Assessment of Bio-Psychosocial and Educational Needs for Critically Ill Patients

Rehab Galal Shawan Awad [(1)], Kamelia Fouad Abdallah[(2)], Asmaa Mohamed Khorais [(3)]

(1) B.Sc., in Nursing Science, Faculty of Nursing, Benha University
(2) Professor of Medical Surgical Nursing, Faculty of, Nursing Ain Shams University
(3) Assistant Professor of Medical Surgical Nursing, Faculty of Nursing, Ain Shams University

Abstract

Background: Bio-psychosocial is an approach includes the influences of biological, psychological and social factors when looking at overall health. The bio-psychosocial approach focuses on the biology or physiology underlying health; the psychology of thoughts, feelings, and behaviors influencing health; and the ways that society and culture all influence health. **Aim:** to assess bio-psychosocial and educational needs for critically ill patients **Design:** A descriptive exploratory research design was utilized to assess bio psycho social & educational needs for critically ill patients. This study was conducted in intensive care unit at Benha teaching hospital. A purposive sample of (285) patients for critical ill patients were included in the study. **Tool:** Interview questionnaire was used for data collection, which included four tools; Patients' interview questionnaire, Patients' physical assessment sheet,Patients' psychological assessment scales and Patients' Social Dysfunction Rating Scale **Results & Conclusion:** Regarding educational needs, less than half of studied patients (46%) had unsatisfactory level of total knowledge as regarding disease and therapeutic regiment indicated high educational needs. Regarding physical needs mean scores of the studied patients, as, the highest total mean scores among them were regarding total body systems need followed by pain & daily living activities (16.14 ± 6.34, 7.6 ± 5.4&3.2± 3.7) respectively. As regards psychological needs, more than half of the patients (50.5%) had severe anxiety level and more than one third of them (38.9%) had severe level of depression. Regard social needs, there was more than half of the studied patients (50.9%) had severe social dysfunction. **Recommendations**: Multidisciplinary team approach is necessary for management of critical ill patients for meeting their bio psycho social & educational needs. Further studies are recommended to study the effect of designing& implementing educational program for nurses based on bio-psycho social &educational needs for critical ill patients to improve their performance and consequently enhance the quality of life for such group of patients.

Key words: Educational need, Bio-psychosocial needs, Critically ill patients

Introduction

Critical care unit (CCU) also is known as an intensive care unit (ICU) ,both have the same meaning and offer the same type of care.The critical care is appropriate for hospital patients of every age who are severely ill. Patients may go to the ICU from the Emergency Department, or may move

there from the general hospital ward if they become critically ill **(Varon, 2021)**.

Examples of patients who need critical care includes those who undergo very invasive surgery or who have poor outcomes after surgery, those who are severely injured in an accident, people with serious infections, or people who have trouble breathing on their own and require a ventilator to breathe for them. Some common conditions that require critical care are (heart problems, lung problems, organ failure, brain trauma, blood infections (sepsis), serious injury (car crash, burns) and drug-resistant infections) **(Poncette *et al.*, 2019).**

A bio-psychosocial model is a holistic approach that acknowledges the interaction between physical, psychological and social aspects to patient care and well-being. Patients are considered as beings-in-relationship, and illness is regarded as a disruptive force in the biological relationships that can impact all other relational aspects of the patient. This holistic model to patient care focuses on the intrapersonal interactions of the physical body and the mind-body connection and the patient's extra-personal relationships with the physical environment, family, friends, and communities (**Galbadage *et al.*, 2020).**

The patient education is now universally accepted as an important nursing function in all settings of practice. The CCU offers additional challenges in that it is often a foreign and threatening environment to the patient; the basis for all education activities for patients is the belief that they have right to information about diagnosis, treatment, and prognosis in terms that are understandable to them. It also involves the knowledge that each patient is unique, learns in a unique way, and has motivation and skills in applying new knowledge that differs from that of other patients, Theses individual differences are the reasons for varied responses to the same teaching strategies (**Zanotti and Martiez, 2020).**

Critical care nursing is a specialty within nursing that deals specifically with very sick, complex patients facing life-threatening problems. Critical care nurses (CCNs) provide direct, hands-on care for critically ill or injured patients in pre-and postoperative medical settings. They are tasked with assessing the risks and benefits of proposed medical interventions, rendering life-saving treatment in emergency situations, and nursing patients back to health **(Bourgault and Lynch, 2021).**

Patients who are critically ill require more frequent nursing assessments and round-the-clock monitoring because their condition can change rapidly without warning. The CCNs are typically responsible for only one or two patients at a time because their patients require constant attention **(Fukudaet *et al.*, 2020).**

In addition to basic patient care, the CCN is responsible for highly technical patient assessments, implementing complex patient care plans, and administrating of extensive medication protocols. Duties such as tracking life support equipment, providing supplemental oxygen, administering intravenous medications

and monitoring cardiac and renal status **(Marshall *et al.*, 2020).**

Nursing interventions for critical ill patients are to reduce stress, ensure safety, reduce sleep deprivations, and minimize noxious sensory overload. And one effective intervention is to group together nursing activities and medical procedures to maximize resting periods. Other role of nursing is identifying the patient's learning needs interpretation of diagnostic tests and providing treatment **(Doenges *et al.*, 2016).**

Significance of the study

Intensive care medicine has grown significantly over decades and now consumes a considerable part of the income of many countries worldwide. The overall ICU mortality rates vary from 11.9% (Oceania) to 39.5% (Africa). However, the ICU mortality rate varies with patients' demographics, region, and morbidity type. The concurrent comorbidities including metabolic, cardiac, renal hematologic and hepatic comorbidities before admission should be considered. To the best of authors' knowledge, the pattern of comorbidity on admission to ICU and the pattern of mortality on discharge from ICU are not well-studied in Egypt ***(El-Adawy et al., 2021).***

According to Information and Statistics center at Benha teaching hospital during (2018-2019) the total number of patients who admitted to ICU unit was 1000 which representing 8.5 % from total admitted patients to the hospital (n= 11802). Of them 390 patients with respiratory disorders, 280 patients with cardiac disorders, 190 patients with urological disorders and 140 patients with gastrointestinal disorders.

