. There was more variation in practice ratings, too, since the standard deviation for practice was marginally larger than that of knowledge and attitude. This indicates that some responders had somewhat lower practice levels, even if many participants had high practices.

Overall, the results indicate that the participants had solid practices, positive attitudes, and a decent level of knowledge. While practice ratings varied considerably, knowledge scores showed little fluctuation, suggesting that respondents' levels of knowledge were generally similar. This may suggest that while most participants had positive views and good behaviors, not all respondents regularly put their knowledge and attitudes into practice. In order to improve understanding and promote more consistent practice among all participants, additional educational and behavioral interventions may be helpful.

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

Table 2: Correlations

		knowledge	Attitude
knowledge	Pearson Correlation	1	-.295
	Sig. (2-tailed)		.003
	N	100	100
Attitude	Pearson Correlation	-.295	1
	Sig. (2-tailed)	.003	
	N	100	100

The association between the study participants' knowledge and attitude ratings was evaluated using Pearson's correlation coefficient, as seen in Table 2. Knowledge and attitude ratings had a substantial negative association, according to the study ($r = -0.295$, $p = 0.003$). This result suggests that those with lower knowledge scores tended to have greater attitude scores, whereas those with higher knowledge scores tended to have lower attitude scores. Given that the connection was significant at the 0.01 level, it seems unlikely that the observed link happened by accident. On the other hand, the correlation coefficient's magnitude suggests a weak to moderate inverse relationship. Thus, there was a significant but weak link between knowledge and attitude.

Table 3: Correlations

		knowledge	Practice
knowledge	Pearson Correlation	1	-.114
	Sig. (2-tailed)		.260
	N	100	100
Practice	Pearson Correlation	-.114	1
	Sig. (2-tailed)	.260	
	N	100	100

The association between participants' knowledge and practice scores was investigated using the Pearson correlation analysis. With a correlation coefficient of $r = -0.114$, the findings indicated a weakly negative relationship between knowledge and practice. Although the strength of this link was relatively weak, this negative value indicates that practice scores tended to slightly decline as knowledge scores climbed. Furthermore, because the p-value was 0.260, higher than the traditional significance limit of 0.05, the association was not statistically significant. This suggests that the observed correlation between practice and knowledge might have happened by accident and does not offer enough proof to support a significant relationship between the two variables. Consequently, the results imply that there was no significant correlation between the individuals' practice levels and their level of knowledge. To put it another way, there was no apparent correlation between lesser knowledge and poorer practice, nor did more knowledge among participants inevitably translate into better practice. Overall, the findings suggest that research participants' practice behavior may not be significantly influenced by knowledge alone.

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

Discussion:

The current study evaluated 100 participants' knowledge, attitudes, and practices and looked at the connections between these factors. With a mean score of 5.19 ± 0.56, the descriptive results demonstrated that participants had a moderate level of knowledge, meaning they had some grasp of the study issue but could still do better. On the other hand, the mean attitude score was 14.02 ± 1.23, indicating that participants' attitudes were mainly favorable. Similarly, the respondents had good practice levels, as evidenced by the mean practice score of 14.14 ± 1.52. Recent KAP studies have also shown this pattern, where attitude and practice scores seem to be greater than knowledge levels. Wang et al. (2026), for instance, found that patients with coronary heart disease had good attitudes in spite of inadequate information and subpar practice, indicating that knowledge, attitude, and practice may not always advance at the same rate. Such surveys are helpful in identifying behavioral trends, knowledge gaps, and areas that need focused intervention, according to recent KAP study (Liao et al., 2026). Therefore, even if participants may be willing to engage in appropriate behaviors, further educational efforts are still required to increase their comprehension of the issue, according to the current finding of moderate knowledge but positive attitude and good practice.

