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Challenges facing nurses toward providing care for patients at intensive care units during the pandemic of corona virus disease: A mixed method study

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Abstract---Background: Nurses constitute the majority of healthcare practitioners, have been fighting the COVID-19 outbreak on the front lines. Nurses could face several challenges during delivering care for patients at ICUs especially at the time of pandemic of COVID -19, including workload and shortage, psychological load, availability of resources, responsibilities, and role conflict. Aims of the study: The study aimed to answer the research main question which was “To what extent is there a challenge that facing nursing care at intensive care unit during the pandemic of corona virus?” Methodology: A descriptive study design was conducted on ICU nurses at Baquba teaching hospital for the period October 15th, 2021, to March 25th, 2022. A non-probability (Purposive) sample was selected of 35 nurses who work at Baquba teaching hospital. The data was collected using a previously prepared questionnaire and official agreement to use the study questionnaire was obtained from the original author. Descriptive statistics (frequencies, percentages, mean, and standard deviation) and inferential statistics (person correlation) were used in the data analysis. Results: Results showed that nurses who work at ICU during the pandemic of COVID -19 were faced several challenges to deliver care for patients, including shortage of nurses in the presence of large number of patients, lack of appropriate offices for nurses, stressful work environment, sense responsibilities for some critical cases, and lack of support from superiors. Moreover, thematic analysis presented that four major themes were emerged from 10 nurses presenting challenges facing them toward providing care for patients at ICU during pandemic

of COVID 19. The first three theme explained the challenges which included nurses' related challenges, organization's related challenges, and patients' related challenges. The final theme presented solutions and opportunities that nurses presented to be used to solve the challenges. Conclusion: The study concluded that nurses who work at ICU during the pandemic of COVID -19 were faced several challenges to deliver care for patients, including shortage and workload, psychological load, taking responsibilities, and role conflict challenges, in addition to solutions to solve these challenges.

Keywords---challenges, nurses, ICU, COVID-19, Mixed study.

Introduction

Nurses constitute the majority of healthcare practitioners, have been fighting the COVID-19 outbreak on the front lines. Nurses are at the greatest risk of infection because they interact closely with patients, and their immune systems are weakened by long shifts and stress. As a result, this consider as a challenge that nurses could face during the time of delivering care for patients in healthcare settings(Chou et al.,2020).

Nurses faced a unique and aggravating predicament as a result of their inability to save patients and the risk of spreading the sickness to their families, which could have harmed patient care. Nurses are also more likely to suffer from psychological issues such as anxiety, sadness, sleeplessness, and stress. They may also face a variety of challenges due to being in a stressful situation that they have never experienced before(Liu et al.,2019).

Nurses might be physically and mentally stressed, and they would feel lonely and helpless in the face of health dangers and strain from high-intensity work induced by such public health emergencies. Previous research has found that nurses who work closely with patients who have developing infectious diseases experience loneliness, anxiety, dread, exhaustion, sleep disturbances, and other physical and mental health issues. Many factors have been found to affect the quality of care in ICU, including lack nursing staff, a large number of nursing records, a long wait time, and a shortage of specialized nurses. The violent behavior of patients in the hospital is a difficulty for nurses. Many patients are difficult to converse with and, at times, aggressive. As a result, this occupation can be quite demanding and stressful at times. Nurses face a severe problem with workplace violence. The lot of the sample, patients and other medical personnel are the main perpetrators of violence against nurses (Sun et al.,2020;Gazzaz,2009).

Nurse shortages are a worldwide issue. Hospitals are currently confronting a difficulty in managing a nursing workforce shortage due to rising health-care costs. This is because hospitals are putting more money into innovative medical technology rather than proper staffing. The nurse-to-patient ratio remains uneven due to a nursing staffing shortfall. The number of patients is growing all the time, and there is a severe lack of nurses to care for them (Cortese ,2012).

In addition to nursing shortage as a challenge that nurses face in healthcare settings, patients' violent behaviors in healthcare facilities is another challenge nurses could face during delivering care for patients in critical care units and other units (Mahran et al., 2017).

