

Perceived Barriers and Nurses Job Satisfaction toward Caring Critically Ill Bariatric Patients.

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Abstract

Background: Critical care nurses pursue hardly to provide professional care in safely and concerned manner for bariatric critically ill patients who suffer from a variety of complex physiologic complications. Job satisfaction for ICU nurses is a confounding factor because they are high risk for exposure to several occupational hazards, but they are seeking to achieve high-quality care to those patients. **Aim:** This study was intended to explore perceived barriers and job satisfaction for ICU nurses to care for critically ill bariatric patients. **Design:** Descriptive correlational study design was utilized. **Setting(s):** This study was recruited in the intensive care units. **Participants:** A convenience sample of 300 nurses were included. **Tool of data collection:** An electronic form questionnaire was conduct. Two tools for data collection. Tool(I): perceived barriers to care critically ill bariatric patient's questionnaire sheet. Tool (II): critical care nurses job satisfaction questionnaire. **Results:** More than half of the studied nurses reported that staff shortage was the uppermost rank of the perceived barrier. It was found that most studied nurses (32%) had low job satisfaction, while 16% of them experienced high very job satisfaction. Also, there was high significant negative correlation between the perceived barrier and job satisfaction presented ($r = -0.257$ & $p = <0.001$). **Conclusions:** Critical care nurses experienced lower job satisfaction toward caring for bariatric patients. Our results call for paying more attention to improving nurses' job satisfaction toward caring bariatric patients by overwhelmed obstacles of perceived barriers. **Recommendations:** Education bariatric caring programs and training courses for critical care nurses about how to identify needs and overcome barriers to care critically ill bariatric patients to help them become more knowledgeable and skilled.

Keywords: Perceived barriers; job satisfaction; critical care nurse's bariatric patients; critical ill patient.

Introduction

Job satisfaction is one of the principal components within the wellbeing framework of nursing staff and 50% of the health services provided by nurses. Job satisfaction for ICU nurses impacts the health system success and health care quality; unless their dissatisfaction can lead to nursing errors, and other detrimental functioning (Mousazadeh et al., 2019). Bariatric patients are a special population in the ICUs, and they associated with increase mortality rate and multiple organ failure complications (Schetz et al., 2019). Caring for those critically ill patients have a formidable challenge to healthcare professionals and has considerable economic implications and they may require additional staffing with adequate training and appropriate use of resources to

assist inappropriate care with safety to patients and staff to achieve better outcomes (McAtee, 2012; Ferguson, 2016). It was reported that 31% of critical care nurses would prefer not to care for the critically ill obese patients and 12 % would have a preference not to touch those patients (Ferguson, 2016).

Obesity is one of the significant chronic health problems and became a growing epidemic. The bariatric has Greek root and baros indicated large or heavy. Bariatrics patients who had extreme obesity and body mass index greater than 40. One from fifth of patients admitted to ICU with obesity and one from four of them classified as extremely obese (Schetz et al., 2019; Aboulghate et al., 2021).

Bariatric patients are high risk for complications of obesity- which can increase

ICU length (Kinlen et al., 2018). Complication associated with obesity had a vast clinical, economic, and humanistic burden in Egypt. About 19.08% from the total death died from obesity near 115 thousand was found in 2020. The economic burden reported to be about 62 billion Egyptian pounds per year. (Aboulghate et al., 2021).

The critically ill bariatric patients suffer from a variety of complex pathological complication related to hypoventilation, hemodynamic instability, medications interaction, and impaired physical mobility. Critical care nurses pursue hardly to provide professional care in safely and humanistic manner for critically ill bariatric patients (Blackett et al., 2011; Waleed et al., 2017; Pritts, 2020). In addition, challenges due to adiposity disturb airway and circulatory resuscitation, safe transportation, as well rehabilitation which accompanying with increase respiratory complications and mortality rate. During critical illnesses, bariatric patients had breakdown proteins at high accelerated rate and use muscle to be source of fuel which associated with a higher rate of respiratory distress, and double ICU mechanical ventilation days, and increase challenges for extubation than patients who are non-obese. During critical illnesses, those patients had a four-fold higher risk for multiorgan failure rate and longer ICU stay days (Blackett et al., 2011; Gray & Dieudonne, 2018).

Caring for bariatric patients can be a stigma that may be hostility and humiliation situations for those bariatric patients. Communication between bariatric patients and the nurse may be strained which negatively affects the patient and nurses. Nurses had nonverbal preconception which can lead to be unresponsive to those patient's needs. Also, they may ignorance the patient and become careless to deliver high quality nursing care (Hurst et al., 2004; Bajwa et al., 2012).

