

# Experience of discomfort and its self-management strategies in ICU patients

Pouran Tavakoli<sup>1</sup>, Mohammad Ali Cheraghi<sup>2</sup>, Simin Jahani<sup>3</sup>,  
Marziyeh Asadizaker<sup>3</sup>

<sup>1</sup>Ph.D. Candidate, School of Nursing and Midwifery, Nursing Care Research Center in Chronic Disease, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran, <sup>2</sup>Intensive Care & Management Nursing Department, School of Nursing and Midwifery, Research Center of Quran, Hadith, and Medicine, Spiritual Health Group, Tehran University of Medical Sciences, Tehran, Iran, <sup>3</sup>Department of Medical and Surgical Nursing, School of Nursing and Midwifery, Nursing Care Research Center in Chronic Disease, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

## ABSTRACT

**Introduction:** Discomfort in patients admitted to the ICU occurs due to various reasons and leads to a stressful situation in these patients. Discomfort significantly affects the ability to cope psychologically, the process, and results of treatment. The aim of this study was to investigate the experiences of discomfort and its self-management strategies in patients admitted to the ICU. **Methods:** This qualitative study was conducted in the period of September 2019 to December 2020 through in-depth interviews with 13 patients admitted to the ICU who were selected by purposive sampling. Interviews continued until data saturation. All interviews were recorded, transcribed, and analyzed using MAXQDA18 software by the conventional Lundman and Graneheim content analysis method. **Results:** The two main themes including “hospitalization with anxiety” and “coping with the horror of ICU” emerged from the uncomfortable experiences of patients admitted to the intensive care unit. “Hospitalization with anxiety” included five subthemes: “fear of disability and possible death,” “separation from family,” “understanding ambiguity and contradiction in treatment,” “environmental disruptors,” and “painful and unfamiliar devices and treatments.” “Coping with the horror of ICU” included three subthemes: “recourse to spirituality,” “benefiting from psychosocial coping,” and “information search.”

**Keywords:** Discomfort, intensive care unit, self-management

## Introduction

As the population grows and societies become industrialized, the demand for intensive care is increasing and millions of people are admitted to the ICU due to health crises each year around the world. The purpose of creating an ICU is to provide the highest quality care for all severely injured patients.<sup>[1,2]</sup> In ICU,

specialized human resources try to provide the best medical and care services to patients using advanced technological equipment. According to the results of studies, specialized care in the ICU has increased the hope of recovery of patients in life-threatening conditions. These treatments have significantly increased patient return to life by reducing their mortality.<sup>[3]</sup> In recent years, good access to intensive care is one of the important components in evaluating the efficiency and quality of health care devices, which indicates the prominent role of the ICU in achieving therapeutic and patient care goals.<sup>[4]</sup>

Staying in the ICU potentially saves lives, but admission to this ward does harm to patients. The extent of ICU injuries

**Address for correspondence:** Dr. Simin Jahani, Department of Medical and Surgical Nursing, School of Nursing and Midwifery, Nursing Care Research Center in Chronic Disease, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran. E-mail: jahanisimin50@yahoo.com

Received: 12-03-2021

Revised: 18-06-2021

Accepted: 18-10-2021

Published: 31-01-2022

### Access this article online

#### Quick Response Code:



Website:  
www.jfmpc.com

DOI:  
10.4103/jfmpc.jfmpc\_481\_21

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow\_reprints@wolterskluwer.com

**How to cite this article:** Tavakoli P, Cheraghi MA, Jahani S, Asadizaker M. Experience of discomfort and its self-management strategies in ICU patients. J Family Med Prim Care 2022;11:269-76.