Method

-Design of the Study: A descriptive study design (qualitative and quantitative study) was carried out in order to achieve the **objectives of the study**. The study was initiated from October 15th, 2021 through March 25th, 2022.

-Setting of the Study: The study was carried-out at the ICU Center in Baquba teaching hospital.

-The Sample of the Study: A non-probability (purposive) sample of (35) nurses were selected from ICU in Baquba teaching Hospital

-Data collection: Data were collected through the use of a questionnaire by means direct interview with nurses from the January 4th, 2022, until the January 20th, 2022.

-The Study Instrument: A previously prepared questionnaire was used after getting the permission from the original authors. The reliability of the questionnaire was .89 which was acceptable to be used in this research.

-Rating and Scoring: The items of the questionnaire were scored as (One) for yes answer and (zero) for no answer.

Qualitative data analysis

All interviews were transcribed verbatim to be analyzed by using qualitative content analysis approach. This process assisted in achieving saturation of all concepts such that no new category or themes were found (Ellis, 2004; Mayan, 2009; Mikkonen, Kyngäs, & Kääriäinen, 2015).

Such analysis will help determine and code participants' intentions (Mayan, 2009). The researcher of this study applied the steps of qualitative content analysis, which included: Prepare the data, define the unit of analysis, develop categories and a coding scheme, determine the clarity and consistency of the defined categories, code all the text, draw conclusions from the coded data, and Report finding (Cho & Lee, 2014; Zhang & Wildemuth, 2009). By using a mixed method study (Convergent parallel), the researcher collected quantitative and qualitative data at the same time and analyzed separately. After analysis of both data, the researcher compares results for better understanding and drawing study conclusions.

Result

Table (1): Distribution of the Study Sample (Nurses) by their Demographic Characteristics

Gender	F	%
Male	22	62.9
Female	13	37.1
Total	35	100

Age/ years	F	%
21 – 30	24	68.6
31 – 40	10	28.6
41 years and more	1	2.8
Total	35	100
Mean $\pm$ SD	30 $\pm$ 5.5	
Marital status	F	%
Single	10	28.7
Married	23	65.7
Divorced	1	2.8
Widowed	1	2.8
Total	35	100
Education Level	F	%
High school Nursing/ preparatory	7	20
Diploma in Nursing	13	37.2
Bachelor`s degree in Nursing	14	40
Master`s degree in nursing/PhD in Nursing	1	2.8
Total	35	100
Job	F	%
ICU Nurse	33	94.4
Head Nurse of the ICU	1	2.8
Co-Head Nurse of the ICU	1	2.8
Total	35	100
Years of Experience	F	%
Less than 1 year	4	11.4
1 – 5 years	18	51.4
5 – 10 years	9	25.8
More than 10 years	4	11.4
Total	35	100

(F)Frequency; (%) Percentage

Table (1) indicated that the highest percent of the study sample (62.9%) were male nurses within age group (21 - 30) years old whom accounted for (68.6%). The greatest percent for nurses were married and they accounted for (65.7%). Table (1) also presented that (40%) of the study sample have bachelor`s degree in nursing. In addition, (94.4%) of the sample were ICU nurses, and approximately half of them have (1- 5) years of experience in ICU.

Table (2): Challenges Faces Nurses at ICU (N=35)

Items	Yes	No	Mean	Sig.
Workload				
1. Increase in workload	9	26	.25	L
2. Inadequate time to complete the work assigned to a nurse	8	27	.22	L
3. Need to work long hours (as night shift)	16	19	.45	M
4. Large number of patients at ICUs	27	8	.77	H
5. Increase numbers of night shifts	24	11	.68	H
Psychological load				