Critical ill patients have many needs including physical, psychological and social needs. It is increasingly recognized that nursing is most effective when directed towards meeting of specifically identified needs for the assigned patients. Therefore, this current study was conducted to assess bio-psychosocial and educational needs for critical ill patients. Hopefully, this study will generate attention of CCNs to recognize and address such needs for increasing quality of care and decreasing morbidity and mortality rate among such group of patients.

Aim of the study

The present study aimed to assess bio-psychosocial and educational needs for critically ill patients through:

1) Assess physical needs for critically ill patients.
2) Assess psychological needs for critically ill patients.
3) Assess social needs for critically ill patients.
4) Assess educational needs for critically ill patients.

Research questions

This study was conducted to answer the following questions:

1) What are the physical needs of critically ill patients?
2) What are the psychological needs of critically ill patients?
3) What are the social needs of critically ill patients?
4) What are the educational needs of critically ill patients?

Subjects and methods for this study were portrayed under four main designs as the following:

I. Technical Design.
II. Operational Design.
III. Administrative Design.
IV. Statistical Design.

I-Technical design:

The technical design included research design, setting, subjects and tools of data collection used in this study.

Research design:

A descriptive exploratory design was utilized to achieve the aim of this study.

Setting:

The study was conducted in ICU unit at Benha teaching hospital, which located at 4th floor and included 24 beds distributed in 8 rooms. The researcher selected this setting because she is teacher at the technical institute of nursing/Benha teaching hospital and responsible for teaching and training the second year students in the selected previously mentioned setting.

Subjects:

A purposive sample of 285 patients was selected from the previously mentioned setting, according to the following criteria:

Inclusion criteria:

Adult patients, both gender, alert, conscious and able to communicate.

Exclusion criteria:

Patients on mechanical ventilation, with cancer of any organ, gynecologic and obstetric or psychotic disorders.

Sample size;

The sample size was calculated by power analysis which based on statistical data for the patients admitted to ICU at Benha teaching hospital through 2018 were1000patients, so the sample size calculated according to these values produced a minimal samples size of 285 patients.

Tools of data collection:

Data was collected using the following tools: -

Tool (I): Patients' interview questionnaire:

This tool was developed by the investigator in Arabic language based on reviewing of the related literatures (**Moseley, 2020** and **Obestendorf, 2018)** and it included the following parts:

First part: Demographic characteristics.

It aimed to assess the patient's demographic characteristics including age, sex, marital status, level of education, work, and work nature (Questions 1-6).

Second part: patient's clinical data.

It was used to assess and collect clinical data about patient which included present and past health history.

Present medical history: -

It was composed of 3 questions about reason for entering the hospital, recurrent admission to hospital due to this disease and period of time suffering from this disease.

Past medical history: -

It was composed of 4 questions regarding history of allergy, chronic

diseases, previous admission to hospital due to other disease or surgical intervention.

Third part: **patient's Knowledge**:

It was designed to assess patient knowledge regarding disease and divided into three sections as the following:

Section 1: It was concerned with assessment of patient's knowledge regarding disease as definition, causes, complications, self-care after discharge. It composed of 4 yes or no questions.

Section2: It was concerned with assessment of patient's knowledge regarding medication (name, dose, time) and follow up. It was composed of 3 yes or no questions.

Section3: It was concerned with assessment of patient's knowledge regarding nutritional regimen including appropriate diet accaurty to patient disease, appropriate healthy food and good way of its cooking. It was composed of 3yes or no questions

Section4: It was concerned with assessment of patient's knowledge regarding physical activity including its importance and allowed or contraindicated activities. It was composed of 2yes or no questions

Scoring system:

The total score was 12 grades, each correct answer was given (one) grade and incorrect answer was given (zero).

The total level of patient's knowledge score was categorized as follows:

- ≥ 60 % =≥**6.8** grades was considered satisfactory level indicated low education needs
- < 60% = <**6.8** grades was considered unsatisfactory level indicated high education needs.

Tool (II): Patients' physical assessment sheet.

It was developed by investigator after reviewing related literatures to assess patient's physical needs included the following three parts:

First part: It was adapted from **Obestendorf, (2018)** and modified by the investigator to assess any associated signs and symptoms or problem of patients body systems to identify their real needs ; (respiratory system 16 items, cardiovascular system 6 items, gastrointestinal system 9 items, elimination system 8 items, nervous system 5 items, skin system 8 items musculoskeletal system 3 items). It included two options either yes /present took 1 grade or no / absent took zero. The mean score calculated by adding up the scores of each patient and dividing the total by the number of patients.

Second part: It was adapted from **Jacelon (1986).** It was concerned with assessment of daily living activity (DLAs) that included (bathing, dressing, toileting, transfers and feeding).

Scoring system:

The DLAs consisted of 5 functions; each function rated on a three point; 0= completely dependent, 1 = partially dependent and 2= independent

The total score for DLAs activity ranged from 0 to 10. The patient's scores were collected and ranged as follows; 0 - 3 =

completely dependent, 4-7 = partially dependent and 8-10 = Independent.

The mean score calculated by adding up the scores of each patient and dividing the total by the number of patients.

Third part: It was adapted from **Chou, (2009)** It was concerned with assessment of pain characteristics for patients under study, it contained 7items regarding pain, location, onset, type of pain, severity, description and degree (0 = None, 1-3= Mild, 4- 6 = Moderate and 7- 10 = Severe).The mean score calculated by adding up the scores of each patient and dividing the total by the number of patients.

