

## CRITICAL CARE NURSES' PROFICIENCY IN OXYGEN THERAPY AT TERTIARY CARE HOSPITALS IN PESHAWAR: A CROSS-SECTIONAL STUDY

Aurangzeb<sup>1</sup>, Yasmeen Afzal<sup>2</sup>, Nazia Ali<sup>3</sup>, Fawad Khan<sup>4</sup>, Hina Saleem<sup>5</sup>

### Correspondence

<sup>1</sup>Aurangzeb, Associate Professor, Rehman College of Nursing, Rehman Medical Institute, Peshawar

☎: +92-346-35401735

✉: zaibi83@yahoo.com

<sup>2</sup>Senior Lecturer, Rehman College of Nursing, Rehman Medical Institute, Peshawar

<sup>3</sup>Student, Rehman College of Nursing, Rehman Medical Institute, Peshawar

<sup>4</sup>Student, Rehman College of Nursing, Rehman Medical Institute, Peshawar

<sup>5</sup>Student, Rehman College of Nursing, Rehman Medical Institute, Peshawar

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### ABSTRACT

#### **OBJECTIVES**

*This study was aimed to know about the nurse's knowledge regarding oxygen therapy.*

#### **METHODOLOGY**

*Descriptive Cross-sectional study was conducted at public and private tertiary care hospitals in Peshawar on staff nurses working in the ICUs and emergency departments. The sample size calculated through Rao soft online calculator and was selected through convenient sampling techniques was 131 nurses. The data was collected through a self-administered questionnaire.*

#### **RESULTS**

*Among all the participants 59.1% have good knowledge, 39.8% have average, and the remaining 1.1% have poor knowledge of oxygen therapy.*

#### **CONCLUSION**

*Though the study concluded that nurses have good knowledge of oxygen therapy but still there is a need to arrange educational programs and develop policies to improve the nurses' knowledge regarding oxygen therapy.*

**KEYWORDS:** Nurses Knowledge of Oxygen Therapy, Oxygenation, ICU Nurses Caring For Patients on Oxygen Support

## INTRODUCTION

Oxygen therapy is a medical intervention that involves the administration of oxygen in both acute and chronic care settings to patients who cannot maintain their body's demand for oxygen. Oxygenation of body tissue is vital for cell metabolism and subsequent physiological functioning of the body.<sup>1</sup> Healthcare professionals especially nurses should know the indication of oxygen therapy, its types, the amount of oxygen to be given and the complication of oxygen therapy. It is important to know about different devices through which oxygen is given.<sup>2</sup> In ICUs, it was noticed that most of the nurses do not know about the proper use of oxygen therapy, the condition in which the patient required oxygen.<sup>3</sup> Literature on the subject matter showed different levels of nurses' knowledge. A study conducted on knowledge and practice regarding oxygen therapy in Faisal Abdullah Hospital Riyadh concluded that the mean score for knowledge about oxygen therapy was  $5.51 \pm 1.45$  out of 10 and that for practices  $4.55 \pm 1.76$  out of 10. The main factors associated with poor knowledge, Attitude and practice were workload and lack of guidelines.<sup>1</sup> Another study on the knowledge and practice of nurses towards oxygen therapy resulted that more than half (64.1%) of the participants having good knowledge regarding oxygen therapy.<sup>2</sup> Furthermore, me University, Sweden conducted a study on the knowledge and attitude of

nurses regarding oxygen therapy. The result of the study revealed that 63.8% of staff nurses had insufficient knowledge and 53.3% have a positive attitude towards oxygen therapy.<sup>3</sup> A study on assessing nurses' knowledge about oxygen therapy showed that some nurses had a low level of knowledge on oxygen therapy and the need for continuing education for nurses has been highlighted by this study.<sup>4</sup> It is recommended that nurses should be given further training in oxygen therapy to afford a better outcome of oxygen therapy in Ghana.<sup>5</sup> A cohort study conducted in Spain resulted that the nurses' knowledge regarding oxygen therapy before intervention was 80 % while after intervention was 90 %.<sup>6</sup> Furthermore, an exploratory study at the University of Notredame Australia 80 staff nurses revealed that the nurses who were working in general wards had insufficient knowledge regarding oxygen therapy that is (40%) while nurses who were working in ICUs had (55.5%) and overall (40%) had excellent knowledge regarding oxygen therapy.<sup>7</sup> After a thorough search of the literature on PubMed, Google Scholar and science it seems the scarcity of literature on the topic in the Pakistani context. Although there is scarcity of evidence regarding nurses knowledge of oxygen therapy from a local perspective, there are few studies in other context highlighting the need to explore the nurses regarding oxygen therapy.<sup>8,10</sup> This study will assess the nurses' knowledge of oxygen therapy in

Pakistan and specifically in Peshawar. It will highlight this important issue to make policies and arrange training sessions and continuous nursing education programs to improve the nurses' knowledge regarding oxygen therapy.