to patients is such that the term ICU Trauma is used.<sup>[5]</sup> The patient's comfort is impaired in ICU Trauma.<sup>[6]</sup> Comfort is a comprehensive, mental, and multidimensional concept that is influenced by physical, environmental, social, and psychological contexts that change over time and space.<sup>[7]</sup> This change is the result of people's interactions with themselves, those around them, and the situations they face in the process of illness and health care.<sup>[8]</sup> The results of previous studies show that a significant proportion of patients discharged from the intensive care unit had memories of discomfort during their stay in the ICU. Some studies attribute ICU injuries and the experience of discomfort to the nature of the ICU, stating that items such as artificial light, intubation, patient care measures such as suctioning secretions, collecting blood samples, measuring vital signs, prescribing medication, assessing the amount of output through the catheter and bath, irritates the patient and leads to his discomfort.<sup>[9-11]</sup> The patient's discomfort deprives him of peace and, by stimulating the nervous system and causing anxiety, leads to intolerance to treatments and care, leading to the complication of the situation. The patient's discomfort leads to restlessness, irritability, and psychological damage, in which case the medical staff also loses the desired conditions for optimal functioning.<sup>[12,13]</sup> Paying attention to patient comfort in the ICU is of particular importance. One of the professional goals of nurses is to ensure patient comfort. This can be achieved by understanding the needs of care and performing scientific, human, ethical, and communication care; therefore, it is necessary to identifying and how to do it in patients.<sup>[14]</sup>

Understanding the causes of discomfort in patients and their self-management strategies can broaden the efficacy of therapists and help them to adjust the conditions that cause discomfort in patients. Therapists, by accessing patient's sources of discomfort during care, support them against these factors, and by recognizing patient's self-management strategies, plan and take action to maintain and strengthen these strategies. Previous studies have often been quantitative and focused on specific aspects of discomfort, and patients' self-management strategies have rarely been considered. A qualitative approach was chosen for the present study because deep and comprehensive knowledge of phenomena is usually provided by qualitative studies.<sup>[15]</sup> Therefore, the present study was performed to achieve the experience of discomfort and its self-management strategies in ICU patients.

## Materials and Methods

### Study design

The present study was conducted using a qualitative method using content analysis to gain a deeper understanding of participant's experiences regarding the experience of discomfort and its self-management strategies in ICU patients between September 2019 and December 2020. Qualitative study method is useful in clarifying the relationships between variables and achieving a new attitude, describing and visualizing areas that have not been well studied, and is helpful in understanding social phenomena from the perspective of people involved.<sup>[16]</sup> This study was performed

in the ICU of Ahvaz Teaching Hospitals, Khuzestan Province, in southwestern Iran.

### Sampling

This study was performed with the participation of 13 patients. Participants were selected using purposive sampling. Participation of participants was based on their willingness to share their experiences and in a purposeful way. Patients were conscious for at least 72 hours after admission to the ICU and had no acute pain at the time of the interview. Participants' differences in age, sex, education, occupation, and marital status were taken into account for maximum diversity.

### Data collection

In this study, in-depth face-to-face interviews were the main method of data collection. Interviews were conducted in the patients' unit at a time when therapists were not caring for them. The interviews were recorded by a tape recorder. At the end of the interviews, field notes were recorded and used in the analysis process. Thirteen patients were interviewed 14 times (one patient was interviewed twice) for 35 to 50 minutes. The interviews began with general questions such as "How did you experience comfort in the ICU? When did you feel comfortable? What made you uncomfortable? What do you do when you experience discomfort, and how do you feel about doing it?" Probing questions such as "Can you give an example of this? and Please explain more about this." were also used according to the concepts in the participant's statements.

### Data analysis

Data were collected and analyzed at the same time. After listening several times, the interviews were implemented in Microsoft Word. Data analysis of this study was performed using content analysis method according to 5 steps of Graneheim and Lundman method.<sup>[17]</sup> The resulting texts were coded word by word or sentence by sentence or even paragraph by paragraph. Then, the classification process began by comparing the resulting codes and based on their similarities and differences. First, subthemes were formed, and then themes emerged by constantly comparing them and performing the act of reduction. To ensure attention to the whole data, the text of the interviews and the coding were repeated several times. The analysis started after the first interview and continued until new data appeared. In order to verify the data and the extracted codes, the texts of the interviews and the codes extracted from them were provided to the participants, which the majority of whom confirmed the items. In order to review the text of some of the interviews, the extracted codes and themes, in addition to the research team, were reviewed and applied by three faculty members who were familiar with the qualitative research method. Diversity in the selection of participants was considered to increase portability. Encryption was managed using MAXQDA18 software.

