British Journal of Healthcare and Medical Research - Vol. 12, No. 06
Publication Date: December 06, 2025
DOI:10.14738/bjhr.1206.19615.
Buah, T., Opoku, A., Asafo, T. A. A., & Arhinful, F. (2025). Evaluating Respiratory Distress Management among Nurses to Improve Evidence Base Practice: A Quantitative Study at Suntreso Hospital, Ghana. *British Journal of Healthcare and Medical Research*, Vol - 12(06). 92-112.

Evaluating Respiratory Distress Management among Nurses to Improve Evidence Base Practice: A Quantitative Study at Suntreso Hospital, Ghana

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ABSTRACT

Introduction: Respiratory distress is a prevalent and critical medical emergency that poses significant challenges for healthcare providers, particularly in emergency department settings. Respiratory distress is usually a medical emergency and is best managed by an interprofessional team that includes the emergency department physicians, nurses, and an intensivist. Objective: This study investigates the knowledge, practices, attitudes, and barriers to managing respiratory distress among healthcare professionals at Suntreso Government Hospital in Kumasi. Utilising the KAP (Knowledge, Attitude, Practices) model as the theoretical framework, the research aimed to identify gaps in the understanding and management of respiratory distress, which contributes substantially to morbidity and mortality rates. Methods: A descriptive cross-sectional study design with a quantitative approached was employed for the study. A structured questionnaire with a Cronbach's Alpha value of 0.71 was used to collect data from 171 nurses, selected through a convenience sampling method. Statistical Package for Social Sciences (SPSS) was used for data analysis and descriptive statistics was presented with tables of percentages, bar chats and par charts. Results and Finding: The study findings showed that 54.8% of the studied nurses had an average level of knowledge, compared to 9.94% of them having good expertise. 54.97% exhibited moderate attitudes toward managing respiratory distress, and 87.71% of the nurses surveyed demonstrated poor practice. In comparison, less than one-third, 2.34%, showed a good practical level in managing respiratory distress. Conclusion: The study conclude the knowledge and practice gab in managing respiratory distress and therefore recommends regular and structured in-service training programs on respiratory distress management. These should be mandatory and

conducted periodically, covering key areas such as emergency response protocols, oxygen therapy, and ventilatory support. Simulation-based learning and case scenario exercises should be incorporated to enhance practical competencies.

Keywords*: Respiratory distress,* knowledge, practices, attitudes, and barriers, Suntreso Government Hospital, Kumasi.

INTRODUCTION

Respiratory distress at the emergency department is mostly challenging for emergency staff due to several factors related to the patient's condition, such as vomiting, cervical spine immobilisation, chest compressions, and the underlying disease condition. (1). Respiratory distress is when the body requires more oxygen, leading to breathing difficulties, rapid respiration, and reduced oxygen levels in the blood.(2) It may be either acute or chronic, with acute cases developing within hours to days, while chronic cases persist for more than four to eight weeks. It can arise from various causes, such as infections, chronic diseases, or airway obstruction.(3)

Respiratory distress is usually a medical emergency and is best managed by an interprofessional team that includes the emergency department physicians, nurses, and an intensivist (4). Respiratory distress involves various breathing difficulties that, if left untreated or combined with other complicating factors, can escalate to respiratory failure (5). In this more severe state, the lungs cannot adequately oxygenate or remove carbon dioxide from the blood. This may progress to respiratory arrest, a life-threatening condition where breathing stops completely (2). (5) Respiratory distress accounts for most emergency admissions; as such, it is important that nurses, who are mainly at the forefront of health institutions, be equipped to identify and competently manage breathing issues systematically, timely, and professionally to prevent deaths and permanent disabilities (6)

Earlier studies have shown that the liabilities that arise during the management of respiratory distress are frequently due to technical and non-technical expertise and judgmental errors that lead to irreversible brain damage (7), increased costs, prolonged hospitalisation, and increased death rates (8). Therefore, there is a need for a study on the management of respiratory distress. This will provide insight into managing respiratory distress and serve as a tool during decision-making.

Each year, nearly 2 million individuals in the United States are hospitalised for respiratory distress, with associated costs surpassing $50 billion. Approximately 50% of these patients need invasive mechanical ventilation, and more than 20% die during their hospital stay (9). Diagnosing respiratory distress in low-income countries is challenging due to limited availability of essential resources like mechanical ventilation, imaging equipment for delivering positive end-expiratory pressure and stable oxygen levels, and arterial blood gas testing to detect hypoxemia (10). To address this gap, the World Health Organization (WHO) developed a practical explanation of severe respiratory distress without shock (SRD) in adults. It is marked by an oxygen saturation level under 90%, a respiratory rate greater than 30 breaths per minute, and a systolic blood pressure over 90 mm Hg, all taking place in the presence of an infection and with no signs of clinical heart failure (11).

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In the first comprehensive assessment of the prevalence, characteristics, and outcomes of WHO-defined Severe Respiratory Distress (SRD) among hospitalized patients in sub-Saharan Africa, SRD was shown to be widespread, with occurrence rates ranging from 10% to 16%, depending on whether the patient was admitted due to an infectious illness; a study contextualized within The Race Arithmetic of the Global Lung Function Initiative Global Reference Equations. SRD was linked to a high in-hospital mortality rate of 22% (11)**.** Higher respiratory rates were linked to a greater risk of in-hospital mortality, while higher oxygen saturation levels were connected to a lower risk of in-hospital mortality (11).

