# Assessment of Intubated Patients' Satisfaction Regarding Illustrated Communication Materials through Nurses' Knowledge and Practice

**Shumila Batool[1], Sarfraz Masih[2], Muhammad Afzal[3]**

[1]*MSN student, Lahore School of Nursing, The University of Lahore, Pakistan*
[2]*Principal, Lahore School of Nursing, Faculty of Allied Health Sciences, The University of Lahore, Pakistan*
[3]*Ex Director FAHS, Lahore School of Nursing, Faculty of Allied Health Sciences, The University of Lahore, Pakistan*
*Corresponding Author: Shumaila Batool,*
*MSN Student, Lahore School of Nursing, The University of Lahore, Pakistan*
*Email: shumaila2175@gmail.com*

**Keywords:**

Patients' satisfaction, communication materials, nurses' knowledge and practices and Intubated patients in intensive care unit (ICU).

**Abstract**

**Background:** Effective communication is a cornerstone of quality healthcare, yet it becomes significantly challenging in the context of Intubated patients who are unable to verbalize their needs, concerns, or discomfort. This communication barrier can lead to frustration, anxiety, and decreased patient satisfaction, ultimately impacting their overall care experience. Illustrated communication materials, such as picture boards or visual aids, have emerged as a potential solution to bridge this gap, enabling non-verbal communication between patients and healthcare providers. However, the success of these tools largely depends on nurses' knowledge, training, and consistent practice in utilizing them. Current practices lack standardized training for nurses and systematic evaluation of patient satisfaction regarding illustrated communication materials for intubated patients. Bridging this gap requires focused research on training, implementation, and patient-centered outcomes to enhance communication efficacy.
**Objectives: 1.** To determine the patients' satisfaction regarding illustrated communication materials among Intubated patients in intensive care unit (ICU).
**2.** To assess the nurses' knowledge and practice regarding illustrated communication materials among Intubated patients in intensive care unit (ICU).
**Methodology:** This quasi-experimental study was conducted at Tertiary care Hospital Lahore during October 2023 - June 2024, to assessed intubated patients' satisfaction with illustrated communication materials through nurses' knowledge and practice. The study included 62 nurses and 47 intubated patients with a Glasgow Coma Scale (GCS) >11, selected via purposive sampling. Data were collected using validated tools to measure patient satisfaction (scored 20–100), nurses' knowledge (scored out of 30), and practice (scored out of 105), categorized into low, moderate, and high levels. Data were entered and analyzed in Statistical Package for Social Science (SPSS version 22.0.). Frequency and percentage were used for demographic variables, than normality test was used to check the distribution of data. The normality test shows data were not normally distributed therefor Man- Whitney U test was used to compared the data.
**Results:** The most patients were aged 31–40 years (31.9%), male (66.0%), married (63.8%), and had primary education (59.6%), while nurses were predominantly aged 31–40 years (43.3%), male (81.7%), and held Post RN/BSN degrees (50.0%). Post-intervention results showed significant improvements: patient satisfaction shifted from 91.5% low satisfaction to 61.7% moderate and 4.3% high satisfaction; nurses' knowledge improved from 73.3% poor to 83.3% good; and nurses' practices improved

| | |
|---|---|
| | from 65% poor to 90% good. Normality tests indicated non-parametric distributions ($p < 0.001$), and Mann-Whitney U tests confirmed significant pre-post differences in patient satisfaction ($p = 0.000$), nurses' knowledge ($p = 0.000$), and practices ($p = 0.000$), demonstrating the intervention's effectiveness.<br>**Conclusion:** The study demonstrated that illustrated communication materials significantly improved intubated patients' satisfaction and enhanced nurses' knowledge and practices and notable shift from low to moderate and high patient satisfaction, alongside substantial improvements in nurses' understanding and application of non-verbal communication tools. Most interventions Implementing such interventions can bridge communication gaps, improve patient outcomes, and elevate the quality of care. Future research should focus on long-term impacts and scalability of these tools across diverse healthcare settings. |

## INTRODUCTION

Intensive care unit (ICU), nurse-patient communication is a constant, flexible, dyadic process that comprises the exchange of verbal and nonverbal information, needs, and emotions. However, people who are mechanically ventilated are robbed of the ability to communicate verbally, and for a while, only the nurse is able to do so. The patient is confined to a voiceless environment in which the nurse's capacity to decipher the patient's nonverbal cues determines how the patient expresses thoughts, wishes, requirements, and concerns (Danielis et al., 2020).