### Ethical considerations

This study was approved by the ethics committee of Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran with

the code IR.AJUMS.REC.1398.269. Ethical considerations included taking informed consent from participants, reassuring participants that information was confidential, keeping participants confidential, obtaining permission to record their voices, and voluntarily participating in the study.

## Results

### Sample specifications

Thirteen participants in the study included 5 females and 8 males, aged 17–61. Participants' level of education ranged from elementary to bachelor's and 77% were married. The details of the participants are given in Table 1.

### Content analysis

530 open codes and 190 initial codes were obtained from the analysis of 14 in-depth interviews which were categorized after continuous comparison. The result was 2 Themes and 8 Subthemes [Table 2].

### 1- Hospitalization with anxiety

Because patients are admitted to the ICU following the occurrence or potential risk to their health and life; therefore, after this hospitalization, stress is applied to the patient from various sources. The stresses cause the patient to lose peace and discomfort and subsequently occur such things as irritability, anxiety, restlessness, and intolerance to procedures. Patients

have many experiences with stressors. Almost all participants in the present study share their experiences, including fear of disability and possible death, separation from family, perception of ambiguity and contradiction in treatment, environmental disruptors, and unfamiliar devices and painful procedures, which were cited as reasons for their discomfort in the ICU.

### 1-1- Fear of disability and possible death

According to most participants, ICU patients are at the end of their life. They stated that patients admitted to the ICU were likely to die soon or with a disability be unable to return to normal life. In this regard, one of the participants stated:

*"I was very scared when I opened my eyes after the surgery and realized I was in the ICU. I told myself I was done!" (Patient, 53-year-old man).*

Another participant, whose sister had previously had her spinal cord amputated, said: *"Every time they said ICU, I immediately thought of spinal cord amputation and things like that. After the lumbar disc surgery, I was very shocked when I saw myself in the ICU. I always thought I had my spinal cord amputated. I was scared, even my legs were numb and did not move." (Patient, 43-year-old woman).*

Another contributor stated:

*"A few days after the accident, when I came out of a coma and realized I was in the ICU, I was really scared." (Patient, 19-year-old man).*

Table 1: Participant's specifications

Participant	Gender	Age	Marital status	Educational level	Type of ICU	Days of hospitalization
P1	M	41	Married	Bachelor	Surgery ICU	7
P2	M	35	Married	Diploma	General ICU	5
P3	F	61	Married	Associate Degree	Neurosurgery ICU	6
P4	M	19	Single	Student	Surgery ICU	15
P5	F	30	Married	Bachelor	Surgery ICU	4
P6	F	17	Single	Student	Orthopedic ICU	3
P7	M	53	Married	Elementary	Neurosurgery ICU	9
P8	M	29	Single	Bachelor	General ICU	6
P9	M	48	Married	Associate Degree	Orthopedic ICU	3
P10	F	43	Married	Bachelor	Surgery ICU	8
P11	M	40	Married	Bachelor	Neurosurgery ICU	13
P12	M	34	Married	Diploma	Orthopedic ICU	4
P13	F	52	Married	Associate Degree	Surgery ICU	5

Table 2: Themes and subthemes of coping with the experience of discomfort in the ICU as the main theme

Main theme	Theme	Subtheme
Experience of discomfort and it's self-management in ICU patients	Hospitalization with anxiety	Fear of disability and possible death
		Separation from family
		Understanding ambiguity and contradiction in treatment
		Environmental disruptors
		Unfamiliar devices and painful treatments
	Coping with the horror of ICU	Recourse to spirituality
		Benefiting from psychosocial coping
		Information search

## 1-2- Separation from family

Participants were upset by the separation from their loved ones and suffered from it. They stated that being away from their loved ones made it difficult for them to endure difficult physical and mental conditions. Patients also believed that meeting with loved ones brought them peace of mind and increased their hope of recovery. In this regard, one of the participants stated:

*"When I am deprived of seeing my family in these difficult circumstances, it is clear that I am getting stressed. I really want to separate all the devices from myself and go to them." (Patient, 52-year-old woman).*

In this regard, another participant stated:

*"Why don't they let the family remember us? Only one hand moves from behind the glass. I do not hear their voices either. Because I do not understand what they are saying, I get upset." (Patient, 41-year-old man).*