1. Dealing with severe medical conditions and emergency diseases with little hope of recovery	26	9	.74	H
2. The fear of the possibility of infection from patients	25	10	.71	H
3. Dealing with patients with different values and beliefs	20	15	.57	M
4. Dealing with patients who do not adhere to the instructions	19	16	.54	M
5. Lack of appreciation for his/her efforts	20	15	.57	M
Supportive materials				
1. Lack of availability of beds, examination rooms, and some equipment and medicines	26	9	.74	H
2. Lack of appropriate offices for nurses	28	7	.8	H
3. The presence of some high-tech devices exceed their abilities and cognitive skills did not receive any training before the top handle	8	27	.22	L
4. Unavailability of chance to introduce your abilities and skills	19	16	.54	M
5. Working atmosphere filled with tension and stress	28	7	.8	H
Sense of responsibility				
1. Sense of responsibility for some of the equipment and materials, medicines, and supplies	31	4	.88	H
2. Sense of responsibility for some critical cases	32	3	.91	H
3. Do not specify the duties and responsibilities of nursing	17	18	.48	M
4. Lack of managerial and leadership competence of your superiors	22	13	.62	M
5. Lack of support superiors at work	27	8	.77	H
Role conflict				
1. Working time and long shift are contrary to family	12	23	.34	M
2. Family life is risked by the choice of nursing profession	11	24	.31	L
3. Instability in family life due to increased working hours and night shift	9	26	.26	L

Sig. = significant score. H. = high score (0.67 - 1), M. = moderate score (0.34 - 0.66), L. = low score (0 - 0.33).

Table (2) showed that nurses have higher challenges in ICU in relation to large number of patients in ICU, increase number of night shift, dealing with severe cases, fear from getting infection from patients, lack of availability of beds, lack of appropriate office for nurses, working with tension and stress, sense of responsibilities, and lack of support from superiors.

Table (3): Correlation between domains of challenges facing nurses at ICU (N=35) including workload challenges, psychological load, technical support, sense of responsibility, and role conflict

		Workload challenge	Psychological Load	Supportive Material	Sense responsibility	Role conflict	Total Challenge Score
Workload Challenge	<i>R</i>	1					
	<i>P</i>						
	<i>N</i>						
Psychological Load	<i>R</i>	-.046	1				
	<i>P</i>	.791					
	<i>N</i>	35					
Supportive Material	<i>R</i>	-.068	.254	1			
	<i>P</i>	.699	.141				
	<i>N</i>	35	35				
Sense responsibility	<i>R</i>	.087	.034	.338*	1		
	<i>P</i>	.621	.845	.047			
	<i>N</i>	35	35	35			
Role conflict	<i>R</i>	.275	.055	-.174	-.008	1	
	<i>P</i>	.110	.755	.317	.963		
	<i>N</i>	35	35	35	35		
Total Challenge Score	<i>R</i>	.515	.39	.104	.332	.564	1
	<i>P</i>	.002	.02	.553	.05	.000	
	<i>N</i>	35	35	35	35	35	

Table (3) presented that there was a significant correlation between sense of responsibilities and the presence of supportive materials. In addition, there were significant correlation between the total score of challenge and workload, psychological load, sense responsibility, and role conflict scores, respectively.

Table (4.): Thematic Analysis Findings

R	Themes	Subthemes
1	Nurses' related challenges	Taking responsibilities over the job description Knowledge deficit Difficulties in providing care for unconscious patients at ICU Environmental factor (work environment) Nursing shortage (leads to physical and psychological burdens and affects on the quality of nursing care) Anxiety and fear to get infection of COVID 19
2	Organization's related challenges	Absence of real and clear organization work plan sometimes. Shortage of the infrastructure (absence of rest area for nurses) Absence of enough supplies and supports (PPE and devices)

			Absence of real job description for nurses
			Absence of strict organizations' rule (patients' relative can enter the ICU without prohibition).
3	Patients' challenges	related	Difficulties during contact with patients' relatives
			Violence toward nurses by patients' relatives

1-Nurses' related challenges

Taking responsibilities over the job description

The majority of nurses declared that they work more than their responsibilities as nurses with job description. Participant 1 stated:

To be honest, my role as a nurse if could say "as a nurse" was going beyond what expect from me inside the health institution, because I work more than physicians. I could say, I transfer every oxygen cylinder and supplies which is not my responsibility. Eventhough I work more than my responsibilities, but this situation affect on me in a positive way by increasing my experiences in work and life.

