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Obstacles faced by nurse's working at Mukalla hospitals towards care-given to obese patient in intensive care unit: from nurses' perspective

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Obstacles faced by nurse's working at Mukalla hospitals towards care-given to obese patient in intensive care unit: from nurses' perspective

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Abstract

Background: The obstacles faced by nurse workers regarding equipment used for the care given to obese patients in (ICU) are several so this study is aimed to know the obstacles faced by nurse workers regarding nursing care practices towards the care given to obese patients in (ICU).

Aim: To define the the obstacles faced by nurse workers regarding nursing care practices towards the care given to obese patients in (ICU).

Methods: The samples were collected with 152 questionnaires at Hadramout province, particularly at six hospitals in Mukalla city including Alborj Consultant Hospital, Hadhramaut Modern Hospital, Al Arab Specialized Hospital, Ibn Sina General Hospital, Mukalla Mother and Child Care Hospital, and Charitable Heart Foundation.

Results: The findings show that the percentage of males was 57.2 and females was 42.8%, the age distribution indicates that the majority of participants were between 24 and 30 years old, the educational level distribution shows that most participants held a Bachelor's degree (59.9%). Only 10.5% of individuals received training in caring for critically ill patients with obesity, with the main training duration being 5 days. Further, substantial deficiencies in the availability and adequacy of essential tools and equipment required for the care of critically ill obese patients

Conclusion: By addressing these critical areas and overcoming obstacles, healthcare facilities can significantly improve the care of critically ill obese patients, ensuring better health outcomes and a safer environment for both patients and healthcare providers.

Keyword: critical care, obese patients, hadramout university students

Introduction:

Obesity is defined as an abnormal or excessive fat accumulation that poses a risk to an individual's health Body Mass Index (BMI) is commonly used to measure weight status. It is calculated by dividing a person's weight in kilograms by the square of their height in meters. According to the World Health Organization (WHO), the BMI of 30 or higher is considered obese [1].

Obesity considered one of the well-known health issues in the world. "More than 1.9 billion adults (>18 years of age) were overweight in 2014, and of these, 600 million were obese [2].

The incidence and prevalence of obesity continue to increase globally, in both developed and developing countries, The worldly spread prevalence of obesity nearly tripled between 1975 and 2016. Overall, approximately 13 percent of the world's adult population (11 per cent of men and 15 per cent of women) were obese in 2016 [3].

Since the early 1990s health policy in the UK has identified obesity prevention and management as priorities for primary care nursing development [4].

Nurses' perception of carrying super heavy and obese patients vary from their perception of carrying normal patients [5].

health care providers are inevitably faced with the condition, which might soon affect the majority of their patients. Obviously, optimizing care for obese patients poses a great challenge for the players in the health care systems. Even in specialized facilities, resources for adequate care, e.g., size-appropriate gowns, stretchers, scales and diagnostic facilities, are not sufficient in some areas therefore, trend in hospitalized patients and patients admitted to ICU who are obese and extremely obese were increased [6].

The prevalence of obese patients in critical care varies depending on the population, ranging from 5.4% in trauma patients, through 17.1% in postoperative cardiac surgical patients, to almost 25% of medical/surgical intensive care unit patients. Their admission to critical care units exposes obese patients to an environment that may be unsuited to their special needs. Critically ill obese adults pose unique challenges for critical care nurses and multidisciplinary teams in caring for them [7].

The care of patients in the Intensive Care Unit (ICU) is already complex, extremely costly, and poses significant challenges for healthcare workers.

However, providing optimal care for obese patients in the ICU becomes even more demanding due to the pathophysiology associated with obesity [8].

The Intensive Care Unit (ICU) faces more complex challenges as it deals with the lives of obese patients and provides high-quality care for those in critical conditions. The needs of obese individuals must be taken into account, such as proper preparation for their transportation, positioning, and transfer to avoid delays or embarrassment. When larger equipment is not available or is stored in a manner indicating infrequent use, patients may feel that their size is abnormal or that they are unwelcome. Providing sufficient material and human resources is necessary for the appropriate management and care of obese patients in critical conditions [9].

Nurses in intensive care units consider caring for obese patients emotionally demanding due to the vulnerability, differences, and physical challenges these patients face compared to patients of normal weight. They experience conflicting feelings while caring for these patients: while striving to provide good and equal care to all patients, they also feel frustrated due to the physically demanding care situations and the reluctance to provide optimal care to critically ill obese patient's [10].

Significance of the study:

Yemen has shown limited progress towards achieving the diet-related non-communicable disease (NCD) targets. 25.4% of adult (aged 18 years and over) women and 14.6% of adult men are living with obesity. Yemen's obesity prevalence is higher than the regional average of 10.3% for women and 7.5% for men. At the same time, diabetes is estimated to affect 12.8% of adult women and 16.1% of adult men [11].

The tasks expected of nurses and nursing assistants on a daily basis include heavy lifting, uncomfortable positions, confined work environments, excessive manual force, prolonged work durations, and high repetition. Healthcare workers face a number of risk factors for musculoskeletal disorders in the workplace, such as back and shoulder injuries [12].

Patient handling, such as lifting, repositioning, or transferring them, and assisting them with movement, is an integral part of nursing care. However, the high risks of musculoskeletal injuries resulting from patient handling have been a major concern among nursing professionals worldwide. Recently, Davis and Kotowski (2015) reviewed 132 studies conducted over the past 30

years and provided a comprehensive report on the prevalence of musculoskeletal disorders among nursing professionals (such as average annual prevalence rates of 55% for lower back pain, 44% for shoulder pain, 42% for neck pain, 26% for upper extremity pain, and 36% for lower extremity pain) [13].

Objectives & Methods:

Objectives of the study:

General objective:

The aim of the study was to assess obstacles that face nursing workers toward the care of critically ill obese patients in (ICU).

Specific objectives:

After having found the study results, the researchers will be able to:

1- To identify the obstacles faced by nurses' workers regarding equipment's used towards care-given to obese patient in (ICU).

2- To find out the obstacles faced by nurses' workers regarding nursing care practices towards care-given to obese patient in (ICU).

Study design:

This study attempted the quantitative to achieve the main aim beyond this study which is to investigate the obstacles faced by nurses working at Mukalla hospitals towards care-given to obese patient. Further, to deeply establish these obstacles in terms of tools usage and care given to obese patients performed by nurses working. The systematic approach followed by the researchers to achieve the results relevant to the topic of investigation. By reviewing previous studies, the researchers developed a thorough understanding of the obstacles faced by nursing staff in caring for obese patients.

The study setting:

The current study was conducted at Hadramout province particularly at six hospitals in Mukalla city including: Alborj Consultant Hospital, Hadhramaut Modern Hospital, Al Arab Specialized Hospital, Ibn Sina General Hospital, Mukalla Mother and Child Card Hospital, and Charitable Heart Foundation**.**

Study population:

The study population involves 207 nurse's workers at Mukalla City hospitals in (ICU). The overall number were selected to be the population of the present study. The participants were selected and chosen with paying

specific attention to their variation in either gender and age. That is to say the overall number involves both male and female nurse's workers in ICU.