When ICU staff cannot communicate with an intubated patient, they may make erroneous assumptions about the patient's nonverbal behavior. The inability of nurses to communicate with intubated patients may cause the patient to perceive them as incapable or uncaring, which could result in feelings like rage, despair, and temper with accompanying lack of confidence, an increase in stress levels, anxiety, and potential detrimental effects on the healing process. To mitigate these issues, implementing effective communication strategies is essential (Holm, A., Nikolajsen, L., & Dreyer, P 2021).

Effective communication between nurses and patients is essential for delivering high-quality healthcare. When communication is challenging or fails, it can lead to frustration for both parties. Patients may experience negative emotional and psychological effects, such as increased anxiety, stress, and a sense of isolation. These adverse feelings can hinder their overall well-being and recovery process. For nurses, communication difficulties can impact their professionalism and the quality of care they provide. Both nurses and patients find it frustrating when communication is difficult or fails (Alhazmi, M. M. (2024). ICU nurses find it particularly difficult to interact with patients who are critically ill, unconscious, drugged, or on mechanical ventilation. Nursing care for these individuals demands specialized knowledge, expertise, and dedication (Afriyie, D. (2020).

This is the reality for many patients who are mechanically ventilated and are admitted to an intensive care unit (ICU). Patients momentarily lose their ability to speak during mechanical ventilation due to intubation, which can lead to communication breakdowns, misunderstandings, or even non-communication between patients and medical staff. ICU patients can have conditions like paralysis, ICU-acquired weakness, confusion, weariness, and clouded consciousness that make communicating even more difficult (Alhazmi, M. M. (2024).

Patients who have communication issues find it difficult to convey their suffering, dread, anxiety, and helplessness. (Dumas, 2020a). One of the hardest experiences for these patients is being unable to communicate verbally or with the aid of assistive technology, which makes them angry and despairing (Hosseini et al., 2018). More than one third (37.7%) of discussions about pain were unsuccessful, according to Hoss et al., even though communication interactions with patients in the ICU were generally successful (Hosseini et al., 2018)

In Pakistan, participants' awareness of nonverbal communication among incubated patients was 50.04%, and their degree of practice was 80.37. Thus, it has been discovered through nurse-patient interaction that nurses speak with ventilated patients very little and fail to determine their communication

needs. There is a delay in helping those who are mechanically ventilated. Family members act as a conduit for communication, and medical staff usually assumes that patients on mechanical ventilation have certain needs. Despite the critical nature of communication in intensive care settings, ICU nurses often receive minimal formal training in communication techniques and have limited access to or support for alternative communication strategies. A review of the existing literature revealed a significant gap in research focusing on communication with mechanically ventilated patients within the Pakistani healthcare context. No studies specifically addressing this issue in Pakistan were identified, highlighting a crucial gap in the current body of knowledge.

A significant gap exists in the integration of illustrated communication materials for Intubated patients, as current practices lack standardized training for nurses and systematic evaluation of patient satisfaction. While visual aids are recognized as valuable tools, there is insufficient evidence linking nurses' knowledge and practical application of these materials to measurable improvements in patient outcomes. Bridging this gap requires focused research on effective training protocols, consistent implementation strategies, and patient-centered feedback to optimize communication and enhance care quality in critical settings.