Knowledge deficit

Most of the participant stated that they faced difficulties during their work at ICU, specifically when they were newly employed due to limited knowledge base about work in ICU. Participant 2 stated that: I have encountered challenges and difficulties in learning at the beginning of work in ICU in which I have limited knowledge base about ork at ICU, especially that the presented nursing staff were older healthcare workers and they depend on their work on inherited competencies and not on scientific books or base. In addition to the knowledge deficit about work and health services in ICU, I have limited practices also. I could say that I did not know how to work on devices at ICU, such as monitors, DC shock, and other devices.

Difficulties in providing care for unconscious patients at ICU

Another challenge that face nurses during delivering care at ICU was difficulties to care for unconscious patients. Participant 4 said that "I have faced challenge during treating ICU patients because most of them were unconscious, and there is no contact between me and the patients just through body language or vital signs. I did not receive enough training to treat such cases at ICU."

Environmental factor (work environment)

Most of the participants stated that they face challenge in ICU due to work environment that made them exhausted physically and psychologically. Participant 3 said: I faced difficulties during ICU work from devices ...as I cannot sleep for several months because of the functions and sounds of devices. At the beginning, I did not know what these sounds, such as is it the sound of the monitor of ventilation device? Is it normal sound or as indicator of a critical situation? In addition to the number of patients at ICU.

Nursing shortage (leads to physical and psychological burdens and affects on the quality of nursing care)

All the participants stated that nursing shortage occupies the highest rank of challenges that face them during their work in ICU. Participant 3 said that “increasing number of admitted patients to ICU and injury of nursing staff with COVID 19 lead to nursing shortage and increasing workload on the rest of nurses, which lead to physical and psychological burden, especially anxiety and fear from being infected with COVID 19 and transfer this disease to our family.

Anxiety and fear to get infection of COVID 19

The last nurses' related challenges to deliver care for patients at ICU during pandemic of COVID 19 was anxiety and fear of nurses to be infected with this disease. Participant said that “at the beginning, we do not know how to deal with delivering care for patients and receiving them during pandemic of COVID 19, especially fear from getting infection and transferring this disease to our family”. Participant 10 stated that “nursing care for patients at ICU was decreased because of fear from infection of COVID 19 or transfer this disease to my family, in addition to increasing the number of patients in contrast with nurses. As a result, we cannot deliver high quality and focused nursing care”.

2- Organization's related challenges

Absence of real and clear organization work plan

Most of the study participants stated that there is no clear organization work plan where they work. Participant 9 stated that: One of the challenges that I face was the absence of coordination between organization's units or departments, between the emergency department and ICU. And, most of the time we do not notice that there were critical cases that should be admitted to ICU.

Shortage of the infrastructure (absence of rest area for nurses)

Participant 2 stated that “absence of rest area for nurses at the ICU make me stand along the time of the shift, and this leads to lower back pain and make me fell tired”.

Absence of enough supplies and supports (PPE and devices)

Participant 1 stated that “the presence of one DC shock device at the ICU affects on our work that we cannot make CPR for more than one patient at the same time. It happened and we lost one patient as a result of this shortage”.

Absence of real job description for nurses

Participant 8 stated that “there is no commitment to the job description as a nurse. For instance, I used to work out of my job description at the ICU, such as the head nurse needs from my to accomplish office work, bringing supplies to the unit, and so on”.

Absence of strict organizations' rule (patients' relative can enter the ICU without prohibition)

Participant 3 said that “one of the sensitive issue I faced at ICU was that patients' relatives can enter to the ICU unit at any time”.

3-Patients' related challenges

In addition to the aforementioned challenge, nurses revealed that they face difficulties in working at ICU due to challenges from patients' relatives, including difficulties in contact with patients' relatives and violence toward nurses by patients' relatives.

Difficulties during contact with patients' relatives.

Participant 3 stated that "I cannot do anything for patients' relatives when they enter to the ICU without prohibition".

Violence toward nurses by patients' relatives.

All study participants revealed that they faced or witnessed violence toward nurses by patients' relatives. Participant 3 said that "there is no real protection for nurses in which patients' relatives can assault us at any time".