Sampling:

a sample of 152 nurses working at six hospitals at Mukalla city were randomly chosen to participate in this study. The participants were both males and female at ICU according to their gender and age. (57.24 %) of the overall number were males whereas (42.76 %) were females in terms of their gender. However, as for their age, participants are variously aged. (9.87 %) aged less than 24 years, (69.08 %) aged between 24-30 years and (21.05 %) aged more than 30 years.

Data Collection:

The primary data collection tool used in this study was a questionnaire designed. Therefore, by employing the descriptive analytical method and using a carefully constructed questionnaire, the researchers aimed to gain a comprehensive understanding of the obstacles faced by nursing workers in the care of obese patients, thereby providing insights to improve nursing practices and patient care.

Questionnaire Construction:

To address the study questions and meet its objectives, the questionnaire was developed by reviewing relevant literature on the obstacles faced by nursing workers in caring for obese patients. This literature included scientific, both published and unpublished studies, and research submitted for academic degrees or presented at conferences and seminars. The questionnaire was deemed an appropriate tool for this study as it allows respondents the freedom to express their opinions, especially through open-ended questions.

Questionnaire Structure:

The questionnaire consists of three parts:

Part One: Personal Data

This section collects information about the characteristics of the study sample, including gender, age, work experience, educational level, and other relevant demographic data.

Part Two: Obstacles Related to Tools:

This section includes 8 closed-ended questions and 1 open-ended question focusing on the obstacles faced by critical care nursing workers regarding the tools used while caring for critically ill patients with obesity.

Part Three: Obstacles Related to Nursing Care Practice:

This section comprises 16 closed-ended questions and 1 open-ended question concerning the obstacles faced by critical care nursing workers in the practice of nursing care for critically ill patients with obesity.

Questionnaire Distribution:

The questionnaire was distributed to the study sample to gather their opinions on the study topic. The collected data was then processed and analyzed statistically using the so- called software analytical program SPSS.

Data analysis:

The present study followed a quantitative descriptive analytic study design. Hence, the collected data via the questionnaire was analyzed attempting the analytical technique via the SPSS program in order to Find out the results to be reported in the third chapter. However, on reporting the obtained data after being analyzed, the criterion of yes or no questions was used to represent the results found and implemented in a form of percentages as paragraphs. Moreover, the same results were, too, represented in a formula of tables and graphs after having been figured out.

Ethical consideration:

This study was approved by the supervisors of the Faculty of Nursing committee for suitability, and conforming with the research ethics indicated by Hadhramout University.

Limitation of the study:

We faced difficulty in collecting samples, one nurse works in 3 intensive care unit, 152 samples out of 207 study population were taken and there were no duplicate samples. lack of tools that facilitate the provision of care for critical ill patients with obesity, the nursing workers is not known with tools to care for critical ill patients with obesity.

Result:

As previously stated, this study aims to investigate the challenges faced by nurses in providing care for obese patients in the intensive care units of hospitals in the city of Mukalla. To achieve the study's objectives, we posed two questions to be answered:

1-What are the obstacles regarding equipment faced by nurses working at Mukalla hospitals towards care-given to obese patient in (ICU)?

2- What are the obstacles regarding nursing practices faced by nurses working at Mukalla hospitals towards care-given to obese patient in (ICU)?

To answer these questions, we divided the results obtained from the questionnaire into three parts: personal data, Obstacles Related to Tools, and Obstacles Related to Nursing Care Practice. The statements for each part were analyzed and presented in the form of tables, followed by a discussion under each table.

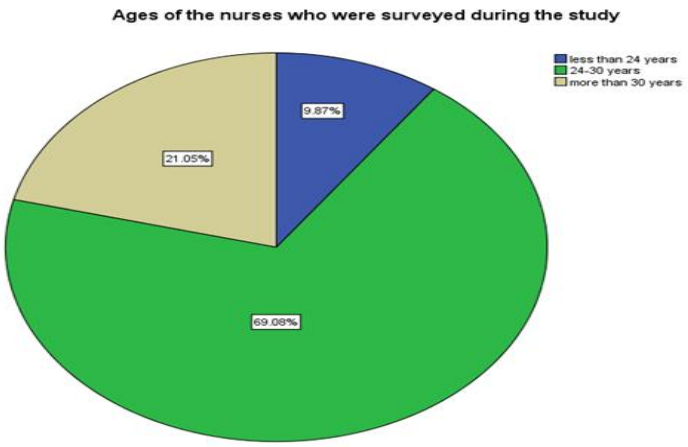
Table (1): Distribution of sample members by gender

Age	Frequency	Percent
Female	65	42.8
Male	87	57.2
Total	152	100.0

It is noted from Table (1) that most of individuals were male, as their number was 87 persons with 57.24 %.

Table (2) Distribution of members of the age group sample

Age group	Frequency	Percent
less than 24 years	15	9.9
24-30 years	105	69.1
more than 30 years	32	21.1
Total	152	100.0



From Figure (1) that most of individuals were age group of 24 – 30 years with 69.08%, whereas the lowest percentage was 9.87% of age group which their age less than 24 years.

Table (3): Distribution of individuals in the practical experience sample

Experience	Frequency	Percent
Less than 4 years	68	45.4
5-9 years	64	42.1
more than 10 years	19	12.5
Total	152	100.0

Table (3) shows that the practical experience of nurses is similar for those with less than four years of experience (45.4%) and those with experience from 5 to 9 years (42.1%). But the lowest percentage (12.5%) related to the nurses who has practical experience of more than 10 years.

From Figure(2) result appear that the value of Pearson chi-square indicated a significant different (0.035< 0.05) between gender & experience. So, experience depends on gender.

Table (4): Distribution of individuals in the educational level sample

Educational level	Frequency	Percent
Master	9	5.9
Bachelor	91	59.9
Diploma	48	31.6
Institute after ninth	4	2.6
Total	152	100.0

It is noted from the previous table (4) that most of individuals have a Bachelor's degree, as their number was 91 people, representing 59.9%, while the lower percentage was 2.6% of individuals who graduated from the Institute after the ninth level.

Table (5) shows the distribution of sample members for the question, "Attending a training program in caring for critically ill patients with obesity"

Sample individuals	Frequency	Percent
Who answered no	136	89.5
Who answered yes	16	10.5
Total	152	100.0

It is noted from the previous table (5) that most of individuals did not receive any training program in caring for critically ill patients with obesity, as their number was 16 individuals, representing 10.5%. "If the answer of this question is yes, how long is the training؟" The result showed that the main of the training was 5 days.

Questionnaire analysis:

Reliability analysis:

The Cronbach's test was used to determine the reliability of the questionnaire questions

Reliability Statistics	
Cronbach's Alpha	**N of Items**
0.699	**24**

It is clear from the results of the analysis of the questionnaire questions that it was valuable reliability is strong, Cronbach's alpha 0.699 for all questionnaire questions.

The second part of the questionnaire:

The second part of the questionnaire focuses on identifying the obstacles that critical care nursing workers face while caring for critically ill patients with obesity, specifically concerning the tools available. This section consists of 8 questions designed to explore and evaluate the adequacy and availability of various tools and equipment needed to provide effective care for obese patients in critical care settings.

