



NEEDS ASSESSMENT OF CRITICALLY ILL PATIENTS AND THEIR FAMILIES AT INTENSIVE CARE UNIT

Abdelrady Mohamed Elsayed¹, Badria Abdelshahid Elkattan²,
and Sabah Nagah Hassan³

¹Nursing Specialist, Faculty of Nursing, Helwan University

²Assist. Professor of Medical-Surgical Nursing, Faculty of Nursing, Helwan University

³Lecturer of Medical-Surgical Nursing, Faculty of Nursing, Helwan University

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ABSTRACT: *Background:* Critically ill patients have many physical and psychological needs which contribute to disease progression and are at risk for worsening of their condition. Family's ability to support patients may be compromised by their own psychological distress. So, significant progress has been made to incorporate nursing care from a patient-centered approach to family centered focus. *Aim:* This study aimed to assess needs of critically ill patients and their families at intensive care unit. *Design:* A descriptive exploratory design was utilized to achieve the aim of this study. *Setting:* the study was conducted at intensive care unit at General Bulaq Dakror hospital. *Sample:* A purposive sample of sixty patients and sixty family members were included in the study. *Tools:* Four tools were used in this study: structured interview questionnaire, barthel index scale, intensive care unit environmental stressor scale and critical care family needs inventory. *Results:* the study demonstrated that the mean age of the studied patients was (61.00 ± 13.28) and mean age of the studied family member was (36.68 ± 11.08) and two thirds of them had son or daughter relation to patient. Less than half of the studied patients were minimally dependent. The highest mean score of intensive care unit stressors of the studied patients was for enviromental stressors. While, the highest mean score of studied family members' needs was for assurance and anxiety reduction needs. *Conclusion:* There was a statistically significant relation between physical needs and educational level of the studied patients, as well, there was a statistically significant relation between the total mean scores of information needs and educational level of the studied family members and between the total mean scores of support needs and number of family member's visits to patient. *Recommendations:* This study recommends continuous assessment of the most important and largely unmet needs of critically ill patients and their family members.

KEYWORDS: Critically ill patients, Family members, Needs



INTRODUCTION

Critically ill patients are at risk for worsening of their condition, with concomitant increase in morbidity and mortality. It may include any one residing in intensive care units. Critically ill patients are mostly victim patients from motor vehicle crashes, violence, burns, drowning, falls, patients with multiple complications from health conditions like myocardial infarctions, congestive heart failure, or cerebral vascular accidents (*Jackson and Cairns, 2021*).

Critically ill patient has physical, psychological, social and environmental needs which contribute to his/her health condition and disease progression. Physical needs as oxygen, feeding, bathing and dressing. Some of psychological problems as anxiety and depression experienced by patients may be prevented by improved communication between staff and patients (*Allum, et al., 2017*).

Family's ability to support the patient may be compromised by their own psychological distress. So, significant progress has been made to incorporate nursing care from a patient-centered approach to family centered focus (*De beer & Brysiewicz, 2016*). The unique role of the nurse is to help the patients and their families learn new behaviors to have apposite impact on their health and their lives. Much of this can be accomplished through patient education. Nurse should she works with the patient in mutually deciding what to teach, and how to teach. Success in patient education is primarily achieved when patients accept responsibility for their own quality of life, actively participate in the plan of care and are self-determined to manage health care needs at home (*Scheunemann, et al, 2019*)

Significance of the study:

The care of critically ill patients is a strong indicator of service quality provided in the emergency department. Since families are the major social support sources, assessing the family members' needs may reduce their anxiety and depression owing to the acute situation of their loved ones while improving the patients' recovery and improving staff-relative relations (*Ocak & Avsarogullari, 2018*).

Aim of the Study

This study aimed to assess needs of critically ill patients and their families at intensive care unit. This aim was achieved through:

- 1- Assessing physical and psychological needs of critically ill patients at intensive care unit.
- 2- Assessing psychological needs of family members of critically ill patients at intensive care unit.

Research question:

- 1- What are the physical and psychological needs of critically ill patients at intensive care unit?
- 2- What are the psychological needs of family members of critically ill patients at intensive care unit?



Subject And Methods

The subject and methods for the current study were portrayed under the 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 conducted to achieve aim of this study.

Setting:

The study was conducted at intensive care unit affiliated to General Bulaq Dakror hospital. This ICU unit contained 15 beds; the numbers of occupied beds was about 10-12 beds/ day.

Subjects:

A purposive sample of 60 patients and 60 family members from intensive care unit of General Bulaq Dakror hospital were included in this study. The sample size was determined according to the statistical calculation which guided by the power of the test = 80%

- Confidence Level =95%.
- The accepted level of error =5%

Tools of data collection:

Four tools were used to collect necessary data to fulfill the study aim.