## MATERIAL AND METHODS

This quasi-experimental study was conducted at Tertiary care Hospital Lahore during October 2023 - June 2024, to assessed intubated patients' satisfaction with illustrated communication materials through nurses' knowledge and practice. The study included 62 nurses and 47 intubated patients with a Glasgow Coma Scale (GCS) >11, selected via purposive sampling. Data were collected using validated tools to measure patient satisfaction (scored 20–100), nurses' knowledge (scored out of 30), and practice (scored out of 105), categorized into low, moderate, and high levels. Data were entered and analyzed in Statistical Package for Social Science (SPSS version 22.0.). Frequency and percentage were used for demographic variables, then normality test was used to check the distribution of data. The normality test shows data were not normally distributed therefor Man- Whitney U test was used to compared the pre intervention data and post intervention data.

The education plan was Implemented after collected the pre assessment. Educational program was conducted by the researcher from ICU nurses (60) about illustrated communication material who is working in medical and surgical intensive care unit in hospital. The total sample was divided into 3 subgroups consisted of 12 nurses for each session. five sessions were complete in three weeks for each sub group in 4 months. Every participant was attending five sessions. The intervention's content has been developed with the help of different books on communications that are Introduction to communication by Jennifer, skills training in communication and related topics by Ele n j blazer, Skills for communicating with patients (3rd Edition) by Jonthane Silverman, Communication skills for Nurses by Claire boyd and janet dare.1st Session was on Review of communication skills,2nd Session was on Channels/ types of communications and importance of communication in nursing,3rd Session was on Illustrated communication material,4th Session was on Use of illustrated communication materials, 5th Session was on barriers and facilitators in use of illustrated communication material. After that post assessment done through questionnaire.

## RESULTS

**Table 1: Demographic characteristics of Nurses**

| Demographic characteristics | Frequency | Percentage |
|---|---|---|
| **Age** | | |
| 24-30 years | 12 | 20.0% |
| 31-40 years | 26 | 43.3% |
| 41-50 years | 13 | 21.7% |
| >51 years | 9 | 15.0% |
| **Gender** | | |
| Male | 49 | 81.7% |

| | | |
|---|---|---|
| Female | 11 | 18.3% |
| **Marital Status** | | |
| Married | 32 | 53.3% |
| Unmarried | 28 | 46.7% |
| **Education Level** | | |
| Diploma in General nursing | 28 | 46.7% |
| Post RN/BSN | 30 | 50.0% |
| MSN | 2 | 3.3% |
| **Working Experience in ICU** | | |
| 1-5 Years | 5 | 8.3% |
| 6-10 Years | 34 | 56.7% |
| 11-15 Years | 16 | 26.7% |
| 16-20 Years | 3 | 5.0% |
| > 20 Years | 2 | 3.3% |
| **Working Unit** | | |
| Medical ICU | 39 | 65.0% |
| Surgical ICU | 21 | 35.0% |

The demographic characteristics of the nurses (n=60) indicate that the majority were aged 31-40 years (43.3%), followed by those aged 41-50 years (21.7%). Most participants were male (81.7%), with only 18.3% being female. Over half of the nurses (53.3%) were married, while 46.7% were unmarried. In terms of education, half of the nurses held a Post RN/BSN degree (50.0%), 46.7% had a diploma in general nursing, and only 3.3% had completed an MSN. Regarding work experience in the ICU, the largest group had 6-10 years of experience (56.7%), followed by 11-15 years (26.7%), while a smaller percentage had 1-5 years (8.3%) or more than 20 years (3.3%). Additionally, most nurses worked in the Medical ICU (65.0%), while 35.0% were in the Surgical ICU. These details provide valuable insights into the professional and demographic profile of the nursing staff.

**Table 2: Demographic characteristics of patients (n=47)**

| Demographic characteristics | Frequency | Percentage |
|---|---|---|
| **Age** | | |
| 18-30 years | 10 | 21.3% |
| 31-40 years | 15 | 31.9% |
| 41-50 years | 13 | 27.7% |
| >51 years | 9 | 19.1% |
| **Gender** | | |
| Male | 31 | 66.0% |
| Female | 16 | 34.0% |
| **Marital Status** | | |
| Married | 30 | 63.8% |
| Unmarried | 17 | 36.2% |
| **Education Level** | | |
| Illiterate | 11 | 23.4% |
| Primary school | 28 | 59.6% |
| High school | 8 | 17.0% |

The demographic characteristics of the patients (n=47) reveal that the majority were aged between 31-40 years (31.9%), followed by those aged 41-50 years (27.7%). A larger proportion of the participants were male (66.0%) compared to females (34.0%). Most patients were married (63.8%), with the remaining 36.2% being unmarried. Regarding education levels, over half of the patients (59.6%) had completed primary

school, while 23.4% were illiterate, and only 17.0% had attended high school. These findings provide a comprehensive overview of the patients' demographic profiles.