The data presented in **Table (7) indicates the distribution of responses to the question, "Are slings and aids used to lift patients as required?"**

Sample individuals	Frequency	Percent
Who answered No	**96**	**63.2**
Who answered Yes	**49**	**32.2**
Who answered I don't know	**7**	**4.6**
Total	**152**	**100.0**

According to the table (7) a significant majority of respondents, 92 individuals, answered "No," which represents 63.2% of the sample. This suggests that the available slings and aids for lifting patients are insufficient to meet the needs.

Table (8): Distribution of sample members for question, "Are blood pressure monitors with the appropriate handcuff size?"

Sample individuals	Frequency	Percent
Who answered No	68	44.7
Who answered Yes	81	53.3
Who answered I don't know	3	2.0
Total	152	100.0

Table (8) that shows the answers are similar for individuals who answered Yes (53.3%) with those who answered No (44.7%). Consequently, it should be taken into account that blood pressure monitors with the appropriate handcuff size.

Table (9): Distribution of sample members for question, "Patient clothing is available in appropriate sizes?"

Sample individuals	Frequency	Percent
Who answered No	66	43.4
Who answered Yes	80	52.6
Who answered I don't know	6	3.9
Total	152	100.0

Table (9) shows that the answers are similar for individuals who answered Yes (52.6%) with those who answered No (43.4%). Consequently, it should be taken into account that the appropriate sizes of patient clothing.

Table (10): Distribution of sample members for question, "Are bed sheets available in the appropriate quantity to care for patients with obesity?"

Sample individuals	Frequency	Percent
Who answered No	63	41.4
Who answered Yes	81	53.3
Who answered I don't know	8	5.3
Total	152	100.0

Table (10) shows that the answers are similar for individuals who answered Yes (53.3%) with those who answered No (41.4%). Consequently, it should be taken into account that the bed sheets in the appropriate quantity.

Table (11): Distribution of sample members for question, "Are wheelchairs available in the appropriate number?"

Sample individuals	Frequency	Percent
Who answered No	94	61.8
Who answered Yes	48	31.6
Who answered I don't know	10	6.6
Total	152	100.0

Table (11) shows that most of individuals answered was No, as their number was 94 individuals, representing 61.8%. Wheelchairs were not enough. Consequently, it should be taken into account that the wheelchairs available in the appropriate number.

Table (12): presents the distribution of responses to the question, "Are there chairs of the appropriate size for obese patients to sit on?"

Sample individuals	Frequency	Percent
Who answered No	106	69.7
Who answered Yes	28	18.4
Who answered I don't know	18	11.8
Total	152	100.0

The data shows Table (12) that a majority of respondents, 108 individuals, answered "No," which represents 69.7% of the sample. This indicates that the availability of appropriately sized chairs for obese patients is inadequate. Therefore, it is important to address the need for more chairs that can accommodate obese patients.

Table (13): presents the distribution of responses to the question, "Is there a special bed for obese patients?"

Sample individuals	Frequency	Percent
Who answered No	118	77.7
Who answered Yes	23	15.1
Who answered I don't know	11	7.2
Total	152	100.0

The data Table (13) indicates that a majority of respondents, 118 individuals, answered "No," which represents 77.7% of the sample. This suggests that the availability of special beds for obese patients is insufficient. Therefore, it is important to address the need for more special beds that can adequately accommodate obese patients.

Table (14): presents the distribution of responses to the question, "Are there stretchers to transport obese patients?"

Sample individuals	Frequency	Percent
Who answered No	94	61.8
Who answered Yes	51	33.6
Who answered I don't know	7	4.6
Total	152	100.0

The data in Table (14) indicates that a majority of respondents, 94 individuals, answered "No," which represents 61.8% of the sample. This suggests that the availability of stretchers suitable for transporting obese patients is insufficient. Therefore, it is important to address the need for more appropriately sized stretchers to accommodate obese patients effectively.

Open-ended question:

In response to the open-ended question, "Mention other barriers you face while caring for critically ill patients with obesity regarding tools from your perspective," most of the answers highlighted the following points:

1. Need for Mechanical Assistance: Many nursing workers emphasized the necessity for mechanical means and tools to assist in the care of obese patients. This includes equipment like patient lifts, hoists, and specialized beds designed to accommodate larger body sizes, which can significantly ease the physical strain on nursing workers.
2. Levers and Other Mechanical Aids: The responses also frequently mentioned the need for levers and other mechanical aids to facilitate tasks such as repositioning, lifting, and transferring patients. These tools are crucial in reducing the risk of injury to both patients and healthcare workers.

Overall, the nursing workers feedback points to a clear need for better mechanical support and equipment tailored to the care of obese patients, which would help mitigate the physical challenges and improve the efficiency and safety of patient care. The data from the second part of the questionnaire, which focuses on identifying the obstacles faced by critical care nursing workers while caring for critically ill patients with obesity in relation to tools, indicates that the greatest need is for special beds for obese patients, as represented by 77.7% of the sample. In contrast, the lowest reported need is for bed sheets, which represents 41.4% of the sample. This highlights the

urgent requirement for more specialized beds to adequately care for obese patients in critical care settings.

The third part of the questionnaire:

The third part of the questionnaire addresses the obstacles faced by critical care nursing workers while caring for critically ill patients with obesity, specifically in relation to the practice of nursing care. This section consists of 16 questions, which aim to identify and analyze the specific challenges and barriers encountered by nurses in their day-to-day practice when providing care to obese patients in critical conditions.

Table (15): presents the distribution of responses to the question, "Turning and changing patients' positions on the bed"

Sample individuals	Frequency	Percent
Who answered No	12	7.9
Who answered Yes	135	88.8
Who answered I don't know	5	3.3
Total	152	100.0

Table (15) presents the distribution of responses to a question regarding the difficulty of turning and changing patients' positions on the bed. The data indicates that a majority of respondents, 135 individuals, answered "Yes," representing 88.8% of the sample. In contrast, a minority of respondents, 7 individuals, answered "No," representing 7.9% of the sample. This suggests that turning and changing the positions of patients on the bed is considered difficult.

Table (16): presents the distribution of responses to the question, "inability to measure blood pressure due to the cuff size of the blood pressure device not fitting the patient's arm"

Sample individuals	Frequency	Percent
Who answered No	34	22.4
Who answered Yes	112	73.7
Who answered I don't know	6	3.9
Total	152	100.0

Table (16) presents the distribution of responses to the question regarding the inability to measure blood pressure due to the cuff size of the blood pressure device not fitting the patient's arm. The data indicates that a majority of respondents, 112 individuals, answered "Yes," representing 73.7% of the sample. In contrast, a minority of respondents, 34 individuals, answered

"No," representing 22.4% of the sample. This suggests that there is a significant issue with measuring blood pressure in obese patients because the standard cuff size of the blood pressure device does not fit their arms adequately.

Table (17): presents the distribution of responses to the question, "Transferring obese patients between departments"

Sample individuals	Frequency	Percent
Who answered No	27	17.8
Who answered Yes	120	78.9
Who answered I don't know	5	3.3
Total	152	100.0

Table (17) presents the distribution of responses to the question regarding the difficulty of transferring obese patients between departments. The data indicates that a majority of respondents, 120 individuals, answered "Yes," representing 78.9% of the sample. In contrast, a minority of respondents, 27 individuals, answered "No," representing 17.8% of the sample. This suggests that transferring obese patients between departments is generally considered difficult.