Knowledge and attitude have a statistically significant weak negative relationship ($r = -0.295$, $p = 0.003$), according to the Pearson correlation analysis. This suggests that while participants with lower knowledge levels tended to express more positive attitudes, those with higher knowledge scores tended to have slightly lower attitude scores. Recent research indicates that the relationship between knowledge and attitude is not always clear-cut, despite the fact that this result may seem surprising. In a study on diabetes self-management education and assistance, Wang et al. (2025) similarly discovered a negative correlation between knowledge and attitude, suggesting that greater information may occasionally make people more cautious, critical, or aware of difficulties associated with the subject. Similarly, recent research has demonstrated that variables other than knowledge, such as perceived danger, past experience, self-efficacy, social support, professional training, and contextual barriers, may have an impact on attitudes (Wu et al., 2026; Zhu et al., 2026). As a result, the study's modest negative association may indicate that participants with higher levels of knowledge were more cognizant of potential risks, constraints, or challenges, which could have affected their attitude scores. However, the association should be regarded cautiously due to the weak correlation.

Additionally, the study discovered a weakly negative and statistically insignificant association ($r = -0.114$, $p = 0.260$) between practice and knowledge. This suggests that among the participants, there was no significant correlation between knowledge and practice. To put it another way, improved practice did not always follow from increased knowledge. Recent KAP research supports this conclusion by demonstrating that information might not be enough to modify behavior. For example, Sah et al. (2025) discovered that while healthcare providers had positive attitudes and good knowledge, only a smaller percentage showed good practice, indicating a gap between awareness and implementation. In a similar vein, Wu et al. (2026) found that attitude was independently linked to practice, indicating that practice might rely more on enabling circumstances and motivation than just knowledge. Recent research on patients undergoing orthopedic surgery and those with pulmonary nodules has also shown that attitude, education, training, perceived risk, and health system factors—rather than just knowledge—may have an impact on practice behavior (Wu et al., 2026; Wang et al., 2026). Therefore, future interventions

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

should not solely concentrate on enhancing knowledge, according to the current findings. To encourage constant and productive practice among participants, they should instead use behavioral motivation, practical demonstrations, attitude-building techniques, skill development, and encouraging surroundings.

Conclusion

The current study found that participants had good practice levels and a generally positive attitude in addition to a moderate level of knowledge about the study issue. The descriptive results indicated the need for additional educational assistance and awareness-based interventions since, although respondents showed positive attitudes and suitable practices, their knowledge level was not equally strong. While practice scores revealed substantially greater variability, showing differences in how participants applied their knowledge and attitudes in real-life circumstances, the low variation in knowledge scores suggested that most participants had very similar knowledge levels.

Higher knowledge scores were linked to somewhat lower attitude scores, according to the correlation results, which revealed a weak but statistically significant negative relationship between knowledge and attitude. Despite the significance of this link, its poor strength implies that knowledge was not a reliable indicator of attitude. Furthermore, the participants' knowledge and practice did not significantly correlate, as evidenced by the weak, negative, and statistically non-significant link between the two. This suggests that improved practice does not always follow from increased understanding.

Overall, the results point to the possibility that improving attitude and practice may require more than just knowledge. Other elements like individual views, motivation, experience, resource accessibility, social support, and environmental circumstances may have an impact on participants' attitudes and behaviors. In order to encourage frequent and productive practice among participants, future interventions should incorporate behavioral motivation, practical training, attitude-building techniques, and supportive environments in addition to boosting knowledge. To have a better understanding of the factors influencing knowledge, attitude, and practice, more research with bigger sample sizes and additional variables is advised.

Recommendation

1. Conduct regular training programs on infection prevention.
2. Ensure availability of PPE and hand hygiene supplies.
3. Monitor nurses' compliance with infection control guidelines.
4. Arrange refresher courses on COPD patient care.
5. Reduce workload and staff shortage issues.
6. Encourage continuous professional development.
7. Conduct future studies with larger sample sizes.