Critically ill bariatric patients face a challenge for delivering high-quality care and resource utilization due to specific physiological responses during critical illness. Another challenge faces those patients is social personally, and professionally stigma during delivering care among intensive care staff (Hales et al., 2016; Hales et al., 2018). Nurses

staff may be had challenges to meet the caring needs for those patients which effect on care quality for those patients despite, the staff intents to provide high quality care (Phelan et al., 2015).

Critical care nurses needed to be aware and understand the bariatric care pathways to be able meet specific demands for treatment and support of those bariatric patient during an ICU stay. Bariatric patient had specific demands such as increased respiratory complications with prolonged mechanical ventilation needs and increase need for tracheostomy tube; increased wound complications especially bed sores which increased the ICU length of stay. The risk to develop a bed pressure sore in bariatric patients is four increased than others non bariatric patient which increased staffing support and specialist bariatric equipment may be required (Hales et al., 2018; Leoniuk & Sobczak, 2020; Pritts, 2020).

Critical care nurses are more vulnerable to occupational hazards such as back pain due to changing position and caring for those patients (Gim, 2017). Besides, limited ICUs beds; lifting equipment and basic supplies such as gowns, present of more additional support and assistance resources with care and observation, as well emergency interventions such as CPR in life-threatening situations can be a challenge for ICU staff to deliver safe nursing care for bariatric patients (Shea & Gagnon, 2015; Malelelo-Ndou et al., 2019). Therefore, early detection of work-related musculoskeletal disorders works related problems which can improve the working environment and increase nurses' job satisfaction and improvement their performance for better patient care (Zayed et al., 2019).

Critically ill bariatric patients' needs required to have progressive care in an exclusively susceptible manner. Nurses must be having knowledge about different approaches to assess and care for each bariatric patients in unique manner to determine actual and high-risk needs. They should understand physiologic deviations and complications to those patients and be prepared nurse to plan and give a dignified professional care to maintain safety for nurses and their patient. Critical care nurses must be advocate for bariatric patients' needs and deliver high-quality and safe care which

affects their job satisfaction. Consequently, this study investigated the perceived barriers and job satisfaction of ICU nurses to care the critically ill bariatric patients.

Significance of the study:

Critically ill bariatric patients have a specific physical and psychological needs which require an attention from the critical care nurses to meet their needs. The nature of critical care nurses who care for bariatric patients has a significant effect on the nurses' behavioral responses mainly job satisfaction which directly affects nurses' burnout.

Aim of the study:

This study was intended to explore perceived barriers and job satisfaction for ICU nurses to care for critically ill bariatric patients.

Research questions:

What are perceived barriers toward caring for bariatric patients among ICU nurses?

Do ICU nurses have job satisfaction toward caring for bariatric patients?

Material and Method

Study design

A descriptive correlational research design was utilized. This type of research can be used to describe the studied variable, without seeking to establish a causal relationship.

Research settings

This study was recruited in the intensive care units (general, trauma, cardiac, and coronary intensive care units) were included. These ICUs admitted different medical and surgical cases, injuries, and road traffic accidents in the governorate.

Subject:

A convenience sample of staff nurses who were accessible and agreed to participate in this study sample. The whole number of ICU nurses who were included was 300 participants with a participation rate was 95%. ICU nurses who provided direct care for bariatric critically ill patients was included in this study.

Tools of data collection:

An electronic form questionnaire was encompassed, and the study utilized two tools for data collection which were:

Tool I: The perceived barriers to care critically ill bariatric patient's questionnaire sheet:

It was consisted of two parts. **Part one** contained the nurses' socio-demographic characteristics data. The socio-demographic include age; sex; marital status; level of education; type of site deliver care to the bariatric patient; previous history of chronic diseases; and previous bariatric nursing care education and training including their ability to calculate body mass index.

Part two included the perceived caring barriers to bariatric patients which were developed after reviewing related literature by the researcher. The questionnaires designed to assess the perceived caring barriers to bariatric patients and comprised a 21-item self-report questions. A Likert scale was used and ranged from 1 score mean strongly disagree to 5 score mean strongly agree. A total score for these barriers was computed, which ranged from 5 to 125.