In 2010, the UK National Patient Safety Agency reported that inadequate oxygen therapy was a direct factor in nine deaths over five years (12). Out of the nine cases, four deaths were specifically attributed to the improper use of high-flow oxygen (13). Similarly, a report from Australia in 2010 recorded a total of 62 deaths; 21 were related to poor oxygen therapy caused by high-flow oxygen therapy (12). Lower Respiratory Infections (ALRIs) are responsible for 5.8 million deaths worldwide, with 50% of these fatalities occurring in sub-Saharan Africa (14). However, routine monitoring still frequently overlook**s** the respiratory rate (15).

It is estimated that oxygen therapy, a cornerstone of respiratory distress management, is associated with at least 1.4 million deaths annually worldwide. A substantial percentage of respiratory distress takes place at the emergency and critical care units, which leads to recurrent patient harm and death due to substandard care. Hypoxia is the most frequent cause of respiratory distress-related death. (16). A cross-sectional survey on an evaluation of the knowledge, practices, and related factors concerning breathing management among nurses working in the emergency departments of selected public hospitals in Addis Ababa, Ethiopia revealed that only 45.1% of the respondents were abreast in breathing management.(17). This means that most respondents, being nurses, lack knowledge of respiratory distress management practices. Also, in "Predictors of Neonatal Deaths in Ashanti Region of Ghana: A Cross-Sectional Study", it was revealed that 3.7% of neonatal deaths are associated with respiratory Distress (18)(19)

This current study, therefore, seeks to assess respiratory distress management among nurses at the Suntreso Government Hospital in Kumasi, Ghana, which will facilitate the discovery of nurses' knowledge gap, skills and competency gap, attitude and barriers to respiratory distress management and reveal appropriate interventions for respiratory distress management to improve care outcomes at the Suntreso Government Hospital.

Problem Statement

Respiratory distress is the primary cause of death worldwide (20). Respiratory distress management is a critical aspect of patient care. Yet, nurses need help providing optimal care due to varying levels of expertise, limited resources and inadequate training (21). The reviewed literature on respiratory distress management focuses on children (22, 23). For example, a recent meta-analysis reported an overall mortality rate of 27.3% for pediatric acute respiratory distress syndrome (ARDS) in Western nations (24). Another study conducted by Mazur et al.(2024b) reported that each year, children under the age of 5 experience 33 million cases of acute respiratory distress, leading to 3.6 million hospitalisations and 118,200 fatalities.

In Ghana specifically, nurses have identified breathing management, the cornerstone in managing respiratory distress, as an area requiring improvement, citing inadequate equipment and a lack of confidence in their skills (Owusu-Antwi et al., 2020). It is therefore expedient for nurses to master respiratory distress management to prevent permanent complications and death. Earlier studies on respiratory distress have primarily focused on neonates and paediatrics (26), with a vast majority centralised in the intensive care unit.(27). However, with the massive burden of respiratory distress (22), resource constraints and the recognition that this knowledge is valuable to a broader audience of nurses beyond the ICU, it is therefore vital for all nurses to be abreast with identifying respiratory distress, timely and appropriate interventions and prompt referrals to save lives. Given this, this current study aimed to assess respiratory distress management among nurses at the Suntreso Government Hospital. The study uncovered nurses' knowledge gap, skills and competency gap, attitudes and the barriers nurses face in managing respiratory distress.

Objectives of the Study

The general objective was to assess the management of respiratory distress among nurses at the Suntreso Government Hospital, Kumasi, Ghana.

Specific Objective of the Study:

The underlisted objectives helped to achieve the general objective

1. To evaluate nurses' knowledge in managing patients with respiratory distress at the Suntreso government hospital.
2. To determine nurses' attitudes towards managing patients in respiratory distress.
3. To ascertain nurses' existing practices in managing patients with respiratory distress.
4. To identify challenges nurses face while managing patients in respiratory distress at the Suntreso government hospital.

Research Questions

The following research questions were formed to direct the study.

1. What is the knowledge of nurses regarding respiratory distress management?
2. What is the attitude of nurses towards respiratory distress management?
3. What are the existing practices for nurses in respiratory distress management?
4. What challenges do nurses encounter during respiratory distress management?

METHODOLOGY

Study Type/Design

A descriptive cross-sectional study design with a quantitative approached was employed for the study. This research aimed to evaluate the knowledge, determine attitudes, ascertain existing practices, and identify the challenges nurses face in respiratory distress management at the Suntreso Government Hospital. The participants in this cross-sectional study were selected from the available population of potential relevance to the study questions. The researcher did a follow-up to ensure that all questions were answered correctly.

Research Setting

The Suntreso Government Hospital was originally established and inaugurated as an urban health centre on November 22, 1963. The facility gained a district hospital status within the Bantama sub-metro in 2000. The population of the Bantama sub-metro is about 395,152. The

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Suntreso Government Hospital has several departments and specialists, including the emergency unit, critical care, theatre, medical and surgical units, paediatrics, neonatal, obstetrics and gynaecology departments, and public health units. The hospital also has specialist care departments such as optometry, ear, nose, and throat, as well as a dental unit. It also has a renowned sexually transmitted infectious unit that serves as a referral centre within the Ashanti Region. In addition, the facility has a pharmacy department, a laboratory unit, finance, health informatics, and a strong hospital administration system. The facility has a current bed capacity of 150, with daily outpatient attendance between 660 and 800 and yearly outpatient attendance of about 159273 (2023). The facility has a total staff of 400, including the medical director, administrator, doctors with different specialities, laboratory personnel, anaesthetists, physiotherapists, and security personnel. There are 300 different cadres of nurses.

It serves as a referral hospital for providing medical services and specialised care. Though a district hospital, it plays a vital role in training various health personnel, including nurses. The Suntreso Government Hospital is a prominent healthcare facility in the Ashanti region, catering to a large population and providing comprehensive medical and surgical services, including family planning, cervical screening, and a wellness clinic.