Tool (III): Zung Anxiety Self-Assessment Scale: -

This scale was adopted from **Zung, (1971)** to assess anxiety level for the patients under study. This scale was translated into Arabic then back translated to English to assure its accuracy. It was consisted of 20 statements; each statement scored on a scale of 1- 4. There were five positively worded statements (5,9, 13, 17, 19) and fifteen negatively worded statements (1, 2,3, 4, 6,7, 8, 10, 11,12,14, 15, 16, 18 and 20).

Scoring system

The responses for the 20 statements were as follows:

None or a little of the time = 1, some of the time = 2, good part of the time = 3 and most or all of the time = 4.

Total score was 80 grades, the lower score indicated better psychological status**,** it was categorized as follows:

- Below 40 = within normal range.
- 40 -59 = mild to moderate anxiety.
- 60 -74 = severe anxiety.
- 75 and over = most extreme anxiety.

Tool (IV): Zung Self-Rating Depression Scale (SDS): -

This scale was adopted from **Zung, (1965)** to assess level of depression for patients under study. This scale was translated into Arabic then back translated to English to assure its accuracy. It was consisted of 20 statements; each statement scored on a scale of 1- 4. There were ten positively worded statements (2, 5, 6, 11, 12, 14, 16, 17, 18, and 20) and ten negatively worded statements (1, 3, 4, 7, 8, 9, 10, 13, 15, and 19).

Scoring system:

The responses for the 20 statements were as follows:

A little of the time = 1, some of the time = 2, Good part of the time = 3, and most or all of the time = 4.

Total score was 80, grades the lower score indicated better psychological status**,** it was categorized as follows:

Below 40 = within normal range.
40 -59 = mild to moderate depression.
60 -74 = severe depression.
75 and above = most extreme depression.

Tool (V): Social Dysfunction Rating Scale:

This scale was adopted from **Linn et al. (1969)** to assess social needs for patients under study. This scale was translated into Arabic then back translated to English to assure its accuracy. It was

consisting of 21 statements on scale ranged from "not present" to "very severe". It involved the following categories:-

-Self-system (self-perceptions) 4 statements.

-Interpersonal system (interpersonal relations) 6 statements.

-Performance system (social performance) 11 statements

Scoring system:

The patient's responses for every statement were as follows:

No / Very mild =1, Mild = 2, Moderate =3, Severe = 4and Very severe = 5.

The total score of social dysfunction scale related to self-perception ranged from 4-20, the higher scores reflected greater social dysfunction and categorized as follows:-

- 4 was considered "no / very mild social dysfunction"
- 5-8 was considered "mild social dysfunction"
- 9-12 was considered "moderate social dysfunction"
- 13-16was considered "severe social dysfunction"
- 17-20 was considered "very severe social dysfunction"

The total score of social dysfunction scale related to interpersonal relations ranged from 6-30, the higher scores reflected greater social dysfunction and categorized as follows:

- 6 was considered "no / very mild social dysfunction"
- 7-12 was considered "mild social dysfunction"
- 13-18 was considered "moderate social dysfunction"
- 19-24 was considered "severe social dysfunction"
- 25-30 was considered "very severe social dysfunction"

The total score of social dysfunction scale related to social performance ranged from 11-55, the higher scores reflected greater social dysfunction, and categorized as follows:

- 11was considered "no / very mild social dysfunction"
- 12-22 was considered "mild social dysfunction"
- 23-33 was considered "moderate social dysfunction"
- 34-44 was considered "severe social dysfunction"
- 45-55 was considered "very severe social dysfunction"

The total score of social dysfunction scale ranged from 21-105, the higher scores reflected greater social dysfunction, and categorized as follows:

- 21 was considered "no / very mild social dysfunction"
- 22- 42was considered "mild social dysfunction"
- 43-63 was considered "moderate social dysfunction"
- 64-84 was considered "severe social dysfunction"
- 85-105 was considered "very severe social dysfunction"

II-Operational design:

It included preparatory phase, tools validity and reliability, pilot study and field work.

A- The preparatory Phase:

It included reviewing of the recent related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals and magazines in order to develop and modify the data collection tools.

B- Tools Validity and Reliability;

(1) Validity: -

The face and content validity of the used tools were done through a panel of five experts from medical- surgical nursing department, faculty of nursing, Ain Shams University. They were from different academic levels (2professors, 3assistant professors). Their opinions were regarding comprehensiveness, accuracy, clarity, relevance and appropriateness of the study tools. Modifications were done based on experts' judgment and the final form was developed.

(2)- Reliability: -

Testing reliability of the proposed tools was done statistically by Cronbach's alpha test; patient interview questionnaire =0.830, Physical needs =0.789, psychological needs (anxiety =.824 and depression =.769) and Social dysfunction rating scale =0. 803.

C-Pilot study:

A pilot study was carried out on 10 % of study subjects (29 patients) to test clarity, feasibility and applicability of the data collection tools. The subjects who were included in the pilot study were included in the study sample because no modification was done after conducting the pilot study.

D- Field work:

An informed consent was obtained from each patient prior to the data collection after explaining the aim of the study. Data collection stared and completed within six months from beginning of March (2021) until the end August (2021). Data collection was done by the investigator at the previous mentioned setting three days per week (Sunday, Monday and Tuesday) in the morning shift. The used tools took about 40 minutes to be filed from each patient. Interview questionnaire took about 10 minutes; physical assessment tool took about 15 minutes. Zung Anxiety Self-Assessment Scale took about 5 minutes and Zung Self-Rating Depression Scale took about 5 minutes. Lastly, Social Dysfunction Rating Scale took about 5 minutes.