Table (18): presents the distribution of responses to the question, " Changing the clothes of obese patients."

Sample individuals	Frequency	Percent
Who answered No	28	18.5
Who answered Yes	120	79.5
Who answered I don't know	4	2.0
Total	152	100.0

Table (18) presents the distribution of responses to the question regarding the difficulty of changing the clothes of obese patients. The data indicates that a majority of respondents, 120 individuals, answered "Yes," representing 79.5% of the sample. In contrast, a minority of respondents, 28 individuals, answered "No," representing 18.5% of the sample. This suggests that changing the clothes of obese patients is generally considered difficult

Table (19): presents the distribution of responses to the question, " changing bed sheets for obese patients"

Sample individuals	Frequency	Percent
Who answered No	25	16.4
Who answered Yes	124	81.6
Who answered I don't know	3	2.0
Total	152	100.0

Table (19) presents the distribution of responses to the question regarding the difficulty of changing the bed sheets for obese patients. The data indicates that a majority of respondents, 124 individuals, answered "Yes," representing 81.6% of the sample. In contrast, a minority of respondents, 25 individuals, answered "No," representing 16.4% of the sample. This suggests that changing the bed sheets for obese patients is generally considered difficult.

Table (20): presents the distribution of responses to the question, "Wean the patient from mechanical ventilation."

Sample individuals	Frequency	Percent
Who answered No	39	25.8
Who answered Yes	70	46.4
Who answered I don't know	43	27.8
Total	152	100.0

Table (20) presents the distribution of responses to the question regarding the difficulty of wean the patient from mechanical ventilation. The data indicates that a majority of respondents, 70 individuals, answered "Yes," representing 46.4% of the sample. In contrast, a minority of respondents, 39 individuals, answered "No," representing 25.8% of the sample, whereas respondents, 42 individuals, answered " I don't know " representing 27.8% of the sample. This suggests that weaning the patient from mechanical ventilation is generally considered a little difficult.

Table (21): presents the distribution of responses to the question, " bathing and cleaning obese patients."

Sample individuals	Frequency	Percent
Who answered No	27	17.8
Who answered Yes	123	80.9
Who answered I don't know	2	1.3
Total	152	100.0

Table (21) presents the distribution of responses to the question regarding the difficulty of bathing and cleaning obese patients. The data indicates that a majority of respondents, 123 individuals, answered "Yes," representing 80.9% of the sample. In contrast, a minority of respondents, 27 individuals, answered "No," representing 17.8% of the sample. This suggests that bathing and cleaning obese patients is generally considered difficult.

Table (22): presents the distribution of responses to the question, " patient movement inside the care room."

Sample individuals	Frequency	Percent
Who answered No	40	26.3
Who answered Yes	110	72.4
Who answered I don't know	2	1.3
Total	152	100.0

Table (22) presents the distribution of responses to the question regarding the difficulty of patient movement inside the care room. The data indicates that a majority of respondents, 110 individuals, answered "Yes," representing 72.4% of the sample. In contrast, a minority of respondents, 40 individuals, answered "No," representing 26.3% of the sample. This suggests that patient movement inside the care room is generally considered difficult.

Table (23): presents the distribution of responses to the question, " listen to lung sounds, heart sounds, and bowel sounds."

Sample individuals	Frequency	Percent
Who answered No	48	31.6
Who answered Yes	88	57.9
Who answered I don't know	16	10.5
Total	152	100.0

Table (23) presents the distribution of responses to the question regarding the difficulty of listening to lung, heart, and bowel sounds. The data indicates that a majority of respondents, 88 individuals, answered "Yes," representing 57.9% of the sample. In contrast, a minority of respondents, 48 individuals, answered "No," representing 31.6% of the sample. This suggests that listening to lung, heart, and bowel sounds of obese patients is generally considered difficult.

Table (24): presents the distribution of responses to the question, " monitor blood circulation."

Sample individuals	Frequency	Percent
Who answered No	50	32.9
Who answered Yes	89	58.6
Who answered I don't know	13	8.5
Total	152	100.0

Table (24) presents the distribution of responses to the question regarding the difficulty of monitor blood circulation. The data indicates that a majority of respondents, 89 individuals, answered "Yes," representing 58.6% of the sample. In contrast, a minority of respondents, 50 individuals, answered "No," representing 32.9% of the sample. This suggests that monitor blood circulation of obese patients is generally considered difficult.

Table (25): presents the distribution of responses to the question, " Palpation and examination of the abdomen."

Sample individuals	Frequency	Percent
Who answered No	32	21.1
Who answered Yes	108	71.1
Who answered I don't know	12	7.9
Total	152	100.0

Table (25) presents the distribution of responses to the question regarding the difficulty of palpation and examination of the abdomen. The data indicates that a majority of respondents, 108 individuals, answered "Yes," representing 71.1% of the sample. In contrast, a minority of respondents, 32 individuals, answered "No," representing 21.1% of the sample. This suggests that palpation and examination of the abdomen is generally considered difficult.

Table (26): presents the distribution of responses to the question, " cardiopulmonary resuscitation."

Sample individuals	Frequency	Percent
Who answered No	26	17.1
Who answered Yes	123	80.9
Who answered I don't know	3	2.0
Total	152	100.0

Table (26) presents the distribution of responses to the question regarding the difficulty of cardiopulmonary resuscitation. The data indicates that a

majority of respondents, 123 individuals, answered "Yes," representing 80.9% of the sample. In contrast, a minority of respondents, 26 individuals, answered "No," representing 17.1% of the sample. This suggests that cardiopulmonary resuscitation is generally considered difficult.

Table (27): presents the distribution of responses to the question, " insertion of a peripheral intravenous catheter (cannula) in emergency cases."

Sample individuals	Frequency	Percent
Who answered No	19	12.5
Who answered Yes	129	84.9
Who answered I don't know	4	2.6
Total	152	100.0

Table (27) presents the distribution of responses to the question regarding the difficulty of insertion of a peripheral intravenous catheter (cannula) in emergency cases. The data indicates that a majority of respondents, 129 individuals, answered "Yes," representing 84.9% of the sample. In contrast, a minority of respondents, 19 individuals, answered "No," representing 12.5% of the sample. This suggests that insertion of a peripheral intravenous catheter (cannula) in emergency cases is generally considered difficult.

Table (28): presents the distribution of responses to the question, " inserting ventilation devices into the respiratory tract."

Sample individuals	Frequency	Percent
Who answered No	25	16.4
Who answered Yes	100	65.8
Who answered I don't know	27	17.8
Total	152	100.0

Table (28) presents the distribution of responses to the question regarding the difficulty of inserting ventilation devices into the respiratory tract. The data indicates that a majority of respondents, 100 individuals, answered "Yes," representing 65.8% of the sample. In contrast, a minority of respondents, 25 individuals, answered "No," representing 16.4% of the sample. This suggests that inserting ventilation devices into the respiratory tract is generally considered difficult.

Table (29): presents the distribution of responses to the question, " calculating the calories the patient needs."