REFERENCES:

Abd Allatif, E. A. (2025). Nurses' knowledge and practice regarding oxygen therapy for COPD patients. *Journal of Health Care Research, 2*.
Abd Allatif, E. A. (2025). Nurses' knowledge and practice regarding oxygen therapy for COPD patients. *Journal of Health Care Research, 2*.

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

Ahmad, A. A. (2025). Knowledge and attitude towards preventing hospital-acquired infections among nurses in Lahore, Pakistan. . *Multidisciplinary Surgical Research Annals, 3*.

Ahmad, A. A. (2025). Knowledge and attitude towards preventing hospital-acquired infections among nurses in Lahore, Pakistan. . *Multidisciplinary Surgical Research Annals, 3*.

Ali, A. A. (2024). Knowledge and attitude regarding nosocomial infections among nursing students in private institute in Khyber Pakhtunkhwa. . *Pakistan BioMedical Journal,*.

Ali, A. A. (2024). Knowledge and attitude regarding nosocomial infections among nursing students in private institute in Khyber Pakhtunkhwa. . *Pakistan BioMedical Journal,*.

Aloushan, A. F. (2019). Assessment of knowledge, attitude and practice regarding oxygen therapy in Riyadh. . *World Journal of Emergency Medicine, 10*.

Aloushan, A. F. (2019). Assessment of knowledge, attitude and practice regarding oxygen therapy in Riyadh. . *World Journal of Emergency Medicine, 10*.

Ameen, E. M. (2022). Nurses' performance regarding care of patients with chronic obstructive pulmonary disease on nebulizer therapy. *Egyptian Journal of Health Care, 13*.

Ameen, E. M. (2022). Nurses' performance regarding care of patients with chronic obstructive pulmonary disease on nebulizer therapy. *Egyptian Journal of Health Care, 13*.

Bibi, R. S. (2025). Assessment of nurses' knowledge, attitude and practices regarding oxygen therapy in COPD patients. *Journal of Health, Wellness, and Community Research, 3*.

Bibi, R. S. (2025). Assessment of nurses' knowledge, attitude and practices regarding oxygen therapy in COPD patients. *Journal of Health, Wellness, and Community Research, 3*.

Demilew, B. C. (2022). Knowledge, attitude, and practice of health professionals for oxygen therapy. . *BMC Health Services Research, 22*.

Demilew, B. C. (2022). Knowledge, attitude, and practice of health professionals for oxygen therapy. . *BMC Health Services Research, 22*.

Fradelos, E. C. (2023). Efficiency of an online intervention in COPD knowledge among nursing students. . *Tanaffos, 22*.

Fradelos, E. C. (2023). Efficiency of an online intervention in COPD knowledge among nursing students. . *Tanaffos, 22*.

Gungner, M. S. (2024). Knowledge about chronic obstructive pulmonary disease among physicians, nurses and students at a regional hospital in Nepal. *Nepalese Respiratory Journal, 3*.

Gungner, M. S. (2024). Knowledge about chronic obstructive pulmonary disease among physicians, nurses and students at a regional hospital in Nepal. *Nepalese Respiratory Journal, 3*.

Gupta, R. S. (2020). A multicentric study to ascertain knowledge, attitude and practices for infection prevention and control amongst nurses. . *journal of Patient Safety & Infection Control, 8*.

Gupta, R. S. (2020). A multicentric study to ascertain knowledge, attitude and practices for infection prevention and control amongst nurses. . *journal of Patient Safety & Infection Control, 8*.

Hallit, S. Z. (2020). Knowledge, attitude and practice of Lebanese community pharmacists toward chronic obstructive pulmonary disease. *Journal Epidemiology and Global Health, 10*.

Hallit, S. Z. (2020). Knowledge, attitude and practice of Lebanese community pharmacists toward chronic obstructive pulmonary disease. *Journal Epidemiology and Global Health, 10*.

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

Harun, M. G.-A.-K. (2022). Pre-COVID-19 knowledge, attitude and practice among nurses towards infection prevention and control.