Ethical Consideration:

Approval to conduct the study was obtained from the ethical and scientific research committee in the faculty of nursing, at Ain Shams University before starting the study. The investigators investigator explained and clarified the study aim to the subjects before taking the consent of participation. The researcher assured maintaining anonymity and confidentiality of subjects data included in the study. The Patients were informed about their right or withdrawal from the study at any time without giving any reason.

III- Administrative design:

Approval to carry out this study was obtained from Faculty of Nursing, Ain Shams University to get permission from the director of Benha teaching hospital explaining the purpose of the

study to obtain the permission for conducting this study.

IV-Statistical design:

Data collected from the studied sample was revised, coded and entered using Personal Computer (PC). Computerized data entry and statistical analysis were fulfilled using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies, percentages and Mean ± SD. A correlation coefficient is a numerical measure of some type of correlation, meaning a statistical relationship between two variables. Statistically significant was considered at p-value < 0.05.

Results

Table (1) shows that, (49.8%) of studied patients their age ranged between 40 to less than 60 years with Mean 52.8 ± 12.3 and (51.9 %) of them were females. Regarding marital status, (98.9%) of them were married. Regarding education level, it was observed that (52.6%) of studied patients were illiterate. Regarding occupation, it was shown that (61.8%) of them were not working. Eventually, the table clarifies that 75.2% of the patients mentioned that their work nature were crafts.

Figure (1): clarifies that, 54% of studied patients had total satisfactory level of knowledge regarding disease and therapeutic regimen indicated low education needs. While, 46% of them had unsatisfactory level of knowledge indicated high educational needs.

Table (2): describes physical needs mean scores of the studied patients, as illustrated in the table, the highest total mean scores among them were regarding total body systems need followed by pain & daily living activities (16.14 ± 6.34, 7.6 ± 5.4&3.2± 3.7) respectively.

Figure (2): Shows that (50, 5%) of the studied patients' had severe anxiety level while (4.2%) of them had most extreme anxiety level.

Figure (3): represents that (42.1% & 38.9%) of the studied patients had mild to moderate & severe depression level respectively, while (5.9%) of them had normal depression level.

This figure reveals that 50.9% of the studied patients had severe social dysfunction while, 28.1% of them had moderate social dysfunction.

presents distribution of correlation matrix of bio psychosocial and educational needs scores among the studied patients, it was found that there was highly statistically significant positive correlation between physical need and psychological, social &educational needs at (0.18**,.608* &.667**) respectively.

Table (1): Frequency and percentage distribution of demographic characteristics of patients under study (n = 285).

Items	Frequency (N)	Percent (%)
Age:		
- 20 years	31	10.9
- 60 years	142	49.8
- ≥60 year	112	39.3
Mean ± SD	**52.8 ± 12.3**	
Rang	**(20-67)**	
Gender:		
- Male	137	48.1
- Female	148	51.9
Marital status:		
- Single	3	1.1
- Married	282	98.9
Education:		
- Not read & write	150	52.6
- Basic education	58	20.4
- High school education	53	18.6
- University	24	8.4
Work:		
- Working	109	38.2
- Not Working	176	61.8
Work nature[#] (n=109)		
- Crafts	82	75.2
- Business office	27	24.8

Figure (1): Percentage distribution of patients' total knowledge level regarding disease and therapeutic regimen (285)

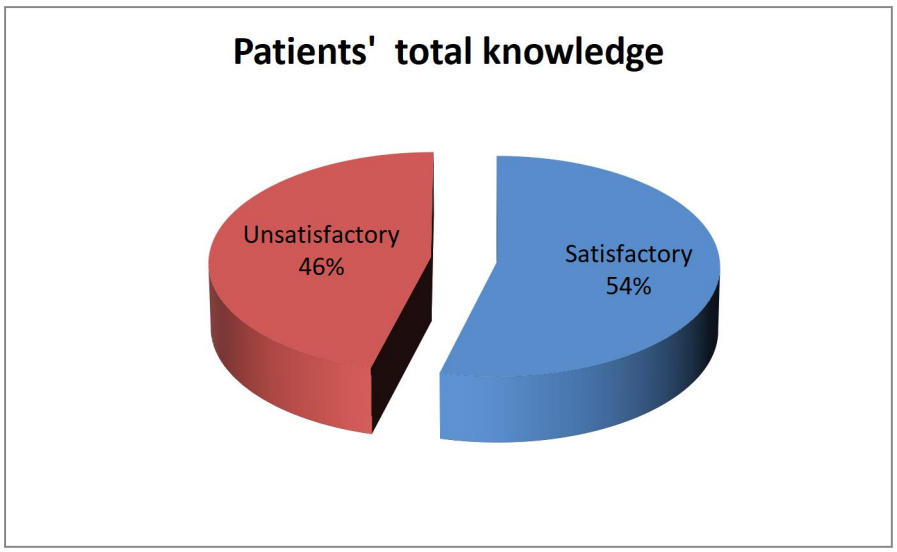

Table (2): Physical needs mean score of the studied patients (n=285)

Items	Mean ±SD	Minimum	Maximum
Respiratory needs	5.7 ± 3.2	0	15.0
Cardiovascular needs	1.8 ± 1.2	0	5.0
Gastrointestinal needs	2.1 ± 1.1	0	4.0
Bowel movement needs	0.6 ± 0.6	0	3.0
Urinary system needs	2.4 ± 1.4	0	5.0
Neurological system needs	1.2 ± 0.9	0	3.0
Skin integrity needs	2.3 ± 1.1	0	6.0
Musculoskeletal system	.04 ± 0.2	0	1.0
Total system need	16.14 ± 6.34	0	40
Total daily living activity	3.2± 3.7	0	10.0
Total pain	7.6 ± 5.4	0	14.0
Total physical needs	26.94 ± 11.7	3.0	56.0