Sample individuals	Frequency	Percent
Who answered No	47	30.9
Who answered Yes	80	52.6
Who answered I don't know	25	16.4
Total	152	100.0

Table (29) presents the distribution of responses to the question regarding the difficulty of calculating the calories the patient needs. The data indicates that a majority of respondents, 80 individuals, answered "Yes," representing 52.6% of the sample. In contrast, a minority of respondents, 47 individuals, answered "No," representing 16.4% of the sample. This suggests that calculating the calories the patient needs is generally considered difficult.

Table (30): presents the distribution of responses to the question, " protocols for calculating intravenous drug doses."

Sample individuals	Frequency	Percent
Who answered No	69	45.4
Who answered Yes	67	44.1
Who answered I don't know	16	10.5
Total	152	100.0

Table (30) presents the distribution of responses to the question regarding the difficulty of protocols for calculating intravenous drug doses. The data indicates that a majority of respondents, 69 individuals, answered "No," representing 45.4% of the sample. In contrast, a minority of respondents, 67 individuals, answered "No," representing 44.1% of the sample. This suggests that protocols for calculating intravenous drug doses is generally considered a little difficult.

Open question:

In response to the open question, "Mention other obstacles you face while caring for critically ill patients with obesity regarding the implementation of nursing care from your perspective," the majority of the answers from the nursing wokers focused on several key Obstacles:

1. Transporting Patients: Many nurses highlighted the difficulty in safely transporting obese patients from one location to another within the healthcare facility. This includes moving patients to different departments

for tests and procedures, which often requires additional workers and equipment.

2. Drawing Venous Blood: Another common challenge is drawing venous blood from obese patients. The increased adipose tissue can make it difficult to locate veins, leading to more attempts and increased patient discomfort.
3. Treating Bed Sores: Treating and preventing bed sores (pressure ulcers) were also frequently mentioned. Due to the higher risk of pressure sores in obese patients, nurses face challenges in providing effective skincare and ensuring regular repositioning to prevent these sores.

These responses underline the multifaceted nature of the obstacles faced by critical care nursing workers when providing care for obese patients, beyond the specific issues of turning and changing positions on the bed.

The third part of the questionnaire highlights the specific obstacles faced by critical care nursing workers when caring for critically ill patients with obesity, particularly in relation to their nursing care practices. The data indicates that the most significant obstacle encountered is turning and changing the positions of patients on the bed, which is reported by 88.8% of the sample. This suggests that the physical demands and challenges associated with repositioning obese patients are a major concern for nursing worker. On the other hand, the least reported obstacle is related to protocols for calculating intravenous drug doses, with only 44.1% of the sample identifying this as a challenge. This indicates that while there are difficulties in drug dose calculations, they are less prevalent compared to the physical tasks of patient handling.

Discussion:

According Rowen, revealed that nurses are essential in delivering high-quality care to critically ill obese patients. Fundamental guiding principles support nurses in ensuring patient safety and preventing caregiver injuries. These principles outline best nursing practices and offer practical information on various aspects of obese patient care, including proper skin and wound care, ventilation management, vital signs assessment, drug absorption, and safe mobilizing and transferring of patients [24].

Besides, Malelelo-ndou *et al.*, Declared that the intensive care unit faces significant challenges as it is responsible for the lives of patients and ensuring

quality care for critically ill obese individuals. Adequate material and human resources are crucial for effectively managing these patients [25].

The demographic characteristics of the study sample provide valuable insights into the composition of the population under investigation and they are crucial for interpreting the study's findings and ensuring the validity and reliability of the results.

In the present study, the age distribution indicates that the majority of participants were between 24 and 30 years old. This suggests that the sample primarily consists of relatively young adults, which might reflect the demographics of the nursing profession in the study's setting. Besides, the practical experience among nurses is nearly evenly split between those with less than four years of experience and those with five to nine years of experience. This distribution suggests a relatively young and mid-career workforce. These results were in agreement with Baqraf, who stated that considering that over half of the nurses were aged between 24 and 30 years, this likely reflects the tendency of younger nurses to be more experienced, active, and engaged in high-complexity healthcare fields such as intensive care units [26].

In the present study, the educational level distribution shows that most participants held a Bachelor's degree. This high level of educational attainment among participants indicates a well-educated nursing workforce, which is beneficial for the quality of patient care. These results were in agreement with Shea & Gagnon, who reported that the majority of nurses working in the ICU typically hold a bachelor's degree in nursing [27].

The result of the present study reveals that only 10.5% of individuals received training in caring for critically ill patients with obesity, with the main training duration being five days. This finding suggests a significant gap in specialized training, which could impact the quality of care provided to this patient group. The lack of training underscores the need for more comprehensive educational programs and ongoing professional development opportunities in this area. This result was in agreement with Baqraf, who pointed out that most nurses had not attended any training courses. This may be due to the hospital lacking a staff development program focused on the care of critically ill obese patients. Also, Bucher Della Torre *et al.* supported

this finding, stating that physicians and nurses often lack the confidence and training to care for patients with obesity [28].

The second part of the questionnaire sheds light on the obstacles faced by critical care nursing staff when caring for critically ill patients with obesity, focusing on the tools and equipment available. The responses to the eight questions in this section reveal significant gaps in the availability and adequacy of essential equipment, highlighting critical areas for improvement in healthcare settings.

The result of the present study reveals that slings and aids for lifting patients were not used as required. This indicates a significant deficiency in the availability of essential lifting equipment, which is crucial for safely handling obese patients. The lack of such tools not only compromises patient safety but also increases the risk of injury among healthcare staff. Addressing this gap by providing sufficient and appropriate lifting aids is vital to improving the care of obese patients and ensuring the safety of healthcare providers. Also, the responses regarding the adequacy of blood pressure monitors with appropriate cuff sizes were nearly evenly split, with 53.3% answering "Yes" and 44.7% answering "No." This indicates a marginally better situation compared to other equipment, but it still highlights the need for ensuring that all patients, regardless of size, have access to properly sized blood pressure monitors. Accurate blood pressure measurement is critical for managing the health of critically ill patients, making it essential to address this issue. Similarly, the availability of appropriately sized patient clothing also shows a near-even split in responses, with 52.6% indicating adequacy and 43.4% indicating inadequacy. Providing clothing that fits properly is important for the comfort, dignity, and care of obese patients. Ensuring a consistent supply of appropriately sized clothing should be a priority for healthcare facilities. Besides, the responses about the availability of bed sheets in appropriate quantities are also divided, with 53.3% indicating adequacy and 41.4% indicating inadequacy. Adequate bedding is essential for maintaining hygiene and comfort for all patients, particularly those with obesity who may require larger sheets. Healthcare facilities need to ensure a sufficient stock of appropriately sized bed sheets to meet the needs of obese patients. Moreover, a significant proportion of respondents (61.8%) reported that the number of wheelchairs available was insufficient. This shortage can

severely impact the mobility and independence of obese patients, affecting their overall care and recovery. Providing enough wheelchairs that can accommodate larger patients is critical for improving patient outcomes and mobility. Further, a majority of respondents (69.7%) indicated that there were not enough appropriately sized chairs for obese patients. This shortfall can lead to discomfort and potential health risks for patients who need to sit for extended periods. Addressing this issue by ensuring the availability of suitable chairs is necessary for enhancing patient comfort and care quality.