Population

The target population for the study consisted of all nurses of the Suntreso Government Hospital. Three hundred (300) nurses make up the study's target population. This data was obtained from the hospital's Biostatistics Unit.

Sample and Sampling Technique

This study employed convenience sampling to select participants based on availability and interest. The Yamane formula was used to determine the sample size, and inclusion and exclusion criteria ensured a representative sample. Yamane provides a formula for determining sample size when the total population of the target group is known.

$$n = \frac{N}{1 + N(e^2)}$$

- n- estimated sample size
- N = size of the population
- e = margin of error, estimated at 5% (at 95% CI)

The following formula was used to calculate the sample size for the study

- For $N = 300$
- $e = 0.05$ for 95% confidence level,

$$n = \frac{300}{1 + 300(0.05^2)} = 171.43$$

The number of participants required for the study was 171

Data Collection Tool and Methods

Primary data was gathered from nurses through a structured questionnaire. The questionnaire was developed based on two published questionnaires designed to assess knowledge, attitudes, and practices (KAP) regarding respiratory distress management. The study utilised a 28-item questionnaire, adapted from the works of Aziz and Mansi (2018) and Mohamed Elsayed Hegazy and El Sayed Abusaad (2019) (31). It was modified to assess participants' knowledge of respiratory distress and its management. The questionnaires were distributed to the nurses and collected later within a predetermined period of a week, from the 7th of April to the 14th of April 2025. Some of the respondents received guidance while completing the instruments to ensure they clearly understood the questions and statements. The researcher conducted the data collection independently, without the assistance of field workers.

Inclusion Criteria:

Regarding inclusion criteria, all the registered general nurses, midwives, and enrolled nurses of the Suntreso Government Hospital who were available at the time of data collection were included in the study

Exclusion Criteria:

Nurses on maternity and sick leave, as well as those working as interns and national service and rotation nurses, were excluded from the study. Also, nurses, on annual leave and other official assignments, were excluded from the analysis because they were unavailable during the data collection period.

Data Collection Procedures

Following the acquisition of all required ethical approvals, data collection began at the Suntreso Government Hospital to gather information from Nurses in all the various departments. Before distributing the questionnaires, participants were thoroughly briefed on the research process, including its purpose, potential risks, and benefits, with guidance provided through the participant information sheet. The questionnaire items were read aloud and clarified for each respondent, who could select responses according to their preference. The researcher personally administered the questionnaires.

Pre-Test:

A pre-test was carried out to evaluate the questionnaire's validity prior to the main study. This process aimed to enhance the effectiveness of primary data collection, a practice previously employed by researchers in respiratory distress management (32).

A draft questionnaire was distributed to nurses from the various units within the Suntreso Government Hospital. Out of the 20 questionnaires distributed, 15 were successfully retrieved. The sample size of 15 met Saunders, Lewis, and Thornhill's (2009) minimum requirement of 10 participants for a pre-test conducted by students (Saunders et al., 2009). Although a few grammatical errors were corrected, no modifications were made to the questionnaire regarding the questions within the constructs, as all respondents understood them. This affirmed the research instrument's reliability and validity.

This study adopted an Alpha coefficient of 0.7 or higher, as Pallant (2007) recommended. The pre-test results, presented in **Table 2.1**, showed Cronbach's Alpha values of 0.734 for "Existing

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knowledge of nurses on RDM", 0.719 for "Attitudes of nurses on RDM", and 0.734 for "Practices of nurses on RDM." These results indicate that all variables in the questionnaire demonstrated good internal consistency and reliability.

Table 2.1: Computed Reliability Coefficient for Pre-Tested Data

Questionnaire Section	No. of Items	Sample Size	Cronbach's Alpha
Existing knowledge of nurses on RDM	20	15	0.734
Attitudes of nurses on RDM	14	15	0.719
Practices of nurses on RDM	20	15	0.734

Source: Field survey, Thelma Buah (2025)

Data Analysis

Data analysis is summarising, organising, and interpreting collected data. Quantitative data can be analysed using manual and computerised methods (32). The collected data of this study were cleaned, coded, and entered into Microsoft Excel, with each response meticulously verified for accuracy before being exported to SPSS (version 27). Descriptive analysis was conducted to provide an overview of the data distribution. For continuous variables, means and standard deviations were computed, whereas frequencies and percentages were used to summarize categorical variables. The descriptive analysis captured nurses' knowledge levels, attitudes, practices, and challenges while managing respiratory distress. The findings were presented through tables and graphs.

Ethical Considerations

To maintain strict adherence to ethical research standards, the researcher added a statement in the questionnaire's introduction to assure respondents of the anonymity and confidentiality of their responses. Additionally, before data collection began, ethical approval was obtained from the management of Suntreso government hospital and the Committee on Human Research Publications and Ethics (CHRPE) at the Medical School, KNUST. Subsequently, approval was granted by both institutions. The researcher and participants mutually agreed on the time required to complete the questionnaire. Respondents were informed about the study's purpose and were assured that their responses would remain confidential. They were reassured that the research posed limited risks to them however, measures have been put in place to overcome the risk.

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RESULTS

Demographic Characteristics of Nurses

The participants were sampled from the nurses at Suntreso Government Hospital. Structured questionnaires were used, which yielded one hundred and seventy-one (171) responses. The respondents' ages ranged from twenty (20) to fifty (50) years and above, with the mean age being 31.8 ± 7.2 years. Many of the respondents, 152 (88.9%), were females, and 19 (11.1%) were males. Out of the 171 respondents who participated in the study, the majority, 106 participants, accounting for 62%, were registered nurses. Midwives comprised 19.9% (34 participants), 11.7% were enrolled nurses, and the remaining 6.4% fell into other categories.