Figures 2&3: Patients psychological needs assessment

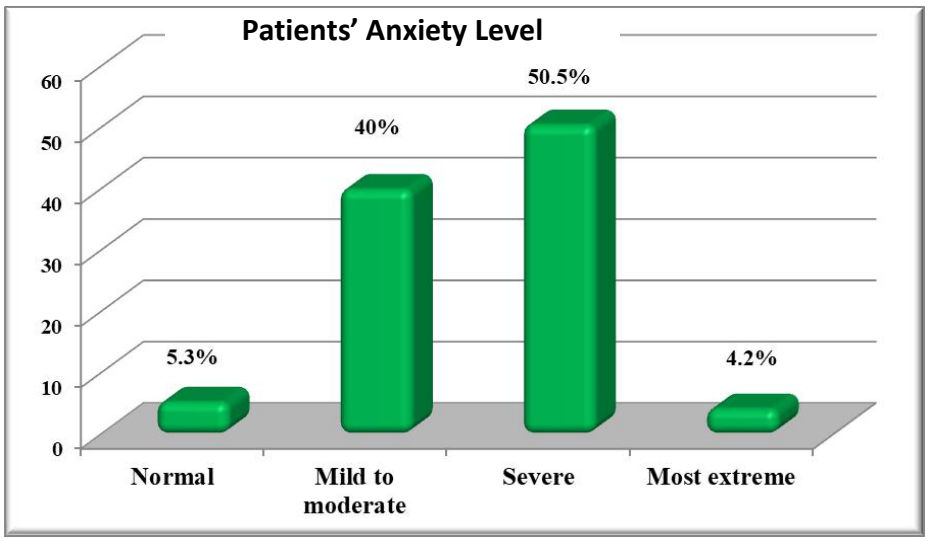

Figure (2): Percentage distribution of anxiety level among the studied patients (N=285).

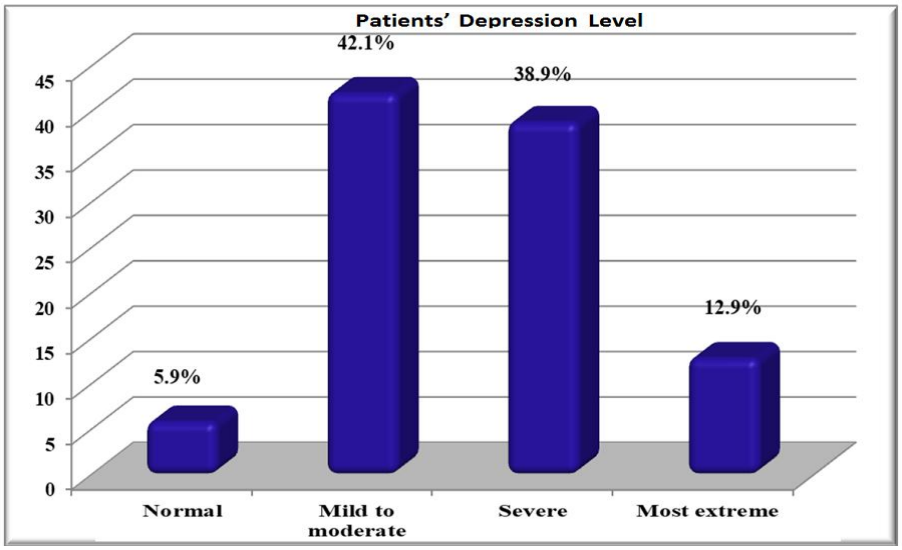

Figure (3): Percentage distribution of depression level among the studied patients (N=285).

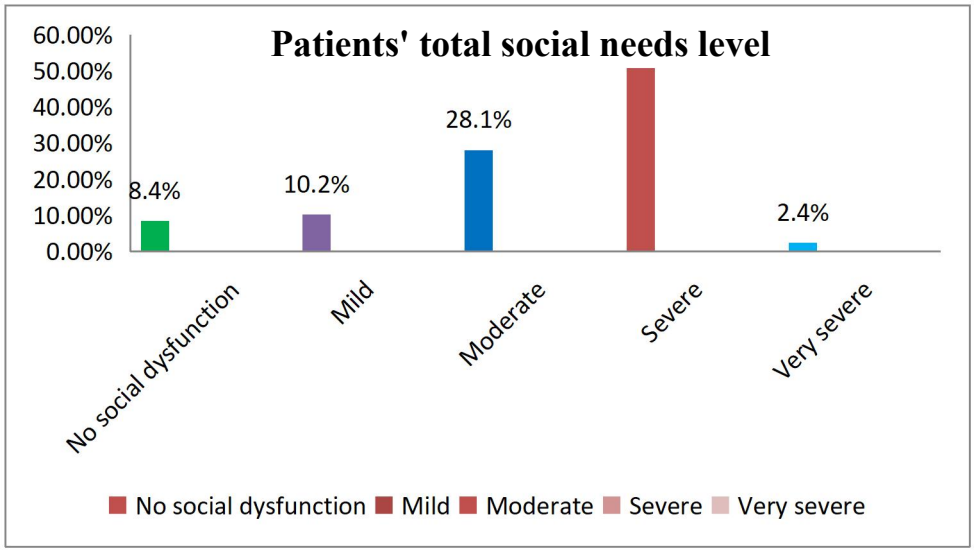

Figure (4): Percentage distribution of the studied patients' total social needs level

Table (2): Distribution of Correlation matrix of bio-psychosocial and educational needs scores among the studied patients (N=285)

Scores	Spearman's rank correlation coefficient			
	physical needs	Psychological needs	Social needs	Educational needs
Physical needs				
Psychological needs	**0.18****			
Social needs	**.608****	**0.34****		
Educational needs	**.667****	**0.26****	**.828****	

R: Pearson's correlation coefficient (**) statistically significant at p<0.01

Table (3)

Discussion

The current study revealed that, nearly half of the studied patients their ages ranged between 40 to less than 60 years with Mean ± SD 52.8 ± 12.3. This finding is matching with **Zengin, *et al.,* (2020)** who conducted study entitled "the relationship between stressors and ICU experiences" who stated that the mean age of the patients was 57.81 ± 13.81 years. This group of age may be due to aging process and disease prognoses.