**Table 3: Patients' Satisfaction regarding illustrated communication materials (n=47)**

| Patients' satisfaction level | Pre intervention N (%) | post intervention N (%) |
|---|---|---|
| Low Satisfaction | 43(91.5%) | 16(34%) |
| Moderate Satisfaction | 4(8.5%) | 29(61.7%) |
| High Satisfaction | 0(0%) | 2(4.3%) |

The results of patients' satisfaction regarding illustrated communication materials (n=47) show a significant improvement after the intervention. Before the intervention, the majority of patients (91.5%) reported low satisfaction, with only 8.5% indicating moderate satisfaction and none (0%) reporting high satisfaction. Post-intervention results demonstrate a marked shift, with low satisfaction decreasing to 34%, moderate satisfaction increasing significantly to 61.7%, and high satisfaction emerging at 4.3%. These findings highlight the positive impact of the intervention on enhancing patient satisfaction with communication materials.

**Table 4: Nurses' Knowledge regarding non -verbal communication**

| Level of knowledge | Pre intervention N (%) | post intervention N (%) |
|---|---|---|
| Poor Knowledge | 44(73.3%) | 0(0%) |
| Average Knowledge | 16(26.7%) | 10(17.7%) |
| Good Knowledge | 0(0%) | 50(83.3%) |

The nurses' knowledge regarding non-verbal communication demonstrated a significant improvement post-intervention. Before the intervention, the majority of nurses (73.3%) had poor knowledge, while 26.7% exhibited average knowledge, and none had good knowledge. After the intervention, none of the nurses remained in the poor knowledge category, while 17.7% attained average knowledge, and a remarkable 83.3% achieved good knowledge. These findings underscore the effectiveness of the intervention in enhancing nurses' understanding of non-verbal communication.

**Table 5: Nurses practice regarding illustrated communication materials**

| Nurses | Pre intervention N (%) | post intervention N (%) |
|---|---|---|
| poor practice. | 39(65%) | 0(0%) |
| Average practice | 21(35%) | 6(10%) |
| Good practice | 0(0%) | 56(90%) |

The nurses' practices regarding illustrated communication materials (n=60) showed significant improvement after the intervention. Pre-intervention, the majority of nurses (65%) demonstrated poor practices, while 35% had average practices, and none exhibited good practices. Post-intervention, no nurses remained in the poor practice category, average practices decreased to 10%, and a remarkable 90% of nurses displayed good practices. These results highlight the effectiveness of the intervention in enhancing nurses' practical skills in using illustrated communication materials.

**Table 6: Comparison of pre and Post scores of patient satisfaction**

| Value | (Mean Ranks) (pre assessment) | (Mean Ranks) (Post assessment) | Mann-Whitney U | P-value |
|---|---|---|---|---|
| **Patient satisfaction** | 39.49 | 61.63 | 539.500 | 0.000 |

The nurses' practices regarding illustrated communication materials (n=60) showed significant improvement after the intervention. Pre-intervention, the majority of nurses (65%) demonstrated poor practices, while 35% had average practices, and none exhibited good practices. Post-intervention, no nurses remained in the poor practice category, average practices decreased to 10%, and a remarkable 90% of nurses displayed good practices. These results highlight the effectiveness of the intervention in enhancing nurses' practical skills in using illustrated communication materials.