Some patients said they were worried about their companions in the hospital and worried about their possible problems. In this regard, one of the participants stated:

*"I am always worried about my daughter who is waiting around the clock in the hospital and in the ICU. Am I worried about getting food? I do not know where she rests. I'm afraid she'll get so sick!" (Patient, 48-year-old man).*

## 1-3- Understanding ambiguity and contradiction in treatment

Most participants were interested in honest communication, frankness, and truth-telling from therapists, especially physicians, about their treatment status. They stated that therapists often make contradictory statements about their condition and hope for treatment and recovery, which causes confusion and ambiguity in their minds. Feelings of powerlessness, fragility, and vulnerability following confusion and ambiguity lead to their discomfort. In this regard, one of the participants stated:

*"Today, the doctor comes and says that the operation was very good, you will get up soon and you will not have any special complications. Tomorrow another doctor will come and say that it is too early for me to comment. Maybe you will have a series of complications after the operation!" (Patient, 35-year-old man).*

Another participant said:

*"The doctor must explain to me clearly what happened! I need to know what happened to me or what might happen next! "It's my right to tell me honestly whether I will be treated or not!" (Patient, 29-year-old man).*

The unavailability of some of the required drugs, the poor quality of the available drugs, the incompatibility of drug prices with patients' financial ability, insufficient insurance coverage, and the high cost of treatment lead to more confusion and discomfort in patients. In addition, participants are expected to receive new

and up-to-date treatments that help reduce their discomfort by increasing their hope of recovery. In this regard, one of the participants stated:

*"First of all, for the operation of such and such a device, it is necessary that my family, with a thousand efforts, procure it from another city at a high price. Needless to say! "Well, that upset me a lot." (Patient, 30-year-old woman).*

In this regard, another participant stated:

*"The doctor who visited me the first week said that some medicine would help you a lot. My family, with a thousand misfortunes, provided that expensive medicine, even though the insurance does not accept that medicine; but the next week, when the ward doctor changed, he said that this medicine had no special effect on my illness!" (Patient, 48-year-old man).*

## 1-4- Environmental disruptors

According to the participants' experiences, the ICU-specific environment includes factors and conditions that overshadow patients' comfort and lead to their discomfort; these include therapists' actions during fluctuations in patients' vital signs, care of connections and devices, and interference with comfortable sleeping position, immobility, and sleep disturbance due to staff noise and lighting, heating, and cooling system problems. Fan was observed in field observations near the bed of some patients. Participants stated:

*"When a patient becomes ill, the ward falls apart, all the doctors and nurses are gone. This upsets me. I know they are rescuing someone from death, but I am subconsciously restless and upset." (Patient, 29-year-old man).*

Another contributor stated:

*"I cannot sleep well here. I must be careful that these devices do not separate from me so that they sound the alarm! You can't sleep in the light either. I wake up to their noise when I fall asleep by force." (Patient, 48-year-old man).*

Another participant who had problems with immobility said:

*"It's very difficult to be in bed all the time. Sit or lie down all the time. Neither mobile nor TV! I wish I could come down a little, walk a little." (Patient, 17-year-old woman)*

Fan was observed in field observations near the bed of some patients. In this regard, one of the participants said:

*"It's not right at all that the ICU does not have a cooling system, I was very upset by the heat, so my family brought me a fan." (Patient, 41-year-old man).*

## 1-5- Unfamiliar devices and painful treatments

Life-saving measures in the ICU are performed using technological devices and specialized procedures, the unfamiliarity of which is frightening and uncomfortable for the patient. One of the participants said about the arterial line in his hand and its connection to the manometer:

*"For example, this thing that I put on my wrist makes me both annoyed and afraid to make the slightest move, because I think it will break and be dangerous for me!" (Patient, 53-year-old man).*

A series of procedures that are performed daily and sometimes continuously to check the patient's condition and vital signs cause pain and discomfort for the patient. One of the patients said about taking an arterial blood sample to control blood gases: *"They insert this needle into a vein ten times a day, it hurts a lot! Not once or twice! All pain! How many times a day is it necessary to check blood gas!" (Patient, 17-year-old girl).*

## 2- Coping with the horror of ICU

Participants used strategies to moderate the situation and reduce their discomfort, including recourse to spirituality, benefiting from psychosocial coping, and seeking information.