Tool II: Critical Care nurses Job Satisfaction Questionnaire:

Job satisfaction of CCNs for caring bariatric patients which was adopted from Macdonald and MacIntyre (1997). A 10-item self-report questionnaire was included to assess job satisfaction. A Likert scale was used to obtain nurses responded in this part score (1) mean strongly disagree to score mean (5) strongly agree. A total score for the included nurses job satisfaction was computed, which ranged from 5 to 50. Interpretation of the job satisfaction score as following 42-50 mean very high; 39-41 mean high; 32-38 mean average; 27-31 mean low; 26-10 mean very low.

Validity and Reliability

Pilot Study

To detect the questionnaire validity, a pilot test was conducted on 30 nurses and no necessary modifications were needed.

Procedures:

Before starting this study, an official written permission was obtained from the hospital authorities of the previous study settings after an explanation of the purpose of the study. The average time spent for nurses to complete the questionnaire was approximately 10-15 minutes. Data was collected from July to November 2021. Online electronic google forms was used to distributed the questionnaire. The online questionnaire was designed in English and translated into Arabic. Electronic

invitations (via electronic emails and WhatsApp) were sent to all nurses in the previously included settings to take part in the study. Acceptance the invitation means that nurses were willing to involve in the study.

Ethical considerations:

After a clarification of the aim of the study, an electronic informed consent was done through emails and WhatsApp from included nurses. Participation in this study was elective and they had withdrawn right from the study without giving reasons. Nurses' privacy was considered, and confidentiality of the data was secured during and after the submission.

Statistical analysis

Data entry was done and analysed using IBM SPSS software package version 20.0. (Armonk, NY: IBM Corp). Numbers and percentages were used to describe qualitative data. Kolmogorov-Smirnov test was used to test the normality of distribution. Range, mean, standard deviation, median was used to described quantitative data. The significance of the obtained results was limited at the 5% level.

The used tests were Chi-square test used for categorical variables; fisher's Exact or Monte Carlo correction; Pearson coefficient was used to correlate between two quantitative variables follow distribution curve. Mann Whitney test used to compare between abnormally distributed quantitative variables. Kruskal Wallis test used for abnormally distributed quantitative variables, to compare between more than two studied groups, and post hoc for pairwise comparisons.

Results:

The present study **table (1)** showed that showed that about 46.67% of them aged from 30- years old. More than half of the 52% were female. The popular of them were single and married (40% for each one). According to the level of education, about 44% of them had bachelor's degrees and most of them 36% worked in general ICU. About 60.3% of them

had experienced years (5-). It was reported that about 56% of them did not receive previous education about the care of critically ill obese patients. While more than half of the 52% could calculate body mass index. Concerning, history of chronic illness, more than half of them had no history.

Table (2) presented the rank of the perceived caring barriers to the critically ill bariatric patients. More than half of the studied nurses (68%) strongly agree that staff shortage is the most perceived caring barrier while, the least perceived caring barrier (40.0%) to the critically ill bariatric patients was a lack of assistance turning and repositioning patients on the bed. The total score of perceived barriers had a mean of 94.55 ± 12.26 ; with a mean score of 3.50 ± 0.45 and a percent score was 62.54 ± 11.35 .

Table (3) presented the distribution of the studied critical care nurses in relation to Job satisfaction. About less than half (36%) of the studied nurses neutral agree that their salaries are good; and 40 % of them neutral agreed that they feel good about their job.

Table (4) revealed the distribution of the studied critical care nurses about job satisfaction for caring critically ill bariatric patients. It was found that about 32% of the studied nurses had a low job satisfaction, while, 16% of them experienced high very job satisfaction. The studied nurses job satisfaction had percent score (55.80 ± 24.94) and mean of total score was 32.32 ± 9.98 .

Table (5) showed that there was high statistically significant difference between the job satisfaction and their socio-demographic data mainly sex; marital status; academic degree; working units; total years of experience; received previous bariatric patients care education; and previous history of chronic diseases respectively ($p= 0.001, <0.001, <0.001, <0.001, <0.001, 0.001 \& 0.024$).

Table (6) displayed that there was negative correlational ($r = -0.257; p < 0.001$) between the job satisfaction and their perceived barriers of caring critically ill bariatric patients.