Table 3.2: Demographic Characteristics of Nurses

Demographic	Frequency (n)	Percentage (%)
Age Group		
20-29	75	43.9
30-39	68	39.7
40-49	27	15.8
50 years and above	1	.6
Gender		
Male	19	11.1
Female	152	88.9
Educational Qualification		
Certificate	16	9.4
Diploma	83	48.5
Bachelor's degree	60	35.1
Master' degree	12	7.0
Years In Service		
Less Than 1 Year	35	20.5
1-5 Years	72	42.1
6-10 Years	26	15.2
More Than 10 Years	38	22.2
Work Unit		
Emergency Department	27	15.8
Surgical Ward	25	14.6
Medical Ward	59	34.5
Outpatient Department	29	17.0
Other Work Unit		
Kids Ward	11	6.43
Obstetrics And Gynaecology	20	11.67

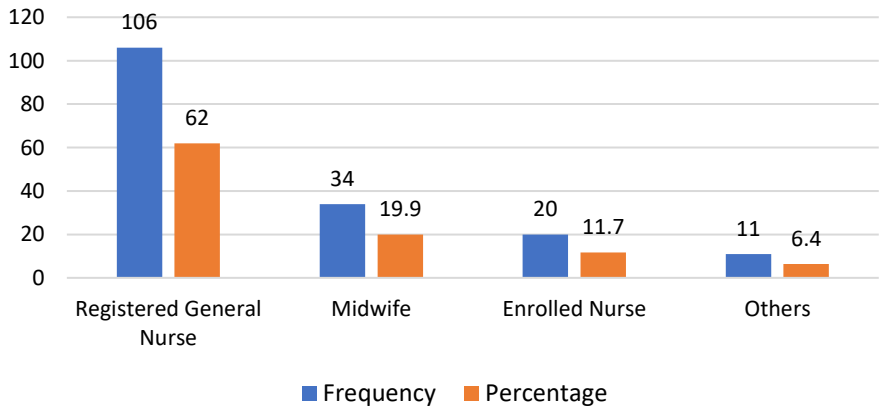

Figure 3.1: Designation of Nurses

Respondent's Knowledge of Respiratory Distress Management (RD)

Sixty participants, representing 35.09%, had poor knowledge of respiratory distress management (Score 1-3). This was followed by 94 participants (54.97%) who demonstrated average knowledge (Score 4-6), while only 9.94% showed good knowledge (Score 7-10) on the subject. The mean knowledge score is 4.30 with a standard deviation of ±1.97

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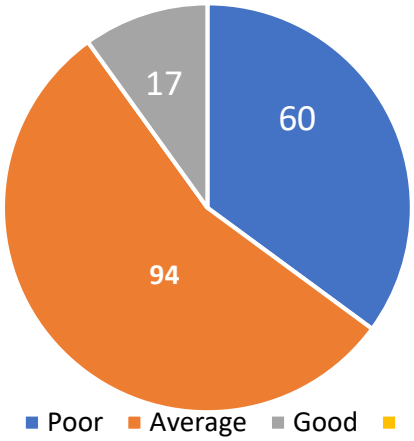

Figure 3.2: Knowledge Score Level

Table 3.3: Respondent Knowledge on Respiratory Distress Management

Questions	Freq (%)
Have you received in-service training on managing respiratory Distress (RD) in the last year?	
Yes	59 (34.5%)
No	112(65.5%)
What are the common causes of acute respiratory distress? (Select all that apply.)	
Severe pneumonia	111(64.9%)
Pulmonary embolism	88 (51.5%)
Asthma exacerbation	117(68.4%)
Sepsis	58(33.9%)
Which initial assessment is essential for managing patients with respiratory distress?	
Pulse oximetry	91 (53.2%)
Chest X-ray	20 (11.7%)
Arterial blood gas (ABG)analysis	5 (2.9%)
Auscultation of breath sounds	55 (32.2%)
What is the recommended oxygen saturation target for managing RD patients?	
88–92%	40(23.4%)
94–98%	101(59.1%)
100%	15(8.8%)
Not sure	15(8.8%)
What device is initially used for oxygen delivery for respiratory distress cases?	
Nasal cannula	70 (40.9%)
Non-rebreather mask	65 (38%)
High-flow nasal cannula (HFNC)	17(9.9%)
Continuous positive airway pressure (CPAP)	19(11.1%)
What is the first-line treatment for respiratory distress caused by asthma exacerbation?	
Bronchodilators	149(87.1%)
Steroids	3(1.8%)
Antibiotics	15(8.8%)

Intubation	4(2.3%)
The normal adult respiratory rate ranges between 12 and 20 bpm.	
Yes	83(48.5%)
No	88 51.5%)

Respondent Attitude on Respiratory Distress

Out of the 171 participants, 94 nurses (54.97%) exhibited a moderate attitude of respiratory distress management (Score 1-2). This was followed by 53 participants (30.99%) who displayed a poor level of attitude (Score 3-5), while only 14.04% demonstrated a good attitude toward the subject (Score 6-8). The mean attitude score level was determined as 4.27 ±2.46.