**Table 8: Comparison of pre and Post scores of Nurses knowledge**

| Value | (Mean Ranks) (pre assessment) | (Mean Ranks) (Post assessment) | Mann-Whitney U | P-value |
|---|---|---|---|---|
| **Nurses' knowledge** | 31.55 | 89.45 | 80.000 | 0.000 |

The comparison of pre- and post-assessment scores for nurses' knowledge using the Mann-Whitney U test showed a significant improvement in knowledge following the intervention. The mean rank for the pre-assessment was 31.55, while the mean rank for the post-assessment was 89.45. The Mann-Whitney U value was 80.000, with a p-value of 0.000, indicating a significant increase in nurses' knowledge after the intervention.

**Table 9: Comparison of pre and Post scores of nurse's practices**

| Value | (Mean Ranks) (pre assessment) | (Mean Ranks) (Post assessment) | Mann-Whitney U | P-value |
|---|---|---|---|---|
| **Nurses' practices** | 31.83 | 89.17 | 63.000 | 0.000 |

The comparison of pre- and post-assessment scores for nurses' practices using the Mann-Whitney U test indicated a significant improvement following the intervention. The mean rank for the pre-assessment was 31.83, while the mean rank for the post-assessment was 89.17. The Mann-Whitney U value was 63.000, with a p-value of 0.000, showing a significant increase in nurses' practices after the intervention.

## DISCUSSION

The demographic characteristics of the nurses in this study reveal a workforce primarily aged between 31-40 years (43.3%), with 21.7% falling in the 41-50 years range. This age distribution aligns with findings from previous studies, which indicate that nurses in this age group are often the most experienced and active in clinical settings (Shah et al., 2020; Khan et al., 2021). The predominance of male nurses (81.7%) is noteworthy, as it reflects broader trends in Pakistan where male nurses are more prevalent, especially in intensive care settings (Ali et al., 2022). The marital status distribution of the nurses shows that over half were married (53.3%), a pattern commonly seen in research from Pakistan, where family dynamics play a significant role in healthcare practices (Raza et al., 2021). Regarding education, half of the nurses held a Post RN/BSN degree (50.0%), with 46.7% having a diploma in general nursing. This is consistent with other studies in the region, where many nurses still hold diploma-level qualifications, although the trend toward higher education in nursing is growing (Zaman et al., 2023). The work experience of the nurses in the ICU is also relevant, with 56.7% having 6-10 years of experience, which is consistent with the expectation that nurses in ICU settings possess significant clinical expertise (Javed et al., 2020).

These demographic characteristics are necessary to understand the capabilities and professional background of the nursing staff. The age and work experience distributions suggest that most nurses are experienced enough to handle critical care situations, while the educational qualifications show a workforce that is increasingly skilled. Furthermore, the male-dominated nature of the sample is crucial for understanding gender dynamics in healthcare settings, as it may affect communication and care delivery in a clinical environment (Ali et al., 2022). Understanding these demographics also helps contextualize the findings of the study, ensuring that the results reflect the characteristics of the nursing staff and their potential impact on patient outcomes.

The demographic characteristics of the patients in this study align with those observed in previous research, although some variations in age distribution and educational background are present. The majority of participants were aged between 31-40 years (31.9%), with a significant proportion (27.7%) in the 41-50 years range. Previous studies have similarly found that middle-aged adults are more likely to be hospitalized for conditions requiring intensive care (Smith et al., 2020; Khan et al., 2021). The predominance of male patients (66.0%) mirrors findings from studies in Pakistan, where male patients often outnumber females in clinical settings (Ahmed et al., 2019). A higher proportion of married patients (63.8%) is consistent with the familial caregiving dynamics often reported in health research in the region (Javed et al., 2022). Regarding education levels, the majority had completed primary school (59.6%), while 23.4% were illiterate, reflecting the broader educational challenges within Pakistan (Iqbal et al., 2020). The fact that all patients scored 10 on the Glasgow Coma Scale (GCS) is significant as it ensures homogeneity in the sample's neurological status, which is crucial for the study's focus on clinical outcomes.

These demographic characteristics are necessary for understanding the context of the patient population, as they directly influence healthcare delivery and outcomes. The distribution of age, gender, marital status, and educational level can help interpret the results of clinical interventions, while the homogeneity of GCS scores ensures the reliability and comparability of findings related to neurological recovery. Understanding these demographics allows healthcare providers to tailor interventions to the specific needs of the population, as supported by the findings of similar studies (Ahmed et al., 2019; Khan et al., 2021).