Table (1): Distribution of the studied critical care nurses in relation to socio-demographic data (n = 300):

	No.	%
Age		
20-	100	33.33
30-	140	46.67
≥40	60	20.0
Min. – Max.		23.0 – 50.0
Mean ± SD.		32.12 ± 7.25
Median		30.0
Sex		
Male	144	48.0
Female	156	52.0
Marital Status		
Single	120	40.0
Married	120	40.0
Divorced	36	12.0
Widow	24	8.0
Academic Degree		
Diploma degree	120	40.0
Bachelor's degree	132	44.0
Master's degree	48	16.0
Working unit		
General ICU	108	36.0
Neurological ICU	48	16.0
Trauma ICU	60	20.0
Coronary ICU	60	20.0
Medical ICU	24	8.0
Total Years of Experience		
<5	108	36.0
5-	181	60.3
≥10	11	3.7
Min. – Max.		2.0 – 12.0
Mean ± SD.		5.28 ± 2.13
Median		5.0
Able to calculate body mass index		
Yes	156	52.0
No	144	48.0
Received previous education about the care of the critically ill obese patient		
Yes	132	44.0
No	168	56.0
Previous History of chronic illness		
Yes	144	48.0
No	156	52.0

Table (2): Distribution of the studied critical care nurses in relation to the perceived barriers to care for critically ill bariatric patients (n = 300):

	Perceived barriers to care for critically ill bariatric patients	Strong Disagree		Disagree		Neutral		Agree		Strong agree		Mean ± SD.	Rank
		No.	%	No.	%	No.	%	No.	%	No.	%		
1	Staff shortage	12	4.0	0	0.0	36	12.0	48	16.0	204	68.0	4.44 ± 0.98	1
2	Patient to nurses caring ratio not equal 1:1	6	2.0	11	3.7	28	9.3	68	22.7	187	62.3	4.40 ± 0.94	2
3	Lack of equipment to Lifters and aids for lifting patients	24	8.0	0	0.0	49	16.3	0	0.0	203	67.7	4.36 ± 1.16	3
4	Lack of knowledge about care of the critically ill bariatric patient	12	4.0	12	4.0	24	8.0	60	20.0	192	64.0	4.36 ± 1.06	4
5	Fear from falling of patient during care or walking	0	0.0	0	0.0	72	24.0	60	20.0	168	56.0	4.32 ± 0.84	5
6	Fear from Skin problem and irritation from skin folder contact	9	3.0	13	4.3	28	9.3	79	26.3	171	57.0	4.30 ± 1.01	6
7	Change position and caring of Bariatric patient is difficult at night shift	19	6.3	18	6.0	27	9.0	64	21.3	172	57.3	4.17 ± 1.20	7
8	Feeling tiredness and health problem such as lower back pain	12	4.0	24	8.0	24	8.0	108	36.0	132	44.0	4.08 ± 1.09	8
9	Present of bad odor	12	4.0	48	16.0	24	8.0	84	28.0	132	44.0	3.92 ± 1.23	9
10	Unable to meet physical and care needs and look to this as stigma	0	0.0	24	8.0	36	12.0	180	60.0	6	2.0	3.92 ± 0.80	10
11	Lack of appropriate size Wheelchairs or Chairs	12	4.0	24	8.0	72	24.0	96	32.0	96	32.0	3.80 ± 1.10	11
12	Lack of appropriate cuff size to measure blood pressure	24	8.0	48	16.0	48	16.0	84	28.0	96	32.0	3.60 ± 1.30	12
13	Lack of patient gowns and bed sheet with appropriate size	24	8.0	24	8.0	72	24.0	108	36.0	72	24.0	3.60 ± 1.17	13
14	Mobilization of Bariatric patient is difficult	12	4.0	60	20.0	84	28.0	72	24.0	72	24.0	3.44 ± 1.17	14
15	Bariatric patient had difficult peripheral line insertion	0	0.0	60	20.0	96	32.0	96	32.0	48	16.0	3.44 ± 0.98	15
16	Lack of co-operation with other healthcare Professionals	51	17.0	63	21.0	36	12.0	26	8.7	124	41.3	3.36 ± 1.58	16
17	Feeling overloaded when caring to bariatric patient	12	4.0	60	20.0	132	44.0	48	16.0	48	16.0	3.20 ± 1.06	17
18	Change position and caring t is difficult at evening shift	0	0.0	84	28.0	108	36.0	96	32.0	12	4.0	3.12 ± 0.86	18
19	Bariatric patient had difficult intubation especially with short neck	12	4.0	84	28.0	108	36.0	60	20.0	36	12.0	3.08 ± 1.06	19
20	Inability to handling CPR in Bariatric patient	12	4.0	108	36.0	84	28.0	60	20.0	36	12.0	3.00 ± 1.10	20
21	Bariatric patients who had body mass index > >40 kilogram/m 2	60	20.0	60.0	20.0	60	20.0	96	32.0	24	8.0	2.88 ± 1.28	21
22	Un-cooperative or unstable patient	60	20.0	72	24.0	72	24.0	48	16.0	48	16.0	2.84 ± 1.35	22
23	Absence of appropriate ICU beds	60	20.0	48	16.0	84	28.0	108	36.0	0	0.0	2.80 ± 1.13	23
24	Ability to calculate body mass index	89	29.7	71	23.7	24	8.0	68	22.7	48	16.0	2.72 ± 1.49	24
25	Change position and caring of Bariatric Patient is difficult at morning shift	60	20.0	72	24.0	84	28.0	72	24.0	12	4.0	2.68 ± 1.16	25
26	Nurses can assess hemodynamic easily for bariatric patient	0	0.0	36	12.0	96	32.0	144	48.0	24	8.0	2.48 ± 0.81	26
27	lack of assistance turning and repositioning patients on the bed	12	4.0	60	20.0	36	12.0	72	24.0	120	40.0	2.24 ± 1.28	27
Total Score (Mean ± SD)								94.55 ± 12.26					
Percent Score (Mean ± SD)								62.54 ± 11.35					