Furthermore, the availability of special beds for obese patients was reported as insufficient by 77.7% of respondents. Special beds are crucial for the safe and comfortable care of obese patients, as standard beds may not support their weight adequately. This significant gap highlights an urgent need for healthcare facilities to invest in more special beds to accommodate the growing number of obese patients effectively. Additionally, a majority of respondents (61.8%) also indicated that the availability of stretchers suitable for transporting obese patients was insufficient. Adequate stretchers are essential for safely transporting patients, reducing the risk of injury to both patients and healthcare providers. Ensuring the availability of appropriately sized stretchers is critical for effective patient care and safety.

All these results of the present study were in agreement with Baqraf, who highlighted that the obstacles nurses face in caring for obese patients related to equipment were assessed. The most frequently reported challenges included the lack of appropriately sized sphygmomanometer cuffs, followed by a shortage of lifters and aids, bariatric beds, stretchers, gowns, chairs, and wheelchairs. Also, Foroozesh *et al.* supported this finding, they reported that the challenges of nursing care for morbidly obese patients, it was noted that the most frequently reported equipment-related issue was the lack of properly sized blood pressure cuffs [29]. Besides, Miles *et al.* supported this finding, they highlighted that equipment was a major barrier, with issues regarding the availability of lifters and other bariatric equipment [30]. Similarly, Veiga et al. in their study on blood pressure measurement at a general university hospital in Sao Paulo, Brazil, emphasized the need for multiple cuff sizes to accommodate a wide range of arm circumferences. This is crucial to avoid errors in blood pressure measurement and prevent misdiagnosis of hypertension [31].

In the second part of the questionnaire, the open-ended responses to the question "Mention other barriers you face while caring for critically ill patients with obesity regarding tools from your perspective" provide critical insights into the practical challenges faced by nursing staff. The feedback highlights the following key areas: Need for Mechanical Assistance such as Patient Lifts and Hoists which are essential for safely lifting and transferring obese patients, reducing the physical strain on nursing workers. Specialized beds which are designed to accommodate larger body sizes, these beds are crucial for ensuring patient comfort and safety while minimizing the physical burden on caregivers.

The lack of such equipment not only hampers the quality of care provided to obese patients but also increases the risk of musculoskeletal injuries among nursing staff. Mechanical assistance tools are critical in facilitating various care tasks, such as repositioning, transferring, and lifting patients, which are particularly challenging with obese individuals. Also, Levers are used to assist in repositioning and adjusting the patient's position in bed, which is a common and physically demanding task, and Other Mechanical Aids are tools that help in routine care activities, such as turning, lifting, and transferring patients. These aids are crucial for reducing the risk of injury to both patients and healthcare workers and ensuring that the care provided is both safe and efficient.

The feedback underscores a clear need for better mechanical support and equipment tailored to the care of obese patients. This need aligns with the broader data from the second part of the questionnaire, highlighting critical shortages and the impact on patient care and workers safety.

The third part of the questionnaire provides a comprehensive overview of the specific challenges and barriers faced by critical care nursing workers when caring for critically ill obese patients. The analysis of the responses reveals several key difficulties related to the practical aspects of nursing care, emphasizing the need for targeted interventions and resources to improve patient care and staff safety.

The result of the present study reveals that a significant majority of respondents indicated that turning and changing the positions of obese patients on the bed is difficult. This challenge highlights the physical demands placed on nursing workers, which can lead to fatigue and potential injury. It

underscores the need for mechanical aids and better staffing to manage the physical workload. Also, the inability to measure blood pressure accurately due to inappropriate cuff sizes was reported by respondents. This issue stresses the importance of having a range of cuff sizes readily available to ensure accurate monitoring of vital signs, which is critical for effective patient management.

Besides, transferring obese patients between departments is considered difficult as told by respondents. This difficulty can lead to delays in patient care and an increased risk of injury. It highlights the necessity for specialized transfer equipment and well-coordinated protocols to facilitate safe and efficient patient movement. Further, the majority of respondents found changing the clothes and bed sheets of obese patient's obstacles. These tasks are fundamental to patient hygiene and comfort, indicating a need for better-designed clothing and bed linens that facilitate easier handling, as well as additional support workers.

Moreover, weaning obese patients from mechanical ventilation was considered difficult as told by respondents. This reflects the complexities involved in managing respiratory care for obese patients, suggesting the need for specialized training and protocols to improve outcomes. Furthermore, bathing and cleaning obese patients are seen as difficult by the majority of respondents. This task requires adequate facilities, such as larger bathtubs or shower areas, and specialized equipment to ensure the dignity and hygiene of patients are maintained. Likewise, a significant number of respondents (72.4%) reported difficulties with patient movement inside the care room. This could be due to space constraints and the lack of appropriate mobility aids, highlighting the need for re-evaluating room layouts and providing adequate equipment to facilitate movement.

According to listening to lung, heart, and bowel sounds was considered difficult by 57.9% of respondents. This challenge emphasizes the need for specialized stethoscopes and other diagnostic tools designed for use with obese patients to ensure accurate assessments.

Related to monitoring blood circulation in obese patients was reported as difficult by 58.6% of respondents. This suggests that current tools and techniques may be inadequate, necessitating the development or acquisition of more effective monitoring equipment.

For palpation and examination of the abdomen were considered difficult by majority of respondents. This difficulty can impede accurate diagnosis and treatment, indicating a need for specialized training and tools to improve examination techniques.

Regarding administering CPR to obese patients was found to be difficult by majority of respondents. This highlights the importance of training in advanced resuscitation techniques and the need for specialized equipment to increase the efficacy of CPR in obese patients. Additionally, inserting peripheral intravenous catheters was considered difficult by majority of respondents. This suggests a significant barrier to administering medications and fluids, highlighting the need for improved techniques and tools, such as ultrasound-guided IV insertion. Also, the difficulty of inserting ventilation devices was reported by the majority of respondents. This reflects the anatomical challenges posed by obesity, suggesting the need for specialized equipment and training to ensure airway management is effective.

For calculating the calorie needs of obese patients was considered difficult by 52.6% of respondents. This task is essential for nutritional management, indicating a need for better tools and guidelines to assist in accurate calculation.

With regards calculating intravenous drug doses was found to be slightly difficult by 45.4% of respondents. This suggests a need for clear protocols and possibly computerized systems to assist in accurate dose calculation to ensure patient safety.

All these results of the present study were in agreement with Baqraf, who highlighted that regarding obstacles in clinical practice, the most frequently reported challenges included turning and repositioning patients in bed. Other significant issues were blood pressure measurement, calculating the patient's required calorie intake, transferring patients between wards, inserting peripheral lines, providing bathing and hygiene care, hemodynamic monitoring and calculations, intravenous medication dosages and protocols, and performing cardiopulmonary resuscitation.

Similarly, Johnson & Meyenburg, in their study on the physiological rationale and current evidence for therapeutic positioning of critically ill patients, reported that positioning these patients upright in bed and turning them to the side is challenging and places caregivers at a high risk of injury.

In the same vein [32]. Prakash et al., demonstrated that establishing peripheral intravenous access in obese individuals is both difficult and frustrating [33].