### 2-1- Recourse to spirituality

Almost all participants in the study mentioned that they use spirituality to help them cope with the situation. Hope in God was cited as the most important comforting factor, and they used spiritual beliefs such as trusting in God and being content with God's providence to reduce their unhappiness. In this regard, one of the participants said:

*"At first I was very confused about why I have a tumor in my head! I was upset about everything. I thought that if I died, I and my family would be relieved; but little by little I collected myself. I trusted in God and said, 'God, you made me sick, and heal me.' " (Patient, 34-year-old man).*

A patient who suffered multiple fractures in a severe accident but survived stated:

*"It is true that everyone broke the cup, but I thank God that I survived and my mother did not see my death. By this, God proved his mercy to me, because if I died, my mother would be destroyed." (Patient, 19-year-old man).*

In one of the field observations, the patient's secret and need and raising his hands to the sky was observed. At the end of the prayer, he said:

*"I know that everything is under the power of God. If he wants to, he will heal me. If he does not want to. I am satisfied with God's will. Even if I am not well, I still know that it is not good, otherwise it is not difficult for God." (Patient, 61 year old woman).*

### 2-2- Benefiting from psychosocial coping

Participants tried to use self-management strategies to maintain and strengthen their morale, and benefited from such things as positive thinking, comparing themselves to those with more serious illnesses, and hope for the future. In this regard, one of the participants said:

*"I tell myself the world has not come to an end! I'm still alive. I think of those who have a malignant disease and are waiting to die. Then I get in the mood and think of good days in the future." (Patient, 41-year-old man).*

Another contributor commented on the motivation:

*"People's health varies. They may be healthy one day and sick the next! After all, illness is a part of life. A strong man is one who leaves behind hard days!" (Patient, 35-year-old man).*

Hope for healing and having a good day ahead were some of the things the participants enjoyed. In this regard, one of the participants said:

*"I know that now medical science has advanced and someone is being treated for my condition, I just have to endure until the treatment is complete." (Patient, 30-year-old woman).*

Participants also acknowledged that they have used available resources, including support from family and friends, in an effort to cope. In this regard, one of the participants stated:

*"My family is working hard to treat me. Being by my side all the time. Do not leave me in the hospital for a moment. I will not hesitate to do anything for the cost of my treatment." (Patient, 29-year-old man).*

Benefiting from good communication with therapists was also one of the strategies to increase tolerance in some participants. In this regard, one of the participants said:

*"It's very difficult to stay in the ICU. You do not see anyone, all in bed and a series of devices that are connected to a person and make noise. I try to talk to the doctor and the nurse, even joking." (Patient, 48-year-old man).*

Married patients also cited the role of their spouses as a source of hope and effort to endure the situation and return to life. In this regard, one of the participants stated:

*"From the first day I had a headache, I went to the doctor at my husband's insistence, and my action was at his insistence. Now that everyone is cheering me up." (Patient, 43-year-old woman).*

### 2-3- Information search

Information search was a common strategy among all participants. Gaining knowledge and information about the disease and its complications, as well as medications and treatment was one of the methods used by the participants in this study. Prognosis was the most important factor in disease tolerance. In this regard, one of the participants said:

*"I was shocked to hear that I had this disease. But when the doctor explained the illness and treatment to me, I came to my senses and prepared for treatment." (Patient, 38 years old).*

In the search for information, the manner and extent of response to treatment was of particular importance to participants. In this regard, one of the participants said:

*"I really wanted to ask the doctor how I was doing. What percentage was successful?" (Patient, 41-year-old man).*

The search for information was not limited to physicians and other therapists, and participants reportedly sought help from sources such as the Internet and other people's experiences. In this regard, one of the participants stated:

*"After talking to the doctor, I started searching in the Internet." I found a lot of information, of course I did not understand all of it, but it was very good." (Patient, 35-year-old man).*