The present study result disagrees with **Guido et al., (2020)** who conducted study entitled " Gender differences in predictors of intensive care units admission among COVID-19 patients" and who reported that, the average age was 68, 21±0, 38 years.

As regard to gender, the current study result showed that more than half the patients under study were females. This finding is in the same line with **Fowler et al., (2007**) who conducted study entitled "sex-and age-based differences in the delivery and outcomes of critical care" who reported that more than half of the patients were females. These findings disagreed with **Sabaz *et al.,* (2021)** who conducted study entitled ICU admission parameters for patients with COVID-19" who revealed that more than half of the patients were males.

Regarding to marital status, the present study illustrated that, the majority of patients were married. This finding is in the same line with ***Maharani et al., (2017)*** who conducted study entitled " Prescription pattern of patients admitted in the ICU of a tertiary care hospital in India" who reported that majority of the studied patients were married While the current study results disagree with **Kobylańska et al. (2018)** who conducted study entitled "The role of bio-psychosocial factors in the rehabilitation process of individuals with a stroke" who stated that more than half of studied patients were married.

Concerning level of education, the present study results revealed that more than half of the studied patients were not read and write. This result is matching with **Al-Maskari, *et al.,* (2021)** who conducted study entitled "Patients' and Nurses' Demographics and Perceived Learning Needs Post-Coronary Artery Bypass Graf" who mentioned that about half of the studied patients were not read and write. While, it is unsupported with **Kobylańska *et al.,* (2018)** who mentioned that, less than half of studied patients had primary level of education.

In relation to the occupation status, the present results demonstrated that less than two thirds of the studied patients were not work. While, three quarters of them their work nature were crafts. These findings are in the same line with ***Faltas & Mohamed, (2020)*** who conducted study entitled

"Factors Contributing to Acquire Covid-19 among Critically Ill Patients in ICU in Egypt" who reported that more than two thirds of the studied patients were not work.

The present study findings are contrasted with **Ahmed, *et al.,* (2017)** who conducted study entitled "Stressors encountered by patients undergoing open-heart surgery in Egypt" and reported that, less than half of studied patients were not work. While, one fifth of studied patients were employees.

Concerning to patients' total knowledge regarding disease and therapeutic regimen, the current study mentioned that, less than half of them had total satisfactory level of knowledge while, more than half of them had unsatisfactory level. This may be due to the studied patients don't received enough knowledge about disease also, may be due to lack of knowledge, awareness of the studied patients and low level of education. These results are in the same line with ***Mortensen et al., (2021)*** who conducted study entitled" Return to work after coronary artery bypass grafting (CABG) and aortic valve replacement surgery" and demonstrated that, more knowledge needed on specific interventions to improve patient's knowledge after CABG/AVR surgery.

The present study result is in contrast with **Mohamed et al., (2021)** who conducted study entitled "Effect of Instructional Program on Patients' total Knowledge Regarding Adherence to Therapeutic Regimen of Type 2 Diabetes Mellitus" Who founded that most of the studied sample had satisfactory total level of knowledge after applying the instructional program. This due to success of the program could be attributed to the process of education, interactions followed during its implementation and to the fact that it was custom tailored to patients' needs that always needed to be supported and motivated by the health care provider.

Also, this study finding disagrees with **Akalu et al., (2020)** who conducted study entitled "Knowledge, Attitude and Practice towards COVID-19 among Chronic Disease Patients at Addis Zemen Hospital, Northwest Ethiopia" and reported that more than one third of studied participants had good total knowledge while more than one quarter of them had poor total knowledge.

Concerning to total physical needs of the studied patients, the current study demonstrated that, the highest total mean of total system need followed by pain, & total ADLs were (16.14 ± 6.34, 7.6 ± 5.4 &3.2± 3.7) respectively.. These findings disagree with **Sayed et al., (2021)** who demonstrated that less than half of the studied patients had moderate level related to total physical needs.

From the investigator's point of view, this study finding may be due to critical ill patients experienced various problems related to affected body system and suffered of pain due to disease or exposed to several invasive interventions and attached lines such as central venous and arterial catheterization that limit their ADLs which increase dependency on the care givers.

Also, **Rice et al., (2016),** who applied study entitled "Treating Small Bowel Obstruction with a Manual Physical Therapy" who stated that**,** all studied sample had moderate physical needs underwent a comprehensive physical care**.** Also, **Gautam et al., (2016),** who conducted studied entitled "Psychosocial adjustment among patients with colostomy" who mentioned that, the majority of patients had moderate physical needs with difficulties in defecation, sleeping, bathing, and foods and drinks.

Regarding to patients psychological needs assessment, the current study reported that half of studied patients had severe

anxiety level. This result is in the same line with **Pound et al., (2022)** who conducted studied entitled" Long-Term Functional Outcome and Quality of Life Following In-Hospital Cardiac Arrest" and founded that than half of patients reported "moderate to severe problems" with anxiety.

This finding agrees with **El-gafour et al. (2021)** who founded that more than half of the studied patients had severe level of total anxiety score. Also, less than one-quarter of them had minimal to moderate level. While, more than one-tenth of them had extremely severe level. While, it disagrees with **Gallagher & McKinley (2013)** who conducted study entitled "Anxiety, depression and perceived control in patients having CABG and stated that half of studied patients had moderate level anxiety.

Regarding to depression level among the studied patients, the present study results reported that more than two fifths of them had mild to moderate depression level. This result disagrees with **Tully & Baker, (2015)** who conducted study entitled "Depression, anxiety, and cardiac morbidity outcomes after CABG and reported that half of studied patients had moderate depression.