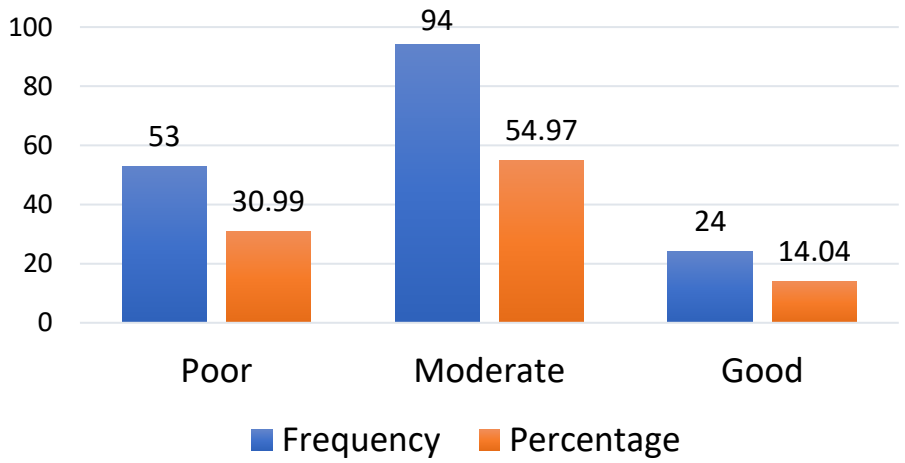

Figure 3.3: Respondents' Attitudes on Respiratory Distress

Table 3.4: Respondent Attitude on Respiratory Distress Management

Questions	**Freq (%)**
How confident are you in managing respiratory distress in emergency settings?	
Very confident	45 (26.3%)
Confident	64 (37.4%)
Neutral	52 (30.4%)
Not confident	10 (5.8%)
Do you believe regular training improves your ability to manage respiratory distress?	
Yes	162(94.7)
No	9(5.3%)
Do you feel prepared to handle RD cases at work?	
Yes	74 (43.3%)
No	97(56.7%)
Do you prioritise early identification of respiratory distress symptoms in your patients?	
Yes	154(90%)
No	17(10%)
What factors influence a nurse's ability to manage RD effectively? (Select all that apply.)	
Training availability	114(66.7%)
Team collaboration	106 (62%)

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Resource availability	130(76%)
Institutional support	59(34.5%)

Respondent Practice on Respiratory Distress Management

The data set categorises respondents based on their scores into three performance levels: "Poor" (scores 1–3), "Average" (scores 4–6), and "Good" (scores 7–10). Out of 171 respondents, a significant majority of 150 participants, or 87.71%, fell into the "Poor" category. Only 17 participants, accounting for 9.95%, achieved "Average" scores, while a mere four individuals, representing just 2.34%, scored in the "Good" range.

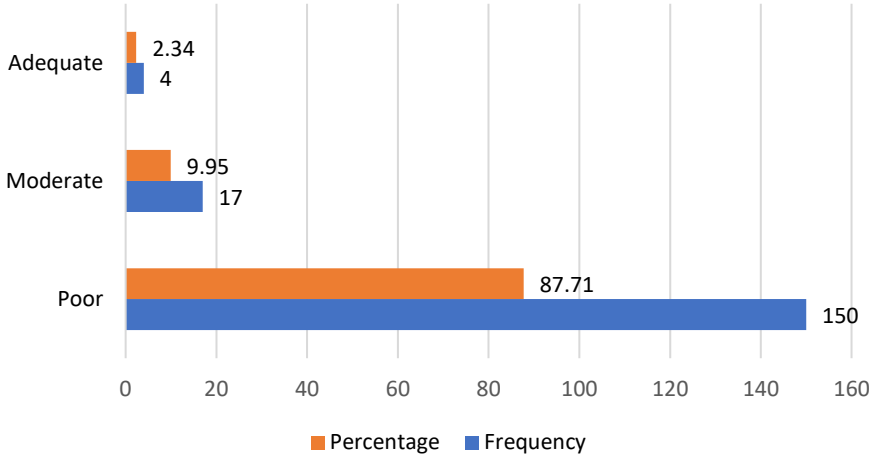

Figure 3.4: Nurses' Practice Score

Table 3.5: Respondent Practice on Respiratory Distress Management

Questions	Freq (%)
Do you use the systematic approach (example: A, B, C, D, E) to assess patients with respiratory distress?	
Yes	63 (36.8%)
No	108 (63.2%)
What is your first action when a patient presents with respiratory distress?	
Check oxygen saturation	108(63.2%)
Start oxygen therapy	17 (9.9%)
Call for help	30 (17.5%)
Perform a physical examination	16(9.4%)
Nasal cannula is the first oxygen delivery device to be considered when managing RD cases.	
Yes	94 (55%)
No	77 (45%)
Do you have a standard protocol for managing respiratory distress at your unit?	
Yes	62(36.3%)
No	109(63.7%)
Have you ever had training courses on ventilation support in respiratory distress?	
Yes	73 (42.7%)
No	98(57.3%)

Respondent Challenges on Respiratory Distress Management

Table 3.6: Respondents' Challenges on Respiratory Distress Management

Questions	Freq (%)
What challenges do you face when managing patients with RD? (Select all that apply.)	
Insufficient training	81 (47.4%)
Lack of necessary equipment	134(78.4%)
Delayed response time	43 (25.1%)
High patient workload	44 (25.7%)
How frequently do you experience resource limitations during RD management?	
Always	119(69.6%)
Sometimes	35 (20.5%)
Rarely	17(9.9%)
What is your main barrier to receiving training on RD management?	
Lack of training programs	79 (46.2%)
High workload	34 (19.9%)
Cost of training	22(12.9%)
Lack of institutional support	36 (21.1%)
Your institution provides adequate resources for managing RD.	
Strongly agree	12(7%)
Agree	61(35.7%)
Neutral	61(35.7%)
Disagree	24(14%)
Strongly disagree	13(7.6%)
What recommendations would you give to improve the management of respiratory distress in your facility?	
Training on Respiratory Distress	58(34%)
Availability of resources	38(22%)
institutional support	53(31%)
Other Recommendation	22(13%)

DISCUSSION OF THE RESULTS

Introduction

Data were analysed using SPSS version 27.0. The reliability of the questionnaire was evaluated using Cronbach's alpha. Descriptive statistics for demographic data and KAP scores included means and standard deviations for continuous variables and frequencies and percentages for categorical variables.