The results of patients' satisfaction regarding illustrated communication materials indicate a significant positive change following the intervention. Prior to the intervention, a dominant 91.5% of patients expressed low satisfaction, with only 8.5% reporting moderate satisfaction, and none indicating high satisfaction. After the intervention, there was a notable shift, with low satisfaction decreasing to 34%, moderate satisfaction rising to 61.7%, and high satisfaction reaching 4.3%. These findings align with previous studies that have demonstrated the effectiveness of visual communication materials in improving patient satisfaction. For example, a study by Ahmed et al. (2021) found that the use of illustrated materials in healthcare settings significantly improved patient comprehension and overall satisfaction with medical information. Similarly, Khan and Javed (2022) reported increased patient engagement and satisfaction when visual aids were integrated into the healthcare communication process, particularly for patients with lower literacy levels.

These comparisons are important as they reinforce the value of using illustrated materials to enhance patient understanding, especially in settings where patients may struggle with written text or complex medical jargon. Understanding the impact of such interventions is necessary to inform best practices in patient care, particularly in improving communication and patient outcomes. As patient satisfaction is closely linked to health outcomes, enhancing communication methods becomes a critical component in the delivery of effective healthcare services (Zaman et al., 2023).

The results regarding nurses' knowledge of non-verbal communication (n=60) show a significant improvement post-intervention. Prior to the intervention, a substantial 73.3% of nurses demonstrated poor knowledge, 26.7% exhibited average knowledge, and none had good knowledge. Post-intervention, none of the nurses remained in the poor knowledge category, 17.7% moved to the average knowledge category, and a notable 83.3% achieved good knowledge. These findings align with previous studies that emphasize the importance of educational interventions in enhancing healthcare professionals' understanding of non-verbal communication. For instance, a study by Ali et al. (2020) found that structured training programs on non-verbal communication significantly improved the ability of nurses to interpret patient cues and foster better communication. Similarly, research by Khan et al. (2021) showed that targeted workshops on non-verbal communication led to a substantial increase in nurses' awareness, improving patient care and satisfaction.

These findings are crucial as non-verbal communication plays a vital role in patient care, particularly in settings where patients may have difficulty expressing themselves verbally due to medical conditions or language barriers (Zaman et al., 2022). Understanding non-verbal cues allows nurses to better assess patient needs, provide comfort, and enhance therapeutic relationships, which in turn can positively influence patient outcomes. Therefore, improving nurses' knowledge of non-verbal communication is essential in enhancing overall healthcare delivery and patient experiences.

The results regarding nurses' practices with illustrated communication materials (n=60) indicate a significant improvement post-intervention. Before the intervention, the majority of nurses (65%) demonstrated poor practices, while 35% exhibited average practices, and none had good practices. After the intervention, none of the nurses remained in the poor practice category, only 10% showed average practices, and a remarkable 90% demonstrated good practices. These findings underscore the effectiveness of the intervention in improving nurses' practical skills in using illustrated communication materials, aligning with previous research that highlights the positive impact of such educational interventions.

For instance, a study by Ali et al. (2020) found that training healthcare professionals in the use of visual aids significantly enhanced their ability to communicate complex information, improving their interactions with patients. Similarly, research by Khan and Javed (2021) showed that interventions targeting communication practices led to a substantial improvement in the quality of patient-nurse communication, especially in terms of the use of visual tools. These results align with those of Zaman et al. (2022), who noted that illustrated communication materials improved healthcare providers' ability to convey information to patients with varying literacy levels, leading to better patient comprehension and satisfaction.

Understanding the impact of these interventions is essential, as improved communication practices are crucial for patient outcomes. Nurses who are skilled in using illustrated communication materials can effectively convey important health information, particularly in settings where patients may struggle with written or verbal communication. This enhances patient understanding, reduces the risk of miscommunication, and fosters a more supportive environment, ultimately improving patient care and satisfaction (Zaman et al., 2022).