Also, the current study finding disagrees with **Salahuddin et al., (2020)** who conducted study entitled "Neurological Predictors of Clinical Outcomes in Hospitalized Patients with COVID-19" who founded that more than one quarter of studied patients had depression while less than one fifth of them had anxiety.

From the investigator's point of view, this could be attributed to their health status, disease affection and Covid-19, pandemic that limit their social interaction. Also, feeling of guilt resulting from worry about ''being a burden'' in addition, the presence of physical problems and pain, isolation from others, and fear of death.

Regarding to the studied patients total social needs level, the present study reported that more than half of them patients had severe social dysfunction while, less one third of them had moderate level. This finding is contrasted with **Areias et al., (2021**) who conducted study entitled "quality of life in early adult life" who revealed that the increased mean of social dysfunction was associated with increasing need for psychological support.

Regarding to correlation matrix of bio psychosocial and educational needs scores among the studied patients, the present study result stated that there was highly statistical significant positive correlation between physical, psychological, social and educational scores need.

From the investigator's point of view, the present study results may be due to the physical illness of critical ill patients' impact negatively on their psychological and social status which reflecting their high needs. So, biopsychosocial needs of such group patients' should be considered and addressed as a holistic health care delivered.

These results are in the same line with **Sayed et al., (2021)** who stated that there was highly statistical significant positive correlation between physical need and psychological, social & educational needs.

Conclusion:

Based on the finding of the results, the current study, it can be concluded that:
Regarding educational needs, less than half of studied patients had unsatisfactory level of total knowledge as regarding disease and therapeutic regiment indicated high educational needs. Regarding physical needs mean scores of the studied patients as, the highest total mean scores among them were regarding total body systems

need followed by pain & daily living activities respectively.

As regards psychological needs, more than half of the patients had severe anxiety level and more than one third of them had severe level of depression. Regard social needs, there was more than half of the studied patients had severe social dysfunction.

Recommendations

The results of this study projected the following recommendations:-

- Health education for critical ill patients should be started from the first day of their admission to the intensive care unit & continue after discharge.
- A simplified and comprehensive booklet including the most information regarding disease therapeutic regime and self-care after discharge.
- Multidisciplinary team approach is necessary for management of critical ill patients for meeting their bio psycho social & educational needs.
- Further studies are recommended to study the effect of designing& implementing educational program for nurses based on bio-psycho social &educational needs for critical ill patients to improve their performance and consequently enhance the quality of life for such group of patients.
- Replication of this study on large number of the patients in different critical care units in different hospitals is recommended to generalize the study results.

References

Ahmed A, Khalil N & Morsy W (2017): Stressors encountered by patients undergoing open-heart surgery at a Cairo University Hospitals. *Egyptian Nursing Journal*, *14*(2), 78.

Akalu Y, Ayelign B and Molla M (2020): Knowledge, Attitude and Practice Towards COVID-19 Among Chronic Disease Patients at Addis Zemen Hospital, Northwest Ethiopia

Al-Maskari A, Al-Noumani H & Al-Maskari M. (2021): Patients' and Nurses' Demographics and Perceived Learning Needs Post-Coronary Artery Bypass Graft. Clinical Nursing Research, 1054773821990266.

Areias M, Pinto C, Vierira P, Castro M, Feeitas I, Sarmento S, Arieas J: (2021):quality of life in early adult life. Cardiology in the young.2021;24(2):60-65

Bourgault, A. M., & Lynch, B. (2021). Time to Train More Critical Care Nurses: Supporting Our New Colleagues.

Chou, R. (2009). Clinical Guidelines from the American Pain Society and the American Academy of Pain Medicine on the use of chronic opioid therapy in chronic noncancer pain: what are the key messages for clinical practice?. *Pol Arch Med Wewn*, *119*(7–8), 469-477.

Doenges, M. E., Moorhouse, M. F., & Murr, A. C. (2016). *Nurse's pocket guide: Diagnoses, prioritized interventions, and rationales*. FA Davis.

El-Adawy, A. E. A., Khafagy, M. A., El Adawi, N. M., Bahgat, M., & El-Gilany, A. H. (2021). Intensive Care Morbidity and Mortality and Their Associated Factors: A National Study in Egypt. *Benha Medical Journal*.

El-gafour A, Mahmoud A, Younis G& Gad L (2021): Assessment of Patients' Needs Pre and Post Open Heart surgery. *Tanta Scientific Nursing Journal*, *22*(3), 11-32.

Fowler R, Sabur N, Li P, Juurlink D, Pinto R, Hladunewich M& Martin C. (2007): Sex-and age-based differences in the delivery and outcomes of critical care. *Cmaj*, *177*(12), 1513-1519.

Faltas S & Mohamed D, (2020): Factors Contributing to Acquire Covid-19 among Critically Ill Patients in Intensive Care Units. Egyptian Journal of Health Care, 11(4), 550-565.

Fukuda, T., Sakurai, H., & Kashiwagi, M. (2020). Impact of having a certified nurse specialist in critical care nursing as head nurse on ICU patient outcomes. *PloS one*, *15*(2), e0228458

Galbadage, T., Peterson, B. M., Wang, D. C., Wang, J. S., & Gunasekera, R. S. (2020). Biopsychosocial and spiritual implications of patients with COVID-19 dying in isolation. *Frontiers in Psychology*, *11*.

Gallagher R & McKinley S (2013): Anxiety, depression and perceived control in patients having coronary artery bypass grafts. Journal of a dvanced nursing. 2013;65(11):2386-96.

Gautam S, Koirala S, Poudel A &Paudel D (2016): Psychosocial adjustment among patients with colostomy: a survey in stoma clinics, Nepal. *Nursing: Research and Reviews*; 6:13-21

Guido I, Guido G, Claudio B, Carugo S, Francesco F, Claudio F& Muiesan M. (2020): Gender differences in predictors of intensive care units admission among COVID-19 patients: The results of the SARS-RAS study of the Italian Society of Hypertension.