Demographic Characteristics of Nurses

Table 3.2, shows that among the 171 nurses who took part in the study, the largest group, 75 nurses (43.9%) were aged between 20 and 29 years, followed by 39.7% in the 30–39 age range, and 15.8% in the 40–49 age group. Only one nurse was within the '50 and above' age group. The current study revealed that most participating nurses were between 20 and 29 years old (**Table 3.2**). This result aligns with Elkazaz & Berma (2017), who also reported that most nurses fell within the under-30 age group(35).

The findings indicated that most nurses were aged 20 years and above (n = 75, 43.9%), suggesting they were sufficiently mature to provide informed input to the study. Regarding the

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gender distribution of the nurses, it was evident that the profession was predominantly female, with 152 females (88.9%) compared to 19 males (11.1%).

Considering the educational qualifications of the nurses in the study, the results showed that 83 nurses (approximately 48.5%) held diplomas, while 35.1% had bachelor's degrees, 7% had master's degrees, and 9.4% held certificates. These findings are comparable to those of previous studies, such as Elkazaz & Berma (2017b), which also reported a predominance of diploma-holding nurses, followed by those with bachelor's and higher degrees. In another paper conducted in Egypt, 72% of the nurses were diploma holders (37).

Additional findings revealed that the majority of nurses were stationed in the medical ward (n = 59, 34.5%), followed by the Outpatient Department (n = 29, 17.0%), the Emergency Department (n = 27, 15.8%), and the Surgical Ward (n = 25, 14.6%). Smaller numbers were assigned to the Kids Ward (n = 11, 6.43%) and Obstetrics and Gynaecology (n = 20, 11.67%) (**Table 3.2**). Further analysis revealed that most nurses had been employed at Suntreso Government Hospital for '1 to 5 years' (n = 72, 42.1%), followed by those with 'more than 10 years' of service (n = 38, 22.2%), then 'less than 1 year' (n = 35, 20.5%), and '6 to 10 years' (n = 26, 15.2%). This suggests that the vast majority of nurses (n = 136, 79.5%) have worked at the hospital for over one year, and it is comparable with Saqlain et al., (2020) who also presented the majority of the studied nurses with working experience of more than one year.

Therefore, the nurses are considered to have gained sufficient work experience at the hospital to provide meaningful input for this study. Additionally, the researcher sought to identify the designations of the participating nurses. It came to light that most of the nurses who participated in the survey were registered nurses (n=106, 62%), followed by midwives (n=34, 19.9%). Only a few nurses fell into the enrolled nurses and other categories.

Nurses' Knowledge of Respiratory Distress Management (Rd)

The study findings indicated that 9.94% of participants demonstrated good knowledge, while 35.09% showed poor understanding of respiratory distress management, scoring below 50% on the knowledge-related questions. Most participants (n=94, or 54.8%) had an average level of knowledge. These results are consistent with those of Mohamed Elsayed Hegazy & El Sayed Abusaad (2019), a study conducted in Egypt, and Qin et al. (2025), a study conducted in China, both of whom reported that most nurses possessed an average level of knowledge regarding respiratory distress (39,40).

The study showed that most nurses had an average level of knowledge, which may be attributed to the fact that a significant proportion of respondents, 112 (nearly two-thirds), have not received in-service training on respiratory distress in the past year. This reveals a critical gap in continuous professional development, which could impact the effectiveness and confidence of healthcare providers in managing RD cases. Most participants correctly identified asthma exacerbation and severe pneumonia as primary causes. However, sepsis, a common and serious systemic contributor to RD, is under-recognised by many. This may indicate a lack of understanding of how systemic infections can lead to respiratory complications.

Furthermore, more than half selected pulse oximetry, the most essential non-invasive tool for assessing oxygen saturation. However, a substantial portion of nurses, 55 participants (32.2%),

could identify 'auscultation of breath sounds' as a key initial assessment in managing patients with respiratory distress. This finding highlights a significant knowledge gap among nurses at Suntreso Government Hospital.

Most respondents correctly selected the ideal oxygen saturation range (94–98%) for the general population. However, the fact that 18% either selected 100% or were unsure reflects some confusion regarding oxygen targets, which could lead to inappropriate oxygen administration.

These findings agree with Uwineza Didi Victoire & Ufashingabire (2017), who conducted a study in Kigali and stated that more than half of the studied nurses selected the ideal range (94-98%) for the oxygen target (31). Moreover, this is concerning, as over half of the respondents incorrectly answered a fundamental physiological parameter (the normal adult respiratory rate). It indicates a notable knowledge gap that could affect early recognition of RD, especially in the triage or monitoring stages.

Nurses' Attitude On Respiratory Distress Management (RD)

The study found that most participants (54.97%) exhibited moderate attitudes toward managing respiratory distress. This result aligns closely with findings from two other studies conducted in Kigali and China, where 63.1% and 69.42% of participants also demonstrated moderate attitudes.

From Table 3.4, while 63.7% of participants feel confident or very confident, nearly 36% are either neutral or not confident, suggesting a need for more exposure or training. Confidence levels are likely linked to the training gap highlighted earlier. These results agree with Scholarworks & Cline (2019), who confirmed the importance of providing basic respiratory education during the onboarding of novice nurses and highlighted the need for ongoing professional development to support their knowledge and confidence growth (41). From Table 3.4 most of 162 (94.7%) of the studied nurses showed a near-universal agreement on the value of regular training. This strong consensus reinforces the importance of structured, ongoing education and simulation practice in RD management. Again, more than half of the respondents do not feel prepared, despite many being confident. This suggests that while general confidence might exist, practical readiness (tools, protocols, team support) is lacking, which will show in the challenges later.

Further analysis of the attitude from Table 3.4 showed that most respondents identify resources, training, and team dynamics as critical components of effective RD management. Institutional support is rated much lower, possibly due to perceived gaps in leadership engagement or policy support.