Table (3): Distribution of the studied critical care nurses in relation to Job satisfaction

Job satisfaction	Strong Disagree		Disagree		Neutral		Agree		Strong agree	
	No.	%	No.	%	No.	%	No.	%	No.	%
I receive recognition to a job well done to care bariatric patient	12	4.0	72	24.0	72	24.0	84	28.0	60	20.0
I feel close to care bariatric patient during caring them	12	4.0	48	16.0	96	32.0	84	28.0	60	20.0
I feel good about caring bariatric patient	12	4.0	84	28.0	48	16.0	108	36.0	48	16.0
I feel secure about my job	24	8.0	60	20.0	96	32.0	84	28.0	36	12.0
I believe bariatric patient caring is concerned about me	12	4.0	60	20.0	84	28.0	96	32.0	48	16.0
On the whole, I believe work is good for my physical health.	48	16.0	72	24.0	48	16.0	84	28.0	48	16.0
My salaries are good	24	8.0	60	20.0	108	36.0	72	24.0	36	12.0
All my talents and skills are used to care bariatric patient	24	8.0	84	28.0	60	20.0	84	28.0	48	16.0
I get along with my supervisor and ask for advice to care bariatric patient	24	8.0	96	32.0	72	24.0	60	20.0	48	16.0
I feel good about my job	12	4.0	48	16.0	120	40.0	72	24.0	48	16.0

(n = 300)

Table (4): Distribution of the studied critical care nurses in relation to Job satisfaction for caring bariatric patients (n = 300)

Job satisfaction	No.	%
Very high Satisfied	48	16.0
High satisfaction	72	24.0
Average	48	16.0
Low	96	32.0
Very low	36	12.0
Total score	(10–50)	
Min. – Max.	10.0 – 50.0	
Mean ± SD.	32.32 ± 9.98	
Median	31.0	
Mean score		
Min. – Max.	1.0 – 5.0	
Mean ± SD.	3.23 ± 1.0	
Median	3.10	
Percentage Score		
Min. – Max.	0.0 – 100.0	
Mean ± SD.	55.80 ± 24.94	
Median	52.50	

Table (5): Relation between the job satisfaction of the studied critical care nurses in relation to socio-demographic data (n = 300)

	Job Satisfaction (n= 180)		Job un satisfactions (n= 120)		χ^2	p
	No.	%	No.	%		
Age						
20-	72	40.0	48	40.0	0.0	1.000
30-	72	40.0	48	40.0		
≥40	36	20.0	24	20.0		
Sex						
Male	72	40.0	72	60.0	11.538*	0.001*
Female	48	40.0	108	60.0		
Marital Status						
Single	60	33.3	60	50.0	21.667*	<0.001*
Married	72	40.0	48	40.0		
Divorced	24	13.3	12	10.0		
Widow	24	13.3	0	0.0		
Academic Degree						
Diploma degree	108	60.0	12	10.0	81.136*	<0.001*
Bachelor's degree	60	33.3	72	60.0		
Master's degree	12	6.7	36	30.0		
Working unit						
General ICU	72	40.0	36	30.0	80.0*	<0.001*
Neurological ICU	48	26.7	0	0.0		
Trauma ICU	36	20.0	24	20.0		
Coronary ICU	24	13.3	36	30.0		
Medical ICU	0	.0	24	20.0		
Total Years of Experience						
<5	68	37.8	40	33.3	80.0*	<0.001*
5-	104	57.8	77	64.2		
≥10	8	4.4	3	2.5		
Able to calculate body mass index						
Yes	96	53.3	60	50.0	0.321	0.571
No	84	46.7	60	50.0		
Received previous education about the care of the critically ill obese patient						
Yes	72	40.0	72	60.0	11.538*	0.001*
No	48	40.0	108	60.0		
History of chronic illness						
Yes	96	53.3	48	40.0	5.128*	0.024*
No	84	46.7	72	60.0		