## Discussion

In the present study, the experience of discomfort and its self-management strategies were considered in ICU patients. Participants used ICU coping strategies to respond to their anxiety-induced hospitalization experience. The concept of the experience of anxious hospitalization, which is derived from the experiences of the participants, is formed following the fear of disability and possible death, separation from loved ones, understanding of ambiguity and contradiction in treatment, environmental disruptors, and unfamiliar devices and painful procedures. The stress of ICU admission and the loss of patient comfort have been noted in many studies because this hospitalization is usually unexpected and signals a threat to a person's vital condition.<sup>[18,19]</sup> Many ICU patients either find themselves at risk of death or are likely to develop a disability. The likelihood of imminent death makes patients uncomfortable because they generally see the ICU as a place to care for dying patients.<sup>[20,21]</sup> Separation from family is another issue that bothers ICU patients. Patients and their families experience severe anxiety when separated from each other.<sup>[22]</sup> Also, one of the sources of discomfort in the participants of this study was the understanding of ambiguity and contradiction in treatment, which has been considered in many studies. Patients expect to receive clear and accurate information and hearing the prognosis and treatment is one of their preferences. The nature of the ICU and its prevailing conditions for the survival of patients include factors that impair patient comfort.<sup>[23,24]</sup> Because the ICU environment is mainly based on continuous observation and monitoring of the patient and has a unique complexity to achieve this goal, these conditions mainly interfere with patients' sleep and lead to their inactivity.<sup>[25-27]</sup> Unfamiliar devices and painful procedures have also led to the discomfort of the study participants, which is consistent with many studies. Pain is a common and distressing symptom experienced by intensive care patients at a rate of 40%–77%.<sup>[28-30]</sup>

Participants used spirituality, psychosocial coping, and information search to counter the horror of the ICU. Recourse to spirituality was widely used by participants. In fact, religious-spiritual confrontation is aided by faith, religion, or spirituality in coping with stressful situations and enduring critical moments throughout life.<sup>[31-33]</sup> The results of studies show that resorting to spirituality is useful in managing stress and coping with difficult situations.<sup>[34-36]</sup> Patients try to endure the situation and maintain their mental health by hoping for the presence and power of God. Participants have used items such

as positive thinking, hope for treatment and a bright future, self-motivation, benefiting from support resources including family and friends, and benefiting from favorable relationships with therapists in psychosocial coping, which was consistent with the results of numerous studies.<sup>[37]</sup> The results of the present study and other studies show that psychosocial coping is effective by using the role of social support from family and friends and is a factor that can directly and indirectly affect the coping of people with severe illness.<sup>[38]</sup> Information search was a common strategy among all participants in this study, which is supported and confirmed by the results of numerous studies. Given that obtaining sufficient information to ensure patients' comfort allows people to anticipate and feel of control over the situation, it can be used as an effective factor.<sup>[39]</sup> The results of other studies have shown that the lack of information about the health status, severity of the disease, its complications and treatment methods is stressful for patients. Receiving incomplete information leads to anxiety and frustration in patients, as well as the emergence of discomfort and resistance to treatment in them. Hence, patients seek information to overcome discomfort.<sup>[40]</sup>

## Conclusion

This study explained the resources related to the experience of discomfort in ICU patients and the self-management strategies of these patients in the face of discomfort. Knowing the sources of discomfort can be helpful in managing, correcting, and reducing them. Patients' experiences of self-management strategies also highlighted the need for psychological, spiritual, and social support, as well as the need for information to cope with discomfort.

## Acknowledgment

This article is part of a doctoral dissertation in nursing specialty, prepared by Pouran Tavakoli, a student of Ahvaz Jundishapur University of Medical Sciences. The related project was approved (project No. NCRCCD-9813) by the Chronic Diseases Research Center. The authors would like to express their gratitude to the Research Vice-Chancellor of the university for financially supporting the present research. Researchers hereby express their gratitude to all the participants in this study.

## Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

## Financial support and sponsorship

Nil.

## Conflicts of interest

There are no conflicts of interest.