Nurses' Practices on Respiratory Distress Management (RD)

Figure 3.4 shows that 87.71% of the nurses surveyed demonstrated a poor level of practice, while less than one-third (2.34%) exhibited a good practical level in managing respiratory distress. This result is consistent with findings from two studies in Jordan and Iraq, where poor practice was observed in 89.6% and 63.1% of participants, respectively in the studies (42,43). Another survey conducted in Egypt by Mohamed Elsayed Hegazy & El Sayed Abusaad, (2019)

URL: http://dx.doi.org/10.14738/bjhr.1206.19615.

found that more than 69% of the nurses studied demonstrated incompetent practices in managing respiratory distress (39).

In contrast, Uwineza Didi Victoire & Ufashingabire (2017) reported that most nurses exhibit moderate practice levels in managing respiratory distress (31). The results revealed that a majority (63.2%) of respondents do not use a systematic approach, such as the A (Airway), B (Breathing), C (Circulation), D (Disability), and E (Exposure) framework, when assessing respiratory distress. This is concerning, as the ABCDE approach is a globally recommended clinical assessment tool for acutely ill patients. Lack of its application might lead to incomplete or delayed identification of life-threatening conditions. This result is higher compared to the findings of Linders et al. (2021), who reported that among 72 participants, 40% of those in the video-based instruction group (28 participants) demonstrated better adherence to the ABCDE approach than those in the lecture group (44 participants) (41). Concerning the first action when a patient presents with RD cases, 63.2% of the nurses selected check oxygen saturation (SpO_2) as the most common first step, aligning with standard practices that prioritise determining the patient's oxygenation status. However, only 9.9% start oxygen therapy immediately, which may indicate hesitation to intervene before assessment, or possible reliance on SpO_2 values before initiating treatment. This finding highlights a knowledge gap among nurses. This finding disagrees with Aziz & Mansi (2017), who reported that 71% of the nurses did not know that the oxygen ratio is determined by pulse oximetry (46). Again, the finding that only 55% of nurses correctly prioritise the nasal cannula as the first device (in appropriate cases) reveals a moderate level of knowledge but also highlights significant gaps in understanding oxygen therapy principles. A case-by-case assessment rather than routine selection of a nasal cannula is vital for optimising respiratory care outcomes. Still, only 36.3% of respondents have access to a standard protocol for RD management. This is a significant limitation, as protocols ensure consistency, safety, and quality in emergency care. The absence of over 63% of units indicates a systemic gap in institutional preparedness and could contribute to variations in care and potentially adverse patient outcomes.

Finally, with respect to training on ventilatory support, the data reveal a concerning trend: the majority of respondents (57.3%) have not received training in ventilation support for respiratory distress. This gap has serious implications for routine patient care and emergency preparedness, leading to poor practices of respiratory distress management among nurses in the Suntreso Government Hospital. However, this result is inconsistent with Ali et al. (2019b), who presented that 72.9% of the nurses in their study had training courses on respiratory distress (47).

Nurses' Challenges in Respiratory Distress Management

From **Table 3.6**, concerning the challenges that face the respondents in this study, the most significant challenge is the lack of necessary equipment, affecting over three-quarters (78.4%) of respondents. This suggests a major structural issue within Suntreso Government Hospital facilities that could delay or impede effective RD management. Again, Insufficient training is the second-highest concern (47.4%), indicating a widespread need for enhanced professional development. This finding agrees with two studies conducted in KSA and Saudi Arabia, which reported that insufficient training and a lack of necessary equipment were the significant challenges faced by nurses in managing respiratory distress.(48,49)

Regarding the Frequency of Resource Limitations, **Table 3.6** shows that 69.6% of respondents report always experiencing resource limitations. This reinforces the earlier finding that lack of equipment is a significant and persistent issue. However, only 9.9% rarely face such constraints, underscoring that resource inadequacy is the norm rather than the exception. This result is consistent with Mukuve & Nuuyoma (2023), who presented respondents' challenges to good practices of respiratory distress management as related to staffing, available resources, and enrolment processes (50). Further analysis revealed that the dominant barrier to RD training is a lack of available training programs (46.2%), pointing to systemic shortcomings in continuing medical education or in-house upskilling. Institutional support and high workload are also notable obstacles, suggesting that even when training is available, staff may be unable to participate due to operational constraints or lack of encouragement.

In addition, only 42.7% of respondents agree (including strongly agree) that their institution provides adequate RD resources. A combined 21.6% actively disagree, while a significant 35.7% remain neutral, possibly indicating uncertainty or variability in support.

Finally, concerning the respondent's recommendation to improve respiratory distress management, the top suggestion is training (34%), confirming that respondents view knowledge gaps as a critical issue. Followed by Institutional support (31%), which is nearly as important, suggesting that leadership and administrative backing are pivotal for enabling effective RD care. Resource availability also features prominently, though it's worth noting that this concern was even more dominant in the direct challenges, implying that respondents feel it must be tackled alongside training and support structures. This result aligns with (49–51), who recommended educational programs, availability of resources, etc., to improve respiratory distress management.

CONCLUSION AND RECOMMENDATIONS

Summary of Findings

This study set out to assess the management of respiratory distress among the nurses of Suntreso Government Hospital in the Kumasi Metro municipality. The main objective was to evaluate nurses' knowledge, attitudes, practices, and challenges in managing respiratory distress. A cross-sectional study on 171 nurses using the KAPS model towards respiratory distress management was conducted. The study reveals that although nurses at Suntreso Government Hospital are relatively young, moderately experienced, and confident in their roles, critical gaps exist in their knowledge, practices, and institutional support related to respiratory distress management**.**

The Key Findings of the Study Led to the Following Conclusion

- The study revealed that 54.8% of nurses had an average level of knowledge in respiratory distress management. In terms of clinical understanding, while asthma and pneumonia were commonly identified as causes of RD, sepsis, which is a critical contributor, was often overlooked.
- Most nurses exhibited a moderate attitude toward respiratory distress (RD) management. Notably, most participants emphasised the importance of regular training, highlighting the urgent need for structured and ongoing professional development.