The comparison of pre- and post-assessment scores for patient satisfaction, indicating a clear improvement in satisfaction after the intervention. These results align with previous studies that have demonstrated the effectiveness of communication interventions in enhancing patient satisfaction. For example, a study by Ahmed et al. (2021) found that interventions involving visual and illustrated communication materials significantly improved patient satisfaction by enhancing their understanding of medical information and reducing anxiety. Similarly, research by Khan and Javed (2022) showed that the use of illustrated communication materials led to increased patient engagement, which directly translated into higher satisfaction levels.

These findings are critical as patient satisfaction is a key indicator of the quality of care and can influence health outcomes. Interventions that enhance communication, such as the use of illustrated materials, help patients better understand their diagnosis and treatment, fostering trust and improving overall healthcare experiences (Zaman et al., 2023). Understanding the effectiveness of such interventions is necessary for healthcare providers to improve patient care, engagement, and satisfaction, ultimately leading to better patient outcomes.

The comparison of pre- and post-assessment scores for nurses' knowledge, indicating a substantial enhancement in nurses' knowledge after the intervention. These results are consistent with previous studies that have shown the effectiveness of educational interventions in improving healthcare providers' knowledge. For instance, a study by Ali et al. (2020) found that targeted educational programs significantly enhanced nurses' knowledge, especially in areas related to communication and patient care. Similarly, research by Khan and Javed (2021) demonstrated that interventions focusing on the improvement of clinical knowledge led to better nurse performance and improved patient outcomes. These findings are further supported by Zaman et al. (2022), who reported that structured training programs enhanced nurses' theoretical and practical knowledge, leading to better healthcare delivery.

The improvement in nurses' knowledge is crucial for the overall quality of patient care. Well-informed nurses can provide higher-quality care, implement best practices, and improve patient safety outcomes. Knowledge-based interventions are essential in healthcare settings to ensure that nurses stay updated with the latest clinical guidelines and communication strategies, contributing to better patient care and satisfaction (Zaman et al., 2022). Understanding the impact of such interventions is necessary to guide future professional development programs and ensure that healthcare providers are equipped to meet evolving patient care needs.

The comparison of pre- and post-assessment scores for nurses' practices, indicating a substantial enhancement in nurses' practices after the intervention. These findings align with previous research that highlights the effectiveness of targeted interventions in improving nursing practices. A study by Ahmad et al. (2020) demonstrated that structured educational interventions significantly improved nurses' clinical practices, especially in areas related to patient safety and communication. Similarly, a study by Khan and Javed (2021) showed that training programs focusing on best practices led to notable improvements in nursing practices, which directly impacted patient care. Furthermore, Zaman et al. (2022) found that interventions designed to enhance practical skills were essential for improving the overall quality of nursing care, leading to better patient outcomes.

The improvement in nurses' practices is critical for ensuring the delivery of high-quality care. When nurses are equipped with the necessary knowledge and skills, they can implement evidence-based practices, reduce errors, and enhance patient safety. Interventions targeting nursing practices are necessary to keep healthcare providers updated on the latest best practices and guidelines, ultimately leading to improved patient satisfaction and better clinical outcomes (Zaman et al., 2022). Understanding the effectiveness of these interventions is essential for healthcare institutions to design ongoing professional development programs that enhance nursing practice.

## CONCLUSIONS

The findings of this study demonstrate significant improvements in patient satisfaction, nurses' knowledge, and nursing practices following the intervention. The substantial increase in patient satisfaction, with a shift from low to moderate and high satisfaction, highlights the positive impact of the intervention on enhancing communication effectiveness. Similarly, the significant improvements in nurses' knowledge and practices emphasize the effectiveness of targeted educational programs in improving clinical skills and theoretical understanding. These results underscore the importance of well-structured interventions in advancing both the practical and cognitive competencies of healthcare providers, leading to better patient care and outcomes. These improvements are consistent with existing literature, which supports the effectiveness of education-based interventions in enhancing nurses' knowledge and practices. Such interventions are vital for ensuring that healthcare professionals are equipped with up-to-date knowledge and practical skills, which directly influence the quality of care delivered to patients. By continuously assessing and improving nursing practices and communication strategies, healthcare institutions can ensure better patient satisfaction and improved clinical outcomes. This study contributes to the growing body of evidence supporting the value of educational interventions in healthcare settings, emphasizing the need for ongoing professional development to maintain high standards of care.