Tool: structured interviewing questionnaire:

This tool was developed by the researcher after reviewing the related literature (*Robinson, 2019*) & (*Padilla,etal, 2018*). It included 3 parts:

Part(I):- Demographic characteristic of patients:

It included 10 questions about patient's demographic characteristics as age, gender, occupation, marital status, educational level, monthly income, costs of treatment, with whom patient lives, and if patient is the responsible for the family.



Part (II): Demographic characteristic of family members:

It included 7 questions about

demographic characteristics of the family members as age, gender, educational level, occupation, marital status, number of visit to the patient and relation to the patient.

Part (III): Medical health status of patients:

It included 3 questions about

patient's medical history as history of chronic diseases, current complain and number of admission to this hospital ICU.

Tool (2):- Barthel index scale

This tool was adapted from Mahoney and Barthel, (1965) to assess patient's activities of daily living. It included ten items (feeding, bathing, grooming, dressing, bowel, bladder, toilet use, transfer from bed to chair and back, mobility on level surfaces, and stairs).

The investigator modified the scoring system of barthel index scale and categorized the total score to 5 level ranged from totally dependent to independent patient

The total score ranged from 0-100 and was categorized as:

- Totally dependent if the score is less than 20
- Very dependent if the score is 20- < 40
- Partially dependent if the score is 40-<60
- Minimally dependent if the score is 60-<80
- Independent if the score is 80-100 (Mahoney and Barthel, 2020)

Tool III: intensive care unit Environmental Stressor Scale (ICU ESS):

This tool was adapted from Ballard (1981), to assess patients' perception of intensive care unit stressors.

The tool was adapted by investigator modifying scoring system from 4 points to 3 points likert scale.

The investigator classified intensive care unit stressors were classified as physical stressors (11 items), psychological stressors (13 items), environmental stressors (11 items), and communication stressors (7 items) (Krampe et al., 2021)

Scoring system of ICUESS

The ICUESS included 42 items which were scored on a three point likert scale, 1= score for (Not stressful) 2= score for (moderately stressful,) 3= score for (Very stressful). The total scores of ICUESS were ranged from 42 to 126 with higher scores indicating most sever stressors at ICU



Tool IV: Critical Care Family Needs Inventory (CCFNI): This tool was adapted from *Molter, & Leske (1983)* to assess family needs.

This tool was adapted from Molter, & Leske (1983) to assess family needs. It contained 43 items with five subscales assurance and anxiety reduction needs (7) comfort needs (6), information needs (8), proximity needs (9), and support needs (13).

The tool was adapted by modifying the scoring system from 4 points to 3 points likert scale

Scoring system of CCFNI:

Items of the CCFNI were scored on 3 point likert scale from (1= score not important), (2 = score important), and (3 = score very important). The total scores ranged from 43-129 with higher scores indicating greater importance of the needs being assessed

Validity

The study tools were tested for validity (face and content validity). **Face validity** aimed to determine whether the tools measure what were supposed to measure. **Content validity** was conducted to determine whether the content of the tools cover the aim of the study. It was measured by a jury of 5 experts, three assistant professors and two lecturers of medical surgical nursing at faculty of nursing, Helwan University. The experts reviewed the tool for clarity, relevance, accuracy, comprehensiveness, simplicity and applicability, and minor modifications were done.

Reliability:

Cronbach's Alpha was used to determine the internal reliability of the adapted tools. Reliability of the tools was tested to determine the extent to which the questionnaire items are related to each other. Cronbach's alpha reliability coefficient normally ranges between 0 and 1 with higher values (more than 0.7) denote acceptable reliability. The tools showed good reliability, it was (0.87) for barthel index scale, (0.698) for intensive care unit stressors scale and (0.607) for critical care family needs inventory.

Pilot study:-

The pilot study was done on 10% (6 patient-6 family member) of the sample to examine the clarity of questions and time needed to complete the study tools. Based on the results, modifications were done (if necessary). Subjects included in the pilot study were excluded from the study if major modifications are required.

Field work:

- Data were collected within 6 months in the period from the beginning of March 2021 to the end of August-2021
- The investigator visited the intensive care unit two days per week during the morning shifts (9:00 am to 1:00 pm). The patients were selected according to inclusion criteria. Each day the investigator interviewed 1 or 2 patients and their family member.
- Data were collected through interviewing patients and family members to fill data collection tools by the investigator.



- At the beginning of the interview, the aim of the study was explained to patients and family members.
- The investigator obtained the patients' and family members oral consent for participating in the study.
- The study tools were completed and filled in by the investigator within an average time of 60-90 minutes as following: structured interview questionnaire for collecting data regarding demographic characteristics of patients and family members as well medical history of patients; it took 10-15 minutes. The barthel index scale was used to assess patients' activities of daily living; it took about 20-35 minutes. Intensive care unit environmental stressor scale (ICU ESS) took about 15-20. Lastly, critical care family needs inventory (CCFNI) took about 15-20 minutes.