4-Opportunities and Solutions for the Challenges

The last theme that emerged from participants responses is the opportunities and solutions for the challenges that face nurses during delivering care for patients at ICU during the pandemic of COVID 19. There are several subthemes under the umbrella of this theme, including:

Table (5): Thematic Analysis about Solutions for Challenges faces nurses at ICU during Pandemic of COVID 19

4	Opportunities and solutions for the challenges	Presence of Clear organization work plan
		Appreciation of nurses' work and efforts Training sessions for all nurses to increase their efforts (especially for new ones) Providing appropriate number of nurses at ICU. Availability of appropriate Infrastructure with appropriate supplies. Provide protection for nurses Increase awareness for nurses, healthcare providers, workers, patients, and other personnel about COVID 19, vaccination, and other important issues related to this disease.

Presence of Clear organization work plan

Participant 1 said that "in my opinion, one among several issues if it is applied can assist in confronting and solving work challenges. And this issue is that the organization should be intelligent work area with clear work plan."

Appreciation of nurses' work and efforts

Participant 5 said that "supporting nurses with appreciation, adequate income, and supplies can help in solving challenges that they face at ICU".

Training sessions for all nurses to increase their efforts (especially for new ones)

Participant 2 said that “training nursing staff in a regular manner about treating and managing patients in ICU is an important aspect especially to deal with COVID 19 cases.”

Providing appropriate number of nurses at ICU

Participant 4 stated that “Providing the ICU with competent and well trained nursing staff to deal with critical cases including COVID 19 injured patients can assist in solving problems and challenges at ICU”.

Availability of appropriate Infrastructure with appropriate supplies

Participant 2 stated that “availability of infrastructure that can endure with the number of patients is essential to solve challenges at the work area especially with the availability of appropriate nursing staff, required supplies such as oxygen and PPEs, increase nurses salary, and applying job description”.

Provide protection for nurses

Participant 4 said that “protective nursing staff against violent behaviors from the patients’ relatives can assist in solving one challenge faces nursing at ICU.”

Increase awareness for nurses, healthcare providers, workers, patients, and other personnel about COVID 19, vaccination, and other issues related to this disease

Participant 7 said that “the healthcare institution worked on increasing awareness about COVID 19 through conducting awareness campaigns, distributing awareness posters, and distributing education program about COVID 19 modes of transmission, signs and symptoms, preventive measures, and vaccination”.

Discussion

Table (1) indicated that the highest percent of the study sample (62.9%) were male nurses. This result agrees with study done by (Atiyah et al., 2012), which showed that highest percentage (74.5) of participants were male. Regarding age group, highest percentage of participants were within age group (21 - 30) years old whom accounted for (68.6%). The greatest percent for nurses were married and they accounted for (65.7%). Egyptian research done on 45 nurses to determine the challenge and crises that confronting them during delivering care for patients in critical care units at Assiut University Hospital. The authors of this study found that approximately 68 percent of the study sample were within age group 20 – 30 years old and most of them were married. Table (1) also presented that (40%) of the study sample have bachelor’s degree in nursing. In addition, (94.4%) of the sample were ICU nurses, and approximately half of them have (1- 5) years of experience in ICU. This Egyptian study also reported that 33.33 percent of the ICU nurses at Assiut University Hospital have Diploma degree in nursing, 64.4 percent work as ICU nurse, and 44.4 percent have 1 – 5 years of experience in ICU.

Table (2) showed that nurses have higher challenges in ICU in relation to large number of patients in ICU, lack of appropriate office for nurses, working with tension and stress, sense of responsibilities, and lack of support from superiors. Study done in 2021 reported that several challenges face nurses during delivering care for patients at ICU at the time that OCIVD-19 is present, including poor organization support, work load, nursing shortage, physical stress, and psychological burdens. This reflects that nurses all around the world face challenges to deliver care for patients during pandemic of COVID-197.