### Recommendations

It is recommended that healthcare providers continue using effective communication strategies, such as illustrated materials, to enhance patient understanding and satisfaction. Nurses should prioritize continuous education and training, focusing on non-verbal communication and patient-centered care, incorporating interactive methods like workshops or simulations. Administrators are encouraged to evaluate and standardize the use of communication tools, such as illustrated materials, across healthcare settings to improve patient satisfaction. Future studies should include longitudinal research to assess the long-term impact of educational interventions on nurses' practices and patient outcomes. Additionally, further research could identify the most effective communication elements to improve patient outcomes across diverse populations.

### Limitations

One of the limitations of this study is its relatively small sample size.

The study was conducted within a single healthcare setting, which may not fully reflect the diverse practices or patient experiences in different hospitals or regions.

## REFERENCES

1. Danielis, M., Povoli, A., Mattiussi, E., & Palese, A. J. J. o. C. N. (2020). Understanding patients' experiences of being mechanically ventilated in the Intensive Care Unit: Findings from a meta-synthesis and meta-summary. 29(13-14), 2107-2124.
2. Holm, A., Nikolajsen, L., & Dreyer, P. (2021). A multicomponent intervention to optimise nurse–patient communication in the intensive care unit: A mixed-methods acceptability and feasibility study. Australian Critical Care, 34(5), 439-447.
3. Alhazmi, M. M. (2024). The impact of effective communication between nurses and patients on raising the quality of care provided: A literature review. IOSR Journal of Nursing and Health Science, 13(1), 24-26.
4. Afriyie, D. (2020). Effective communication between nurses and patients: An evolutionary concept analysis. British Journal of Community Nursing, 25(9).
5. Dumas, L. (2020a). In Post-Extubated Patients What are the Preferred Methods of Communication During Their Experience of Endotracheal Intubation with Mechanical Ventilation.
6. Hosseini, S.-R., Valizad-Hasanloei, M.-A., Feizi, A. J. I. J. o. N., & Research, M. (2018). The effect of using communication boards on ease of communication and anxiety in mechanically ventilated conscious patients admitted to intensive care units. 23(5), 358.
7. Khan, M., & Javed, R. (2021). The effect of knowledge-based interventions on nursing practices. Journal of Clinical Nursing, 32(4), 560-567.
8. Shah, F., et al. (2020). The experience level of nurses and its effect on ICU care. International Journal of Nursing, 22(1), 35-42.
9. Ali, S., et al. (2020). The impact of educational interventions on nurses' knowledge in healthcare settings. Journal of Nursing Education, 25(3), 145-152.
10. Raza, S., et al. (2021). Marital status and professional commitment in nursing. Journal of Nursing Practice, 14(2), 105-111.
11. Smith, T., et al. (2020). Age and critical illness: A systematic review of the impact on ICU outcomes. Critical Care Medicine, 48(3), 487-495.
12. Ahmed, N., et al. (2019). Gender differences in clinical outcomes in critically ill patients: A comparative study. Journal of Clinical Medicine, 8(6), 912-918.
13. Javed, A., et al. (2022). Marital status and its impact on the care of patients in ICU settings. Journal of Nursing Science, 14(2), 45-52.
14. Iqbal, S., et al. (2020). Educational attainment and healthcare outcomes in Pakistan: A cross-sectional analysis. Journal of Health Research, 13(4), 182-189.
15. Zaman, S., et al. (2023). Education levels of nurses and their impact on patient care quality in Pakistan. Nursing Education Perspectives, 44(1), 22-28.
16. Zaman, R., et al. (2022). Non-verbal communication in nursing: Enhancing patient care through effective communication. Journal of Health Communication, 19(1), 45-53.