Jamadarkhana et al., supported the present finding, they reported that assessing and monitoring the circulation of critically ill obese patients is particularly challenging. Nurses often find it difficult to palpate peripheral pulses and obtain accurate arterial pressure readings using a standard cuff [34].

Besides, Bajwa et al., supported the present finding, they reported the absence of universal guidelines and protocols for dosing schedules in obese patients. They highlighted the lack of evidence-based methods for determining appropriate dosing strategies in this population [35].

In the third part of the questionnaire, the open-ended question provides invaluable insights into the multifaceted challenges faced by critical care nursing staff when caring for critically ill obese patients. The responses highlight several key obstacles that extend beyond the physical task of turning and repositioning patients, shedding light on the broader spectrum of difficulties encountered in nursing care practices.

A significant concern raised by many nurses is the difficulty in safely transporting obese patients within the healthcare facility. This includes moving patients to different departments for diagnostic tests, procedures, or specialist consultations.

The increased weight and size of obese patients often necessitate the use of specialized transport equipment and additional workers to ensure safe handling, which can strain resources and prolong waiting times for necessary medical procedures. The logistical challenges and the physical effort required can lead to delays in care and increased risk of injury to both patients and healthcare providers.

Another common challenge is drawing venous blood from obese patients. The increased adipose tissue in these patients can make it difficult to locate veins, often requiring multiple attempts to successfully draw blood. This not only causes discomfort and distress for the patient but also increases the workload and stress for nursing staff. The difficulty in accessing veins can lead to delays in obtaining necessary laboratory results, which are critical for the timely diagnosis and treatment of critically ill patients.

The prevention and treatment of bed sores, or pressure ulcers, are also major concerns for nurses caring for obese patients. Due to their larger body

size and limited mobility, obese patients are at a higher risk of developing pressure sores. These sores can lead to significant complications, including infections and prolonged hospital stays. Effective prevention requires frequent repositioning, which is physically demanding for nursing staff. Additionally, specialized mattresses and pressure-relieving devices are often needed to mitigate the risk of pressure sores, which may not always be available.

Interestingly, the least reported obstacle was related to protocols for calculating intravenous drug doses, with only 44.1% of the sample identifying this as a challenge. This suggests that while there are difficulties in this area, they are less significant compared to the physical demands of patient handling.

Conclusion:

From the findings of the present study, it can be concluded that they provide valuable insights into the demographics, educational attainment, and training needs of the nursing workforce. The relatively young age and mid-career status of the participants, coupled with their high educational levels, suggest a dynamic and well-educated workforce. However, the significant gap in specialized training for caring for critically ill patients with obesity highlights an area that requires urgent attention. Enhancing training programs and fostering continuous professional development are essential steps to ensure that nurses are fully equipped to deliver high-quality care in complex and demanding healthcare environments.

From the findings of the second part of the questionnaire, it can be concluded that underscore substantial deficiencies in the availability and adequacy of essential tools and equipment required for the care of critically ill obese patients. These gaps in resources not only compromise the quality of patient care but also pose significant safety risks to both patients and healthcare workers.

From the findings of the open-ended question (the second part of the questionnaire), it can be concluded that the responses to the open-ended question and the quantitative data from the questionnaire paint a clear picture of the barriers faced by nursing workers in caring for critically ill obese patients. The significant need for mechanical assistance tools, specialized beds, and other appropriately sized equipment highlights the urgent

requirement for targeted investments and policy changes in healthcare facilities. By addressing these needs, healthcare providers can improve the quality and safety of care for obese patients and enhance the working conditions for nursing workers.

From the findings of the third part of the questionnaire, it can be concluded that they underscores the multifaceted obstacles faced by critical care nursing workers when caring for critically ill obese patients. From physical demands and safety concerns to diagnostic difficulties and specialized training needs, the findings highlight the necessity for targeted interventions and resources. Addressing these challenges through improved equipment, better-designed facilities, specialized training, and robust protocols can significantly enhance the quality of care and ensure the safety and well-being of both patients and healthcare providers.

From the findings of the open-ended question (the third part of the questionnaire), it can be concluded that the open-ended responses in the third part of the questionnaire provide a deeper understanding of the complexities involved in caring for critically ill obese patients. The obstacles related to patient transportation, venous blood draws, and pressure ulcer prevention underscore the need for targeted interventions and resources to support nursing workers. While protocol-related issues for intravenous drug doses are less prominent, the physical demands and logistical hurdles of patient care remain significant barriers.

To address these challenges effectively, healthcare facilities must prioritize the provision of specialized equipment, such as transport aids and pressure-relieving devices, and ensure adequate staffing levels. Additionally, ongoing training and support for nursing workers are essential to equip them with the skills and knowledge necessary to manage the unique needs of obese patients. By addressing these multifaceted obstacles, healthcare providers can improve the quality of care for critically ill obese patients and enhance the safety and well-being of both patients and nursing workers.

Recommendation:

By addressing these critical areas and overcoming obstacles, healthcare facilities can significantly improve the care of critically ill obese patients, ensuring better health outcomes and a safer environment for both patients and healthcare providers. Also, through targeted interventions and resource

allocation, healthcare facilities can significantly improve the quality of care provided to critically ill obese patients, ensuring better outcomes and a safer working environment for nursing workers.

To address these issues, the following recommendations are proposed:

1. There should be necessary procedures for enhanced educational programs focusing on care for critically ill patients with obesity, addressing the current training gaps.
2. There should be necessary procedures for increasing investment in equipment: Healthcare facilities should prioritize the procurement of essential equipment such as lifting aids, special beds, stretchers, and appropriately sized wheelchairs and chairs to meet the needs of obese patients.
3. There should be necessary procedures for conducting regular assessments to identify and address gaps in the availability of necessary tools and equipment. This will help ensure that resources are allocated effectively and that patient care standards are maintained.
4. There should be necessary procedures for provide training for healthcare workers on the importance of using appropriate equipment and how to effectively use the tools available. This can help improve the overall care of obese patients and reduce the risk of injury to both patients and workers.
5. There should be necessary procedures for developing and implement policies that mandate the availability of adequate tools and equipment for the care of obese patients. These policies should be enforced to ensure compliance and improve patient care quality.
6. There should be necessary procedures to focus on enhancing the comfort and safety of obese patients by ensuring the availability of appropriately sized clothing, bed sheets, and other personal care items.
7. There should be necessary procedures for providing ongoing training for nursing workers in handling obese patients, including advanced techniques for respiratory care, IV insertion, and CPR.
8. There should be necessary procedures to reevaluate the design and layout of care rooms to ensure they accommodate the needs of obese patients, allowing for easier movement and access to care.
9. There should be necessary procedures for developing and implementing clear protocols and guidelines for the care of obese patients, including

nutritional management and drug dosing, to ensure consistent and effective care.

10. There should be necessary procedures to increase the number of support workers available to assist with tasks such as changing clothes and bed linens, bathing, and transferring patients, to reduce the burden on nursing staff and improve patient care.

11. There should be necessary procedures for ensuring adequate staffing levels, particularly during patient transfers and repositioning, can help manage the increased workload and reduce the risk of injury to both patients and workers.

12. There should be necessary procedures for ensuring the availability of appropriately sized medical equipment, such as blood pressure cuffs and stethoscopes, which can improve the accuracy of clinical assessments and monitoring.