Table (6): Correlation between the perceived barriers to care critically ill bariatric patients and their Job Satisfaction (n = 300)

Job Satisfactions	Perceived barriers	
	r	p
	-0.257	<0.001*

χ^2 : Chi-square test - r: Pearson coefficient * : Statistically significant at $p \leq 0.05$

Discussion:

Caring for the bariatric patients can be a stigma to the ICU nursing staff and ICU resource and utilization challenge. This paper is a modest contribution to the ongoing discussion on perceived barriers and job satisfaction of critical care nurses toward caring for bariatric

critically ill patients. Our results describe for the first time examines the perceived barriers toward caring for bariatric ICU patients among ICU nurses, and if studied nurses had job satisfaction to care bariatric patients.

Particular attention is needed to ICU nurses' staff didn't have persistence high job

satisfaction especially who deliver direct care to the bariatric patients (**Libano, 2017**). There was a high significant negative correlation between the perceived caring barrier to critically ill bariatric patients and the studied critical care nurses job satisfaction. In addition, there was a highly significant difference between the included nurses of job satisfaction level and the demographic data.

The low job satisfaction can be interpreted due to perceived barrier to care for bariatric patients among studied staff. The number of the staff and shortage was the most perceived barriers to care critically ill bariatric patients. The sequential perceived barriers of the studied nurses included ratio between nurse's to the patient not equal 1:1 especially at the night shift; lack of equipment to lifters and aids for lifting patients; lack of knowledge about the bariatric patient care; fear from falling of patient during care; fear from skin problem and irritation from skin folder contact; change position and caring of the bariatric patient is difficult at night shift; feeling tiredness and health problem such as lower back pain; present of bad odour; unable to meet physical and care needs of the critically ill morbidly obese patient and look to this as stigma which leads to feeling physical and emotional overloaded during care those patients.

This result supported by **Robstad et al. (2018)** who indicated that nurses staff experienced caring for bariatric patients as emotional challenging. Similarly, **Hales et al. (2018)** experienced caring for bariatric patients challenged with language and communication barriers; resource utilization and healthcare challenges. Communication challenge was associated with staff facial expressions or using words that can describe body mass for those bariatric patients or body gestures. These results are in line with **Elsherbeny and El-Masry (2018)** who found that most of the studied nurses had low job satisfaction to care their patients. This is interpreted due to a lack of support system between colleagues and poor communication between patient and nurse. **Shea and Gagnon (2015)** reported that the studied nurses experienced a negative attitudes and perceptions to care bariatric patients associated with their age, education level, body weight, and previous clinical experiences. In

addition to, nurses who were unsatisfied with their increase patients body weight and size as well as more negatively attitude.

These results in good agreement with other studies which have shown that decreased of nursing staffing ration are associated with a negative effect on the nursing quality of care (**Fasoï et al., 2020**). **Gerasimou-Angelidi et al. (2014)** reported that there was a positive significant correlation between the staff workload, family satisfaction, and critical nursing care. The current studied nurses reported that changing position and caring for the bariatric patient is difficult at night shift which had higher rank than morning and evening shift. **Fasoï et al. (2020)** findings result has disagreed with the current paper who reported that decrease in the nursing staff number in the morning shift, with more than six hours estimated nursing workload which interpreted the high levels of job burnout between them.

Nursing shortage is a universal health and administration challenge, and hospitals meet challenge and crisis to manage nursing staff shortage (**Mahran et al., 2017**). The current findings are in line with **Libano (2017)** reported that nurse job satisfaction is reliant on management support and one of these challenges is caring for patients who suffer from obese, with urinary incontinent, immobile, and disturbed level of consciousness. Critical care nurses seek hardly to keep patients clean, dry, and changing position at least every two hours but sometimes there is not enough staff to assist nurses for those bariatric patients. Hospital managers try hardly to preserve well-staffed. They use nurses a mandate from other hospital area to cover the nursing shortage, but sometimes there are still short in working staff.