## References

- Vincent J-L, Singer M, Marini JJ, Moreno R, Levy M, Matthay MA, *et al.* Thirty years of critical care medicine. *Crit Care* 2010;14:1-8.
- Ward NS, Afessa B, Kleinpell R, Tisherman S, Ries M, Howell M, *et al.* Intensivist/patient ratios in closed ICUs: A statement from the Society of Crit Care Medicine Taskforce on ICU Staffing. *Crit Care Med* 2013;41:638-45.
- Caser EB, Zandonade E, Pereira E, Gama AMC, Barbas CS. Impact of distinct definitions of acute lung injury on its incidence and outcomes in Brazilian ICUs: Prospective evaluation of 7,133 patients. *Crit Care Med* 2014;42:574-82.
- Vincent JL, Marshall JC, Namendys-Silva SA, François B, Martin-Loeches I, Lipman J, *et al.* Assessment of the worldwide burden of critical illness: The intensive care over nations (ICON) audit. *Lancet Respir Med* 2014;2:380-6.
- Chivukula U, Hariharan M, Rana S, Thomas M, Swain S. Role of psychosocial care on ICU trauma. *Indian J Psychol Med* 2014;36:312-6.
- Prince E, Gerstenblith TA, Davydow D, Bienvenu OJ. Psychiatric morbidity after critical illness. *Crit Care Clin* 2018;34:599-608.
- Kolcaba KY. A theory of holistic comfort for nursing. *J Adv Nurs* 1994;19:1178-84.
- Freitas K. Construção e Validação da Escala de Conforto Para Familiares de Pessoas em Estado Crítico de Saúde (ECONF). Salvador (BA): Universidade Federal da Bahia, Programa de Pós-Graduação em Enfermagem; 2012;21:896-904.
- Vahedian-Azimi A, Bashar FR, Khan AM, Miller AC. Natural versus artificial light exposure on delirium incidence in ARDS patients. *Ann Intensive Care* 2020;10:1-3.
- Meriläinen M, Kyngäs H, Ala-Kokko T. Patients' interactions in an intensive care unit and their memories of intensive care: A mixed method study. *Intensive Crit Care Nurs* 2013;29:78-87.
- Zetterlund P, Plos K, Bergbom I, Ringdal M. Memories from intensive care unit persist for several years—A longitudinal prospective multi-centre study. *Intensive Crit Care Nurs* 2012;28:159-67.
- Guttormson JL. "Releasing a lot of poisons from my mind": Patients' delusional memories of intensive care. *Heart Lung* 2014;43:427-31.
- Wade DM, Brewin CR, Howell DC, White E, Mythen MG, Weinman JA. Intrusive memories of hallucinations and delusions in traumatized intensive care patients: An interview study. *Br J Health Psychol* 2015;20:613-31.
- Shahriari M, Khalili A, Shamsizadeh M, Mardani D, Paymard A, Molavi Vardanjani M. Effects of foot reflexology on pain in patients after lower limb amputation. *J Mazandaran Univ Med Sci* 2016;26:18-26.
- Polit DF, Beck CT. *Essentials of Nursing Research: Appraising Evidence for Nursing Practice*. 8<sup>th</sup> ed. Philadelphia: Wolters Kluwer & Wilkins Health; 2014.
- Mohajan HK. Qualitative research methodology in social sciences and related subjects. *J Econ Dev Environ People* 2018;7:23-48.
- Graneheim UH, Lundman B. Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Educ Today* 2004;24:105-12.
- O'Donnell ML, Creamer M, Holmes AC, Ellen S, McFarlane AC, Judson R, *et al.* Posttraumatic stress disorder after injury: Does admission to intensive care unit increase risk? *J Trauma Acute Care Surg* 2010;69:627-32.
- Garrouste-Orgeas M, Flahault C, Vinatier I, Rigaud J-P, Thieulot-Rolin N, Mercier E, *et al.* Effect of an ICU diary on posttraumatic stress disorder symptoms among patients receiving mechanical ventilation: A randomized clinical trial. *JAMA* 2019;322:229-39.
- Wright AA, Keating NL, Balboni TA, Matulonis UA, Block SD, Prigerson HG. Place of death: Correlations with quality of life of patients with cancer and predictors of bereaved caregivers' mental health. *J Clin Oncol* 2010;28:4457-64.
- Schenker Y, Crowley-Matoka M, Dohan D, Tiver GA, Arnold RM, White DB. I don't want to be the one saying 'we should just let him die': Intrapersonal tensions experienced by surrogate decision makers in the ICU. *J Gen Intern Med* 2012;27:1657-65.
- Hashim F, Hussin R. Family needs of patient admitted to intensive care unit in a public hospital. *Procedia Soc Behav Sci* 2012;36:103-11.
- Cypress BS. Understanding uncertainty among critically ill patients in the intensive care unit using Mishel's theory of uncertainty of illness. *Dimens Crit Care Nurs* 2016;35:42-9.
- Giovannetti A, Černiauskaitė M, Leonardi M, Sattin D, Covelli V. Informal caregivers of patients with disorders of consciousness: Experience of ambiguous loss. *Brain Inj* 2015;29:473-80.
- Hu R-F, Jiang X-Y, Zeng Y-M, Chen X-Y, Zhang Y-H. Effects of earplugs and eye masks on nocturnal sleep, melatonin and cortisol in a simulated intensive care unit environment. *Crit Care* 2010;14:1-9.
- Demoule A, Carreira S, Lavault S, Pallanca O, Morawiec E, Mayaux J, *et al.* Impact of earplugs and eye mask on sleep in critically ill patients: A prospective randomized study. *Crit Care* 2017;21:1-9.
- Eijkelenboom A, Bluysen PM. Comfort and health of patients and staff, related to the physical environment of different departments in hospitals: A literature review. *Intell Build Int* 2019;1-19. doi: 10.1080/17508975.2019.1613218.
- Devlin JW, Skrobik Y, Gélinas C, Needham DM, Slooter AJ, Pandharipande PP, *et al.* Clinical practice guidelines for the prevention and management of pain, agitation/sedation, delirium, immobility, and sleep disruption in adult patients in the ICU. *Crit Care Med* 2018;46:e825-73.
- Chazan S, Buda I, Neshar N, Paz J, Weinbroum AA. Low-dose ketamine via intravenous patient-controlled analgesia device after various transthoracic procedures improves analgesia and patient and family satisfaction. *Pain Manag Nurs* 2010;11:169-76.
- Gélinas C. Management of pain in cardiac surgery ICU patients: Have we improved over time? *Intensive Crit Care Nurs* 2007;23:298-303.
- Harris GM, Allen RS, Dunn L, Parmelee P. "Trouble won't last always" religious coping and meaning in the stress process. *Qual Health Res* 2013;23:773-81.
- Loetz C, Müller J, Frick E, Petersen Y, Hvidt NC, Mauer C. Attachment theory and spirituality: Two threads converging in palliative care? *Evid Based Complement Alternat Med* 2013;2013:740291.
- Jaberi A, Momennasab M, Yektatalab S, Ebadi A, Cheraghi MA. Spiritual health: A concept analysis. *J Relig Health* 2019;58:1537-60.