13. There should be necessary procedures for providing specialized mattresses, pressure-relieving devices, and adequate bathing facilities that can enhance patient comfort and reduce the risk of pressure ulcers

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Reference:

(1)World Health Organization [internet]. Obesity and overweight.

(2)Mohammed, M. S., Sendra, S., Lloret, J., & Bosch, I. "Systems and WBANs for controlling obesity." *Journal of healthcare engineering* 2018.1 (2018): 1564748.

(3)DeJesus, R.S., Croghan, I.T., Jacobson, D.J., et al. Incidence of obesity at 1 and 3 years among community dwelling adults: a population-based study. *Journal of primary care & community health*, 2022, 13: 21501319211068632.

(4)Brown, I., Stride, C., Psarou, A., et al. Management of obesity in primary care: nurses' practices, beliefs and attitudes. *Journal of advanced nursing*, 2007, 59.4: 329-341.

(5) Heidarimoghadam, R., Mosaferchi, S., Ray, P.K., et al. The differences between normal and obese patient handling: re-structural analysis of two questionnaires. BMC Musculoskeletal Disorders, 2023, 24.1: 359.

(6) Sikorski, C., Luppa, M., Glaesmer, H, et al. Attitudes of health care professionals towards female obese patients. Obesity facts, 2013, 6.6: 512-522.

(7) Baqraf, F., Mohamed, M. A., & Mahgoub, A. A. Obstacles face nursing staff toward care of critically ill obese patient in intensive care units. *Assiut Scientific Nursing Journal*, 2020, 8.23: 100-112.

(8) Großschädl, F., & Bauer, S. The relationship between obesity and nursing care problems in intensive care patients in Austria. Nursing in critical care, 2022, 27.4: 512-518.

(9) Hales, C., Coombs, M., & de Vries, K. The challenges in caring for morbidly obese patients in Intensive Care: A focused ethnographic study. Australian Critical Care, 2018, 31.1: 37-41.

(10) Robstad, N., Söderhamn, U., & Fegran, L. Intensive care nurses' experiences of caring for obese intensive care patients: A hermeneutic study. *Journal of clinical nursing*, 2018, 27.1-2: 386-395.

(11) Global Nutrition Report [internet] nutrition-profiles https://globalnutritionreport.org/resources/nutrition-profiles/asia/western-asia/yemen/

(12) Choi, S.D. Brings, K. Work-related musculoskeletal risks associated with nurses and nursing assistants handling overweight and obese patients: A literature review. Work , 2016 , 53 (2): 439 – 448.

(13) Lee, S.J., Lee, J.H. Safe patient handling behaviors and lift use among hospital nurses: A cross-sectional study. *International Journal of Nursing Studies*, 2017, 74: 53-60.

(14) Robstad, N., Söderhamn, U., & Fegran, L. Intensive care nurses' experiences of caring for obese intensive care patients: A hermeneutic study. *Journal of clinical nursing*, 2018, 27.1-2: 386-395.

(15) Baqraf, F., Mohamed, M. A., & Mahgoub, A. A. Obstacles face nursing staff toward care of critically ill obese patient in intensive care units. *Assiut Scientific Nursing Journal*, 2020, 8.23: 100-112.

(16) Brown, I., Stride, C., Psarou, A., et al. Management of obesity in primary care: nurses' practices, beliefs and attitudes. *Journal of advanced nursing*, 2007, 59.4: 329-341.

(17) Hales, C., Coombs, M., & de Vries, K. The challenges in caring for morbidly obese patients in Intensive Care: A focused ethnographic study. Australian Critical Care, 2018, 31.1: 37-41.

(18) Heidarimoghadam, R., Mosaferchi, S., Ray, P.K., et al. The differences between normal and obese patient handling: re-structural analysis of two questionnaires. BMC Musculoskeletal Disorders, 2023, 24.1: 359.

(19) Carron, M., Safaee Fakhr, B., Iepparielloo, G., & Foletto, M. Perioperative care of the obese patient. *Journal of British Surgery*, 2020, 107.2: e39-e55.

(20) Großschädl, F., & Bauer, S. The relationship between obesity and nursing care problems in intensive care patients in Austria. Nursing in critical care, 2022, 27.4: 512-518.

(21) Lin, X., & Li, H. Obesity: epidemiology, pathophysiology, and therapeutics. Frontiers in endocrinology, 2021, 12: 706978.

(22) Selim, B. J., Ramar, K., & Surani, S. Obesity in the intensive care unit: risks and complications. Hospital Practice, 2016, 44.3: 146-156.

(23) Bourn, S., Wijesingha, S., & Nordmann, G. Transfer of the critically ill adult patient. Bja Education, 2018, 18.3: 63.

(24) Rowen, L. Overview and summary: Obesity on the rise: What can nurses do?. Online *Journal of Issues in Nursing*, 2009, 14.1:2-4

(25) Netshisaulu, K. G., Malelelo-Ndou, H., & Ramathuba, D. U. Challenges experienced by health care professionals working in resource-poor intensive care settings in the Limpopo province of South Africa. Curationis, 2019, 42.1:1-8.

(26) Baqraf, F., Mohamed, M. A., & Mahgoub, A. A.Obstacles Face Nursing Staff toward Care of Critically Ill Obese Patients in Intensive Care Units. MSc thesis, Assiut University, Eygept. 2020:122.

(27) Shea, J. M., & Gagnon, M. Working with patients living with obesity in the intensive care unit: a study of nurses' experiences. Advances in Nursing Science, 2015, 38.3:30-40.

(28) Bucher Della Torre, S., Courvoisier, D. S., Saldarriaga, A., et al. Knowledge, attitudes, representations and declared practices of nurses and physicians about obesity in a university hospital: training is essential. Clinical obesity, 2018, 8.2: 122-130.

(29) Foroozesh, R., Sadati, L., Nosrati, S., et al. Challenges in nursing care of morbidly obese patients: nurses' viewpoints. *Journal of Minimally Invasive Surgical Sciences*, 2017, 6.2:2–7.

(30) Miles, J., Anderson, D. P., Engelke, M., et al. Barriers to transition of obese patients from hospital to community. *The American journal of managed care*, 2012, 18.6: e234-7.

(31) Veiga, E. V., Arcuri, E. A. M., Cloutier, L., et al. Blood pressure measurement: arm circumference and cuff size availability. Revista latino-americana de enfermagem, 2009, 17: 455-461.

(32) Johnson, K. L., & Meyenburg, T. Physiological rationale and current evidence for therapeutic positioning of critically ill patients. AACN advanced critical care, 2009, 20.3: 228-240.

(33) Prakash, S., Arora, G., & Rani, H. S. Peripheral venous access in the obese patient. *Indian Journal of Anaesthesia*, 2015, 59.10: 692-693.

(34) Jamadarkhana, S., Mallick, A., & Bodenham, A. R. Intensive care management of morbidly obese patients. Continuing Education in Anaesthesia, Critical Care & Pain, 2014, 14.2: 73-78.

(35) Bajwa, S. J. S., Kaur, J., Singh, A., et al. Attenuation of pressor response and dose sparing of opioids and anaesthetics with pre-operative dexmedetomidine. *Indian journal of anaesthesia*, 2012, 56.2: 123-128.