URL: http://dx.doi.org/10.14738/bjhr.1206.19615.

Despite individual and team-level commitment, institutional support was rated relatively low.

- More than two-thirds of nurses demonstrated poor practices in managing respiratory distress. Only a few respondents reported using the ABCDE approach, a vital clinical assessment framework, indicating limited application of standardised protocols. Again, the results showed more than half of the respondents had not received any training on ventilatory support, underscoring significant deficiencies in training, protocol dissemination, and overall emergency preparedness.
- The study identified several significant challenges faced by nurses in managing respiratory distress. The most critical issue reported was the lack of necessary equipment, followed closely by insufficient training, cited by most respondents. Resource limitations were widespread. Regarding training, almost half of the participants highlighted the absence of available training programs, while others pointed to institutional neglect and overwhelming workloads as barriers.

Recommendations

In light of the findings on nurses' knowledge, attitudes, practices, and challenges in managing respiratory Distress (RD) at Suntreso Government Hospital, the following recommendations are proposed to improve the quality of care and enhance patient outcomes:

1. Nurse managers and nurses at the Suntreso Government Hospital should implement regular and structured in-service training programs on respiratory distress management. These should be mandatory and conducted periodically, covering key areas such as emergency response protocols, oxygen therapy, and ventilatory support. Simulation-based learning and case scenario exercises should be incorporated to enhance practical competencies. Additionally, collaboration with external health training institutions or universities is advised to offer certified continuous professional development (CPD) opportunities for nursing staff.
2. The hospital should develop and disseminate standardised clinical protocols by creating and distributing clear, evidence-based guidelines, such as the ABCDE approach, for the assessment and management of respiratory distress, and by ensuring that every ward or unit has access to updated respiratory distress protocols to standardise care practices across the hospital.
3. To improve resource availability, it is essential for the nurse managers and the hospital to address critical equipment shortages, particularly pulse oximeters, oxygen delivery systems, and emergency resuscitation kits, and to advocate for resource reallocation or external funding to ensure all departments are adequately equipped to manage respiratory distress emergencies.
4. To strengthen institutional support and leadership engagement, the management of Suntreso Government Hospital should prioritise investment in clinical training and essential equipment, promote open communication channels between frontline staff and leadership to identify gaps and implement timely solutions, and integrate respiratory distress preparedness into hospital policies and quality improvement frameworks.
5. To address workload and staffing issues, the hospital management needs to review and adjust staff-to-patient ratios to ensure that nurses can respond effectively to respiratory

emergencies and consider shift rotation adjustments and support systems to reduce burnout, which can negatively impact clinical performance.

6. Regular assessments and audits of nurses' knowledge and clinical practices should be conducted to evaluate and monitor practice outcomes, track improvements, and identify persisting gaps, with the findings used to refine training content and clinical interventions accordingly.

For Suntreso Government Hospital

1. **In-Service Training and Skill Development**: Implement regular, mandatory in-service training on respiratory distress management, focusing on emergency protocols, oxygen therapy, and ventilatory support. Incorporate simulation-based learning and case scenarios to enhance practical skills, and collaborate with health training institutions to offer certified CPD programs for nurses.
2. **Clinical Protocols and Standardisation**: Develop and enforce clear, evidence-based clinical guidelines—such as the ABCDE approach—for assessing and managing respiratory distress. Ensure all wards have access to updated protocols to promote uniformity in clinical practice.
3. **Resource and Equipment Provision**: Address shortages of critical equipment, including pulse oximeters, oxygen systems, and resuscitation kits. Management should prioritise procurement and maintenance while advocating for additional support through internal budgeting or external partnerships.
4. **Leadership, Support, and Quality Improvement**: Integrate respiratory distress preparedness into hospital policies and quality improvement frameworks. Strengthen communication between leadership and frontline staff to identify challenges and implement timely solutions.
5. **Staffing and Workload Management**: Review and optimise nurse-to-patient ratios, adjust shift rotations, and implement measures to minimise burnout to enhance responsiveness during emergencies.
6. **Monitoring and Evaluation**: Conduct regular audits and competency assessments to track improvements, identify knowledge gaps, and refine training and practice interventions.

For the Ghana Health Service (GHS)

1. **Policy and Training Support**: Develop national guidelines for in-service and CPD programs on emergency and respiratory distress management, ensuring uniform training standards across healthcare facilities.
2. **Standardisation of Clinical Protocols**: Disseminate evidence-based protocols, such as the ABCDE approach, to all government hospitals and mandate their implementation to promote consistency in emergency care.
3. **Resource Allocation and Infrastructure Strengthening**: Provide targeted funding and logistical support to hospitals to address equipment shortages and ensure equitable resource distribution for managing respiratory emergencies.
4. **Leadership and Institutional Oversight**: Support hospitals in integrating emergency preparedness into institutional policies and conduct periodic supervisory visits to monitor compliance and performance.

URL: http://dx.doi.org/10.14738/bjhr.1206.19615.

5. **Human Resource Policy Enhancement**: Review national staffing policies to ensure adequate nurse-to-patient ratios and create mechanisms that support workload management and staff wellbeing.
6. **Monitoring and Evaluation Framework**: Establish a national monitoring system to assess the effectiveness of respiratory distress management interventions and use findings to inform continuous improvement in practice and policy.

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