Harun, M. G.-A.-K. (2022). Pre-COVID-19 knowledge, attitude and practice among nurses towards infection prevention and control.

Islam, M. A. (2024). Nurses' knowledge on management of bronchial asthma. . *Middle East Research Journal of Nursing, 4*.

Islam, M. A. (2024). Nurses' knowledge on management of bronchial asthma. . *Middle East Research Journal of Nursing, 4*.

Li, X.-X. D.-W.-N. (2020). Effect of continuous nursing care based on IKAP theory on quality of life in COPD patients. *Medicine, 99*.

Li, X.-X. D.-W.-N. (2020). Effect of continuous nursing care based on IKAP theory on quality of life in COPD patients. *Medicine, 99*.

Liao, Y., Hairon, S. M., Yaacob, N. M., Tengku Ismail, T. A., & Luo, L. (2026). Modeling breast cancer screening hesitancy among Chinese women: Integrating the Knowledge–Attitude–Practice, health belief, and 5 C frameworks. BMC Public Health, 26, Article 1178. https://doi.org/10.1186/s12889-026-26694-w

Ma, Y. P. (2019). Assessment of COPD-related knowledge among internal medicine nurses: A cross-sectional study. *International Journal of Chronic Obstructive Pulmonary Disease, 14,*.

Riley, M. S. (2021). Knowledge, attitudes and practices regarding oral health and COPD. *npj Primary Care Respiratory Medicine, 31,*.

Riley, M. S. (2021). Knowledge, attitudes and practices regarding oral health and COPD. *npj Primary Care Respiratory Medicine, 31,*.

Rishipathak, P. H. (2020). Knowledge, attitude and practice about management of acute exacerbation of chronic obstructive pulmonary disease among EMS professionals. *Indian Journal of Forensic Medicine & Toxicology,*.

Rishipathak, P. H. (2020). Knowledge, attitude and practice about management of acute exacerbation of chronic obstructive pulmonary disease among EMS professionals. *Indian Journal of Forensic Medicine & Toxicology,*.

Rizwan, A. A. (2025). Understanding nurses' knowledge, attitudes, and practices for nosocomial infections at a tertiary hospital in Lahore. . *Journal of Health, Wellness, and Community Research, 3*.

Rizwan, A. A. (2025). Understanding nurses' knowledge, attitudes, and practices for nosocomial infections at a tertiary hospital in Lahore. . *Journal of Health, Wellness, and Community Research, 3*.

Sah, P. K., Lai, W., Gupta, N., Bist, B. S., Gautam, S., Sapkota, K. R., Koirala, B., Zhuo, I. K., Sesay, M., & Guan, Y. (2025). Knowledge, attitudes, and practices of healthcare providers in pre-hospital care in Nepal. Frontiers in Public Health, 13, Article 1623868. https://doi.org/10.3389/fpubh.2025.1623868

Staiou, M. G. (2020). Closing the gap: The effect of an evidence-based intervention in increasing COPD nurses' knowledge. *Nursing Forum, 55(4), 677–683*.

Staiou, M. G. (2020). Closing the gap: The effect of an evidence-based intervention in increasing COPD nurses' knowledge. *Nursing Forum, 55(4), 677–683*.

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

Tafere, T. Z. (2024). Assessment of knowledge and practice of nurses regarding infection prevention and associated factors at Debre Tabor Comprehensive Specialized Hospital. *Frontiers in Public Health, 11,*.

Tafere, T. Z. (2024). Assessment of knowledge and practice of nurses regarding infection prevention and associated factors at Debre Tabor Comprehensive Specialized Hospital. *Frontiers in Public Health, 11,*.

Tongariya, R. (2022). A study to assess the knowledge, attitude and practices regarding nosocomial infection prevention and control among nursing students. . *GFNPSS–International Journal of Multidisciplinary Research, 3*.

Tongariya, R. (2022). A study to assess the knowledge, attitude and practices regarding nosocomial infection prevention and control among nursing students. . *GFNPSS–International Journal of Multidisciplinary Research, 3*.