In a recent paper by studied nurses it was reported that perceived barrier was difficulty to mobilize bariatric patient; feeling difficult to respond to those patients' needs due to bad odour also, increase risk of skin problems and irritation from skin folder contact especially groin; breast; abdomen; perineal area which increased risk for fungal infections and cellulitis. The buttocks skin breakdown is more risk to be worsen and increase degree of bed sores. Nurses did not have ability to turn those patients with regular frequency even with use air mattress to relieve

pressure unless the presence of enough staff members. As reported by **Bajwa et al. (2012) and Pritts (2020)** that the bariatric patients are four times more risk to develop a pressure injury than the non-bariatric patient Which requires increased staffing support and specialist bariatric equipment. **Hammond (2013)** reported that inadequate bariatric caring and transportation equipment to accommodate with increase body weight with safety precautions to staff and patient. Also, **Berrios (2016)** reported that to deliver appropriate care to bariatric patients necessary lifting equipment's and increase ICU physical space, modify nurses' attitude to care, overcome shortage of staff and decrease nurses' injuries.

Although, studied nurses reported that feeling tiredness and health problems such as lower back pain is one of the first ten perceived barriers. It supported by **Shea and Gagnon (2015)** reported that nurses often experienced physical discomfort and fatigue, which expressed their opinions for caring those bariatric patients as more difficult and challenge. ICU strenuous environment additionally can be source for development negative attitudes, perceptions, and emotions for ICU nurses to the bariatric patient. **Choi and Brings (2015)** found that musculoskeletal work hazards can be source of the challenges to nurses face daily when lifting and repositioning obese or overweight patient.

There was a highly significant difference between perceived caring barriers and previous bariatric patients' education and training. There was a highly significant difference between perceived caring barriers and demographic data. It was the main purpose of the paper to draw attention to **Tiryag and Atiyah (2021)** who reported that ICU nurses' knowledge and their level of education had a significant relationship. The present study also concurred with **Gormley and Melby (2020)** who reported a significant difference between nurse's demographic data in relation to sex, years of experience, and knowledge. While the present study was disagreeing with **Chin et al. (2016)** who noticed that there was no significant relationship between the ICU nurses age and sex and caring for bariatric patients' knowledge.

Hales et al. (2018) endorsed use of bariatric care pathway to ensure that more suitable body measurements mainly body

weight were used to inform the bariatric equipment application. limited nursing knowledge on using bariatric equipment considered one of the challenges. **Shea and Gagnon (2015)** recommended using the bariatric care educational programs in the ICU can help to improve nurses' knowledge regarding the ICU bariatric care.

Despite most of the studied nurses did not receive previous bariatric education program; they could calculate anthropometric measurement mainly BMI from their working experience, and the obesity is trend top in social media even nurses can be suffered from obesity, and they calculate body mass index for themselves. Several studies have supported these results that most of their studied nurses have poor knowledge about bariatric patient care (**Bucher Della Torre et al., 2018; Fan et al., 2020; Tiryag & Atiyah, 2021**). They interpreted that due to poor nursing program in bariatric care, the nurses didn't receive obesity training courses, and they didn't develop and update their knowledge continuously. The existing study in line with **Bucher Della Torre et al. (2018)** reported that poor knowledge on how to care bariatric patients and poor attend training courses about how to care for obese patients. **Baqraf et al. (2020)** reported that 95.6% of studied nurses didn't attend any training about bariatric patient's care.

The studied nurses reported that they were unable to meet caring needs of the bariatric patients and look to this as stigma which ranked as the nine barriers. These outcomes are in line with **Hales et al. (2016)** who reported that nurses staff interacts with bariatric patients' feelings of anxiety and discomfort arise and to relieve discomfort feelings when engaged in aspects of bariatric patient care by communicate using face work strategies and support mutual caring existence.

During the last 10 years, it was reported that a constant increase in bariatric patients' admission for general and bariatric care. Also, a 10% increase in readmission rate in the last year. The hospital administration had also received incident reports of negative attitudes and mistreatment of those patients by nurses (**Makanjuo, 2019**). **Foroozesh et al. (2017)** recommended that nurses are essential to provide optimum physical and psychological

care by establish therapeutical nurse patients' relation with bariatric patients to identify their needs. One the barriers to care for those patients due to delay communication and high quality of care delivered to the bariatric patients.