Information and Statistics Center at Benha Teaching Hospital, Affiliated at The General Organzation for Teaching Hospitals and Institutes, (2018).

Jacelon, C. S. (1986). The Barthel Index and other indices of functional ability. Rehabilitation Nursing, 11(4), 9-11.

Kobylańska M, Kowalska J, Neustein J, Mazurek J, Wójcik B, Bełza M& Szczepańska-Gieracha J (2018): The role of biopsychosocial factors in the rehabilitation process of individuals with a stroke. Work, 61(4), 523-535.

Linn, M.W., Sculthorpe, W.B., Evje, M., Slater, P.H., and Goodman, S.P. (1969): A Social Dysfunction Rating Scale, Journal of Psychiatric Research, 6 rdEd, PP.299–306.

Maharani B, Jafrin A, Prakash M & Priyadarshini P (2017): Prescription pattern of patients admitted in the intensive care unit of a tertiary care hospital in Puducherry, India: a cross sectional study. International Journal of Basic & Clinical Pharmacology, 6(12), 2822.

Marshall, J. C., Bosco, L., Adhikari, N. K., Connolly, B., Diaz, J. V., Dorman, T.,... & Zimmerman, J. (2020). What is an intensive care unit? A report of the task force of the World Federation of Societies of Intensive and Critical Care Medicine. *Journal of critical care*, *37*, 270-276.

Mohamed A, Habib N, Mohamed G, Radwan El-Nahas M & Hafez E (2021): Effect of Instructional Program on Patients' Knowledge Regarding Adherence to Therapeutic Regimen of Type 2 Diabetes Mellitus. Port Said Scientific Journal of Nursing, 8(2), 204-222.

Mortensen, M., Sandvik, R. K., Svendsen, Ø. S., Haaverstad, R., & Moi, A. L. (2021). Return to Work After Coronary Artery Bypass Grafting and Aortic Valve Replacement Surgery: A scoping Review. Scandinavian Journal of Caring Sciences.

Moselely, M. (2020): Introduction to Critical Care Nursing E-Book., 8 Th Ed.Elsevier, Inc, Canada, PP, 2-24.

Obestendorf, W. (2018): Nursing Intervention &Clinical Skills-Ebook., 6 Th Ed,.Elsevier, United Stares of Americia, PP 288-289.

Poncette, A. S., Spies, C., Mosch, L., Schieler, M., Weber-Carstens, S., Krampe, H., & Balzer, F. (2019). Clinical requirements of future patient monitoring in the intensive care unit: qualitative study. *JMIR medical informatics*, *7*(2), e13064.

Pound G, Jones D, Eastwood G, Paul E & Hodgson C (2022): Long-Term Functional Outcome and Quality of Life Following In-Hospital Cardiac

Arrest—A Longitudinal Cohort Study. *Critical care medicine*, *50*(1), 61-71.

Pound G, Jones D, Eastwood G, Paul E & Hodgson C (2022): Long-Term Functional Outcome and Quality of Life Following In-Hospital Cardiac Arrest—A Longitudinal Cohort Study. *Critical care medicine*, *50*(1), 61-71.

Rice A, Patterson K, Reed E, Wurn F, Klingenberg B, King R & Wurn L (2016): Treating Small Bowel Obstruction with a Manual Physical Therapy: A Prospective Efficacy Study Hindawi Publishing Corporatio BioMed Research International Volume 2016, Article ID 7610387, page 8.

Sabaz S, Özdemir F, Özakin O, Türkmen A, & Dinç V (2021): Intensive Care Unit Admission Parameters for Patients with COVID-19. *Med J Bakirkoy*, *17*, 254-261.

Salahuddin H, Afreen E, Sheikh IS, Lateef S, Dawod G, Daboul J, Karim N, Gharaibeh K, Al-Chalabi M,Park S, Castonguay AC, Assaly R, Safi F, Matal M, Sheikh A, Tietjen G, Malaiyandi D, James E, Ali I, Zaidi SF, Abdelwahed A, Kung V, Burgess R and Jumaa MA (2020): Neurological Predictors of Clinical Outcomes in Hospitalized Patients With COVID-19.Front. Neurol. 11:585944. doi: 10.3389/fneur.2020.585944

Sayed M, Sobeih H & Khalil B (2021): Proposal Protocol for Management of Health Needs among Patients Undergoing Intestinal Obstruction Surgery. Egyptian Journal of Health Care, 12(4), 635-656.

Tully P & Baker R (2015): Depression, anxiety, and cardiac morbidity outcomes after coronary artery bypass surgery: a contemporary and practical review. Journal of geriatric cardiology; 9(2):197.

Varon, J. (2021). Approach to the Intensive Care Unit (ICU). In *Handbook of Critical and Intensive Care Medicine* Springer, Cham (pp. 1-15).

Zanotti, M and Maertinez., M. (2020): Nursing Diagnosis Hand Book E –Book an Evidence –Based Guide to Planning Care,12 rdEd.,Elsevier science, Canada,pp.12:15.

Zengin N, Ören B & Üstündag H (2020): The relationship between stressors and intensive care unit experiences. Nursing in critical care, 25(2), 109-116.

Zung, W, W, K. (1965): ASelf-Rating Depression Scale, 12 rdEd, Arch Gen Psychiatry.pp.63-70.

Zung, W, W, K. (1971): A Rating Instrument for Anxiety Disorders, 12 rdEd, Psy Linn, M.W., Sculthorpe, W.B., Evje, M., Slater, P.H., and Goodman, S.P. (1969): A social dysfunction rating scale, Journal of psychiatric research, 6 rdEd PP.299–306.