## METHODOLOGY

A descriptive Cross-sectional study was conducted in the ICUs and emergency departments of public and private tertiary care hospitals in Peshawar. The study population includes staff nurses working in ICUs and emergency departments of these hospitals. The sample size was 131, it was calculated through Rao soft online calculator using 5% margin of error and 95% CI and selected through convenient sampling techniques. Registered nurses working in ICU and emergency departments having a minimum experience of 6 months were included. Head nurses and nurses not directly involved in patient care were excluded from the study. Data was collected through a self-administered questionnaire developed for the study that consisted of 16 questions and was used after pilot testing on 10% of the sample size. Prior to collection, permission from the hospital director was taken for data. A well-explained informed consent was presented to the participants that ensure their autonomy and confidentiality. Data were analyzed through SPSS version 22. For categorical variables frequencies and percentages were calculated and for continuous variables means and standard deviations were calculated in descriptive statistics, Chi square was applied to identify any significant association between demographic characteristics and outcome variables.

## RESULTS

Out of all 88 participants, 51.14% were women and 48.86% were men, with a mean age of  $26.49 \pm 3.017$ , as for as the qualification of the participants is concerned 50% were diploma holders, 35.2% were BSN degree holders and 14.8% Post RN Degree holder, with a mean experience in years of  $2.72 \pm 1.33$ . On the basis of knowledge nurses were placed into three categories poor, average and good. Those with a score  $\leq 5$  are considered a poor knowledge level, scores between 6 to 10 were considered as average knowledge and a score  $>10$  marks were considered as good knowledge level. Among all 88 participants, 1.1% have a poor score below 5, 39.8% have an average score between 6-10 & 59.1% have a good score above 10 (Figure 1).

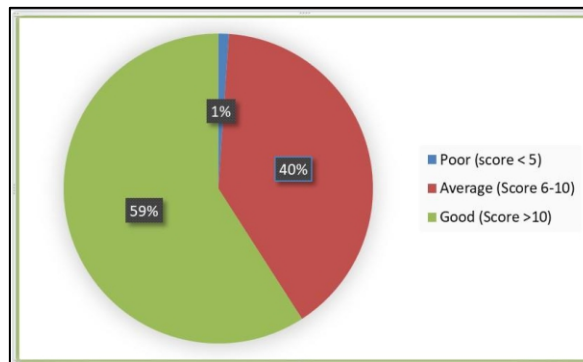


Figure 1: Knowledge Level of Nurses Regarding Oxygen Therapy

For inferential statistics, the chi-square test was applied between the demographic variables and the knowledge scores, but no significant association ( $p$ -values  $> 0.05$ ) was found.

## DISCUSSION

The current study suggests that 59.09% of the participant have good knowledge regarding oxygen therapy, 39.77% have average knowledge and 1.14% have bad knowledge. A published study reported that more than half (64.1%) of the participants had good knowledge while 40% of participants had bad knowledge regarding oxygen therapy.<sup>11</sup> An exploratory study conducted at the University of Notre Dame Australia (2018) revealed that the nurses working in general wards had insufficient knowledge regarding oxygen therapy (40%) while nurses who were working in critical care units had (55.5%) knowledge and overall (40%) had excellent knowledge regarding oxygen therapy.<sup>12</sup> The current study suggests that the mean score of the participant regarding oxygen therapy is 2.58 with a standard deviation of 0.519. In a previous study conducted in Faisal Abdullah Hospital Riyadh, the mean score for knowledge about oxygen therapy was  $5.51 \pm 1.45$  attitude was  $26.31 \pm 3.17$  and for practices  $4.55 \pm 1.76$ .<sup>13</sup> Furthermore, a study from Ethiopia reported that nurses knowledge regarding oxygen therapy was low but their attitude towards oxygen therapy was positive.<sup>14</sup> Similarly, other studies from Turkey and Ethiopia also found that overall nurses knowledge regarding oxygen therapy was poor.<sup>15,16</sup> These findings suggest that there is a need for continuous in-service education for nurses to upgrade and update their knowledge regarding oxygen therapy.<sup>17</sup>

## LIMITATIONS

Selecting only two hospitals might be one limitation, for greater generalizability the study could have covered more hospitals.

## CONCLUSIONS

This study concluded that most of the ICUs and Emergency department Nurses have good knowledge regarding oxygen therapy. For healthcare professionals, it's important to have adequate knowledge regarding oxygen, its importance, its indication and its correct administration. Further studies are also recommended in other parts of the country with different methodologies. There is also a need for hospitals in-service nursing education departments to arrange continuous session for nurses to keep their knowledge and practice of oxygen therapy update with current best available evidence.

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## CONTRIBUTORS

1. **Aurangzeb** - Concept & Design; Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript; Critical Revision; Supervision; Final Approval
2. **Yasmeen Afzal** - Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript; Critical Revision
3. **Nazia Ali** - Concept & Design; Data Acquisition; Data Analysis/Interpretation
4. **Fawad Khan** - Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript
5. **Hina Saleem** - Data Acquisition; Data Analysis/Interpretation; Drafting Manuscript



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