34. Freire MEM, Sawada NO, de França ISX, da Costa SFG, Oliveira CDB. Qualidade de vida relacionada à saúde de pacientes com câncer avançado: Uma revisão integrativa. *Rev Esc Enferm USP* 2014;48:357-67.
35. Borji M, Tarjoman A. Investigating the effect of religious intervention on mental vitality and sense of loneliness among the elderly referring to community healthcare centers. *J Relig Health* 2020;59:163-72.
36. Cheraghi MA, Payne S, Salsali M. Spiritual aspects of end-of-life care for Muslim patients: Experiences from Iran. *Int J Palliat Nurs* 2005;11:468-74.
37. King J, O'Neill B, Ramsay P, Linden MA, Medniuk AD, Outtrim J, *et al.* Identifying patients' support needs following critical illness: A scoping review of the qualitative literature. *Crit Care* 2019;23:1-12.
38. Langerud AK, Rustøen T, Småstuen MC, Kongsgaard U, Stubhaug A. Health-related quality of life in intensive care survivors: Associations with social support, comorbidity, and pain interference. *PLoS One* 2018;13:e0199656.
39. Lewis SR, Pritchard MW, Schofield-Robinson OJ, Evans DJ, Alderson P, Smith AF. Information or education interventions for adult intensive care unit (ICU) patients and their carers. *Cochrane Database Syst Rev* 2018;10:CD012471.
40. Pian W, Song S, Zhang Y. Consumer health information needs: A systematic review of measures. *Inf Process Manag* 2020;57:102077.