Table (3) presented that there was a significant correlation between sense of responsibilities and the presence of supportive materials. In addition, there were significant correlation between the total score of challenge and workload, psychological load, sense responsibility, and role conflict scores, respectively. Study done in Egypt reported that there a significant differences were found between workload and support at ($P = .02$), and between support and sense responsibility at ($P = .008$). This revealed that nurses can take their responsibilities and achieve their duties at the presence of support even with the presence of workload6.

Table(4)

Nurses' Related Challenges

Taking responsibilities over the job description. The first sub theme under the umbrella of nurses' related challenges was taking responsibilities over the job description. The majority of nurses declared that they work more than their responsibilities as nurses with job description. Mahran et al. (2021) also revealed that nurses face challenges at ICU during pandemic of COVID 19 due to they work more that their responsibilities.

Knowledge deficit. The second sub theme under the umbrella of nurses' related challenges was knowledge deficit. Most of the participant stated that they faced difficulties during their work at ICU, specifically when they were newly employed due to limited knowledge base about work in ICU. Moradi et al (2021) declared that nurses' knowledge deficit about COVID 19 considered as a challenge that face them to deal with COVID 19.

Difficulties in providing care for unconscious patients at ICU. The third sub theme was difficulties in providing care for unconscious patients, in which one participant explained that nurses could face difficulties during delivering care for unconscious patients at ICU. This concept faces nurses at ICU especially due to shortage of nurses.

Environmental factor (work environment). The fourth sub theme was environmental factor that effects on nurses. Most of the participants stated that they face challenge in ICU due to work environment that made them exhausted physically and psychologically. Moradi et al (2021) explained that nurses face challenges at ICU due to another factor which is physical tiredness and exhaustion.

Nursing shortage (leads to physical and psychological burdens and effects on the quality of nursing care). The fifth sub theme under the theme of nurses' related challenges was nursing shortage. All the participants stated that nursing shortage occupies the highest rank of challenges that face them during their work in ICU. Moradi et al (2021) and Razu et al (2021) explained that nursing shortage is a significant factor that considered as a challenge faces nurses toward delivering care for patients at ICU during pandemic of COVID 19.

Anxiety and fear to get infection of COVID 19. The last sub theme belonged to nurses' related challenges was anxiety and fear to be infected with this COVID 19 during delivering care for patients at ICU. Razu et al. (2021) conducted descriptive qualitative research on 15 healthcare providers at different hospitals in Khulna and Dhaka city of Bangladesh to explore challenges face the healthcare providers during pandemic of COVID 19.

Organization's Related Challenges

Absence of real and clear organization work plan. The first sub theme under the umbrella of organization's related challenges was absence of real and clear organization work plan. Most of the study participants stated that there is no clear organization work plan where they work. This reflected that nurses need a clear organization rules and plan of work to be on the right way and protected to deliver the required care for patients at ICU.

Shortage of the infrastructure (absence of rest area for nurses). The second sub theme about organization's related challenge was shortage of infrastructure. All study participant to interview presented that there was no special rest area for nurses (nursing staff) and this effects on their physical capabilities and leads to fatigue of the nursing staff. Moradi et al (2021) also presented in their study that nurses face difficulties in finding rest area where they can eat, dress, and take a rest time.

Absence of enough supplies and supports (PPE and devices). The third sub theme about organization's related challenge was absence of supplies and support. Due to shortage in supplies and devices at ICU, all study participants declared that they face challenges in providing care for patients at ICU especially at the time of pandemic of COVID 19. Bakey (2009) revealed that PPE is an essential requirement in protecting nurses against nosocomial infections. So, nurses need this requirement to protect themselves and feel safe against threats from COVID 19.

Absence of real job description for nurses. The fourth sub theme was absence of real job description. Most of participant ensured that there was no clear and real job description for nurses to be followed which can draw and present their duties and responsibilities. Job description is an essential factor that protect nurses and draw their responsibilities, so, nurses depend in this concept to manage their duties.

Absence of strict organizations' rule (patients' relative can enter the ICU without prohibition). The fifth sub theme of organization's related challenges was absence

of strict organizations' rule. Most of the study participants stated that there is no strict organization's rule that should be applied at ICU to be as an isolated unit to care for critically ill patients. Moradi et al (2021) also declared that lack of organization's support for nurses can affect nurse's work and provide challenges among them, and this issue is also supported by Mahran et al. (2021).