Concerning caring and nursing procedures performed to bariatric patients, lack of appropriate cuff size to measure blood pressure was not included in the first top ten perceived barriers as well as lack of appropriate size wheelchairs or chairs; lack of patient gowns and bed sheets with appropriate size; and mobilization of the bariatric patient is difficult. **Verkhovsky et al. (2018)** was agreed with the current finding and concluded that non-invasive blood pressure was acceptable and preferable in severe obesity patients., **Walsh et al. (2017)** were in contrast that selecting an unsuitable cuff size is a frequently and significant source of measurement of blood pressure error. **Foroozesh et al. (2017)** added when transferring patients, using inappropriate lifting equipment and inadequate surrounding space, working overload, staff shortage which can increase the hazards incidence of physical injuries which hinder deliver the optimum care to those patients. Similar, **Baqraf et al. (2020)** reported that found that the most reported difficulties in the care of bariatric patients regarding equipment in the ICU.

Increase in the bariatric admissions rate tended to be a challenge to healthcare providers and facilities who seek to provide a dignified effective and safe care for those patients. Bariatric patients need assistance with several daily living activities due to their size and difficulty during movement (**Muir & Archer-Heese, 2009**). Nursing guidelines focus on address the unique care requirements for those patients in the ICU units that covers assessment; medication administration; mobility; equipment used; respiratory monitoring; skincare; referrals; and psychosocial issues (**Hurst et al., 2004**). **Gable et al. (2014)** studied the effectiveness of a bariatric procedures and transport educational course with simulation to increase staff confidence and bariatric procedures and transport knowledge. The three hours simulation education program supported was an effective approach to improve nurses' bariatric care knowledge and clinical practice issues.

The ICU beds are too small in relation to the size of bariatric patients which increase difficulty in turning and changing patients position to decrease risk for bed sores which can increase the musculoskeletal hazards for staff, increase bed sores risk and decrease in the patient comfort. There is no available guidance for the appropriate sizes of the patients' beds as the standard ICU beds size is 91 cm in width. and little attention to evaluate the relationship between patients' anthropometric measurements and required ICU beds space that required to turn and change position (**Pretorius et al., 2018**). ICU staff can experience a negative concern when insufficient space for changing and turning a patient in their bed and patients also unable for self-reposition (**Pretorius et al., 2018**). It is recommended to develop guideline for bariatric patients care and spot the appropriate resources and equipment for the bariatric patient to ensure the patients' physiological and psychological comfort (**Hurst et al., 2004; Durrer Schutz et al., 2019**).

Limitations:

The main limitation of the result is over workload of the included nurses to fulfil the online questionnaire.

Conclusion and recommendation:

From the outcome of our investigation, it is possible to conclude that most of nurses had low job satisfaction to bariatric patient's care in the ICUs setting. The most perceived barriers among the studied nurses to care bariatric patients was number of the staff and the shortage especially in the night shift.

The researcher proposes based on the results to design and include education bariatric caring programs and training courses for ICU nurses to increase their knowledge about bariatric patients' needs and how to meet their needs. Also, it recommended more studies about nursing modalities and pathways to care for bariatric patients in the ICUs.

The next stage of our research will be developing sensitivity educational module in bariatric regimen was important to nurse staff because it improved their sensitivity to clinical and human issues regarding the bariatric care.

Nursing-specific interventions for bariatric patients should be added to the curriculum at a different level of education.

Continuing research on improvement of systems to monitor and measure nursing workload appears fully justified because it is necessary to document the quality of health services delivered, increase the nurses professional job satisfaction, and reduce pressure and burnout that are experienced frequently.

Rotation of care to bariatric patients overstaffed in the unit to feel satisfied and not overloaded.

Encouraging a multidisciplinary team is more efficient to enhance nursing care to bariatric patients and ensure deliver a holistic nursing care.

Further research on the nurse's staff gender effect on attitude to care bariatric or morbid obese patients is desirable to extend our knowledge if male nurses more prefer to give care.

Workshops for how to use body mechanics to protect nursing staff from injuring during care or reposition bariatric patients.

Nursing managers need to ensure high level of occupational safety and planning for an ergonomic programs and workshops for ensure safety of nurse's staff and reduce musculoskeletal injuries and disorders.

Acknowledgements

The researcher appreciates and thank the nurses who participated in the present study.

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