Wang, D., Wang, X., Li, Z., Wei, X., & Zhang, B. (2026). Knowledge, attitudes, and practices regarding physical activity among patients aged 20–60 with coronary heart disease. Scientific Reports, 16, Article 6678. https://doi.org/10.1038/s41598-026-37839-7

Wang, Q., Miao, G., Miao, S., Li, P., & Chen, J. (2025). Knowledge attitudes and practices of healthcare professionals regarding diabetes self-management education and support. Scientific Reports, 15, Article 21163. https://doi.org/10.1038/s41598-025-08537-7

Wang, T. W. (2025). Knowledge, attitude and practice of Chinese medical staff in early pulmonary rehabilitation during AECOPD. . *BMJ Open, 15*.

Wu, J., Li, X., & Hao, Y. (2026). Knowledge, attitude, and practice of orthopedic surgery patients regarding the prevention and treatment of venous thromboembolism. Frontiers in Public Health, 14, Article 1676207. https://doi.org/10.3389/fpubh.2026.1676207

Wu, X. L. (2024). Development and testing of a KAP questionnaire for nurses on perioperative pulmonary rehabilitation. *Asia-Pacific Journal of Oncology Nursing, 11,*.

Wu, Y., Song, G., & Zhang, C. (2026). Knowledge, attitudes, and practices toward obstructive sleep apnea among high-risk populations. BMC Public Health, 26, Article 980. https://doi.org/10.1186/s12889-026-26683-z

Xia, Y. Z. (2025). Knowledge, attitudes, and practices of COPD patients regarding acute exacerbations of COPD. *Frontiers in Medicine, 12*.

Xia, Y. Z. (2025). Knowledge, attitudes, and practices of COPD patients regarding acute exacerbations of COPD. *Frontiers in Medicine, 12*.

Xie, L. L. (2020). Assessment of knowledge, attitude, and practice towards pulmonary rehabilitation among COPD patients. *Respiratory Medicine, 174,*.

Xie, L. L. (2020). Assessment of knowledge, attitude, and practice towards pulmonary rehabilitation among COPD patients. *Respiratory Medicine, 174,*.

Yazie, T. D. (2019). Knowledge, attitude, and practice of healthcare professionals regarding infection prevention at Gondar University referral hospital, northwest Ethiopia: A cross-sectional study. *BMC Research Notes, 12*.

ISSN E: 3006-1466
ISSN P: 3006-1458
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
CJSSR
CONTEMPORARY JOURNAL OF SOCIAL SCIENCE REVIEW
Vol.04 No.01 (2026)

Yazie, T. D. (2019). Knowledge, attitude, and practice of healthcare professionals regarding infection prevention at Gondar University referral hospital, northwest Ethiopia: A cross-sectional study. *BMC Research Notes, 12*.

Yin, N. X. (2025). Knowledge, attitudes, and practices of thoracic surgical nurses toward pulmonary rehabilitation. . *BMC Pulmonary Medicine, 25*.

Yin, N. X. (2025). Knowledge, attitudes, and practices of thoracic surgical nurses toward pulmonary rehabilitation. . *BMC Pulmonary Medicine, 25*.

Zhao, L. &. (2023). Knowledge, attitude, and practice toward disease prevention among a high-risk population for COPD. . *International Journal of Nursing Sciences, 10*.

Zhao, L. &. (2023). Knowledge, attitude, and practice toward disease prevention among a high-risk population for COPD. . *International Journal of Nursing Sciences, 10*.

Zhu, M., Ou, X., Shu, X., Lu, C., Li, M., Gao, L., Zhao, C., & Gao, J. (2026). Knowledge, attitude, and practice toward fall risk-increasing drugs among nurses: A cross-sectional survey. Frontiers in Public Health, 13, Article 1714722. https://doi.org/10.3389/fpubh.2025.1714722