Patients' Related Challenges

The third major theme that emerged based on participants' responses was patients' related challenges. In addition to the aforementioned challenge, nurses revealed that they face difficulties in working at ICU due to challenges from patients' relatives, including difficulties in contact with patients' relatives and violence toward nurses by patients' relatives. Mohammed and Bakey (2021) revealed that nurses face difficulties in providing care for patients at ICU due to fear, stress, and anxiety. Difficulties during contact with patients' relatives. The first sub theme under the umbrella of patients' related challenges was difficulties during contact with patients' relatives.

Violence toward nurses by patients' relatives. The second sub theme was violence toward nurses by patients' relatives. All study participants revealed that they faced or witnessed violence toward nurses by patients' relatives. This reflected the critical challenge that nurses at ICU usually face whenever delivering care for patients during COVID 19, and this issue was declared by Mahran et al (2021) as a challenge faces nurses at ICU.

Table(5)

Opportunities and Solutions for the Challenges

Presence of Clear organization work plan. The first sub theme under the umbrella of opportunities and solutions for challenges facing nurses at ICU during pandemic of COVID 19 was presence of clear organization work plan. In response to the question "upon your opinion, how can you deal with these challenges to solve them during the work?" Most of the study participants presented that the organization or healthcare institution can play a significant role in supporting work environment, healthcare team, and solving problems within the working area.

Appreciation of nurses' work and efforts. The second sub theme under the umbrella of solutions of challenges was appreciations of nurses' work. The majority of the study participants mentioned that there should be support to nurses' work and efforts.

Training sessions for all nurses to increase their efforts (especially for new ones). The third sub theme was training sessions for nurses. Most of the study participants reflected that there should be well trained nursing staff at ICU. Providing appropriate number of nurses at ICU. The fourth sub theme was providing appropriate number of nurses. All study participants revealed that the ICU should be supported with appropriate number of nursing staff to be able to deal with increasing number of patients at ICU, especially within the time of COVID 19.

Availability of appropriate Infrastructure with appropriate supplies. The fifth sub theme of solutions was availability of appropriate infrastructure and supplies. The majority of the study participant agreed with the importance of providing appropriate infrastructure that can accept the number of patients and healthcare providers to be able to deal with situation of increasing the admitted patients with COVID 19.

Provide protection for nurses. The sixth sub theme was protecting nurses. All the study participants confirmed that it is highly recommended to provide protection for nurses at ICU and at any area in the hospital. Increase awareness for nurses, healthcare providers, workers, patients, and other personnel about COVID 19, vaccination, and other issues related to this disease. The last sub theme under the umbrella of solutions was increasing awareness about COVID 19. Two participants mentioned the role of healthcare institution in dealing with and confronting COVID 19 as a significant challenge for nurses at ICU

Conclusion

- a) Nurses face challenges to deliver care and work effectively at ICU in Baquba during the pandemic of COVID-19 due to nursing shortage, taking responsibilities, in appropriate supportive materials, psychological stress and load, and conflict in ICU.
- b) Several themes were emerged from nurses' responses to the main research question "To what extent is there a challenge that facing nursing care at intensive care unit during the pandemic of corona virus?". The major themes were nurses' related challenges; organization's related challenges; patients' related challenges; and opportunities and solutions for challenges.
- c) Even with the presence of challenges, nurses' responses revealed solutions for challenges facing them during delivering care for patients at ICU during pandemic of COVID 19, including clear organization work plan, appreciation for nurses' work and efforts, training sessions for nurses, providing appropriate number of nurses at ICU, availability of resources, provide protection for nurses, and increase awareness for nurses and others toward COVID 19
- d) Accomplish future studies on a large population to evaluate challenges facing nurses in Iraq during pandemic of COVID-19 to be able to generalize results.
- e) Encourage support for nurses to take their responsibilities even within a stressful work environment, in addition to efforts to decrease such stressful work conditions

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