III-Administrative design:

An official permission was obtained from general manager of Bulaq Dakror hospital. A letter was issued to them from the faculty of nursing; Helwan University explaining the aim of the study to obtain the permission for data collection

IV-Statistical design:

Upon completion of data collection, collected data were organized, tabulated and analyzed using Statistical Package for the Social Science (SPSS), version 24 for analysis. For quantitative data, numbers, percentage, mean, and standard deviation (SD) were used to describe the results. For qualitative data which describe a categorical set of data by frequency, percentage of each category was calculated. Appropriate significance was adopted at $P < 0.05$ for interpretation of results. The observed associated differences were considered as not significant if $p > 0.05$ and significant if $p < 0.05$ (Siregar, 2021). Appropriate inferential statistics such as "t" test was used as well.

RESULTS

Table (1): Frequency and percentage distribution of the studied patients according to their demographic characteristics (N=60).

Patients' Characteristics		No	%
Age	30-<40	4	6.7
	40- <50	9	15.0
	50 or more	47	78.3
Mean \pm SD	61.00 \pm 13.28		
Gender	Male	30	50.0
	Female	30	50.0
Occupation	Governmental work	6	10.0
	Private work	14	23.3
	Retired	12	20.0
	Don't work	28	46.7

Marital status	Married	40	66.7
	Widow	20	33.3
Place of residence	Rural	33	55.0
	Urban	27	45.0
Monthly income	Sufficient for treatment expenses	32	53.3
	Not sufficient for treatment expenses	28	46.7
Costs of treatment	Free on state expense	42	70.0
	Free with some costs	9	15.0
	At my own expense	9	15.0
With whom patient live	With family	60	100.0
Responsible for family	Yes	26	43.3
	No	34	56.7

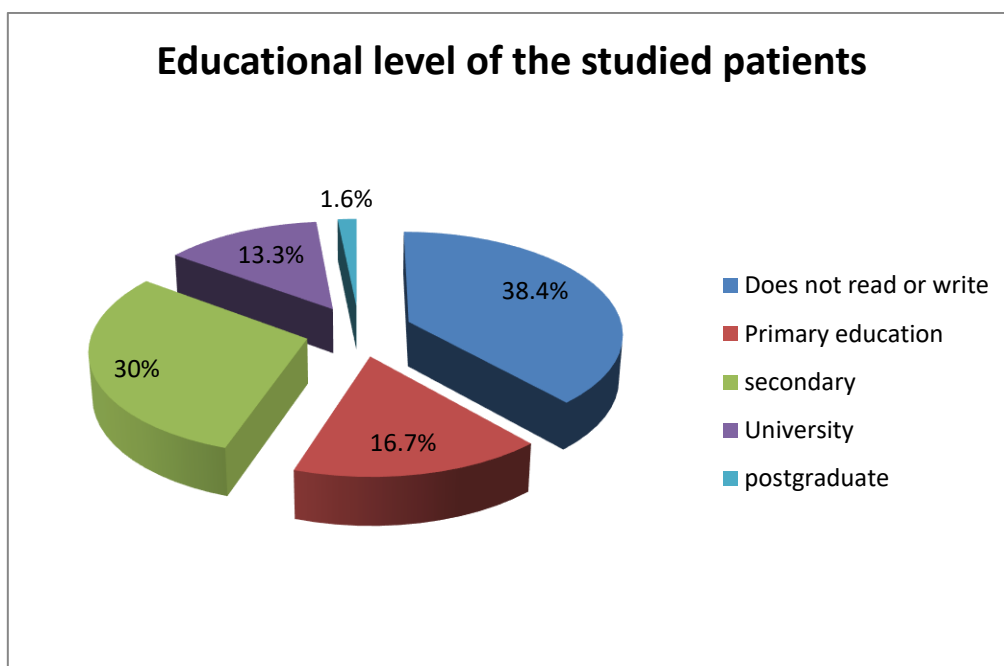


Figure (1): Percentage distribution of the studied patients according to their educational level (N=60)

Table (2): Frequency and percentage distribution of the studied family members according to their Demographic characteristics (N=60)

Family members Characteristics		No	%
Age	18- <30	19	31.7
	30- <40	23	38.3
	40- <50	11	18.3
	50 or more	7	11.7
Mean \pm SD	36.68 \pm 11.08		
Educational level	Does not read or write	4	6.7
	Primary education	4	6.7
	Secondary education	28	46.6
	University	24	40.0
Occupation	Governmental work	15	25.0
	Private work	34	56.7
	Don't work	11	18.3
Marital status	Married	2	3.3
	Single	58	96.7
Number of family member's visits to patient	The first	6	10.0
	The second	15	25.0
	The third	15	25.0
	More than third	24	40.0

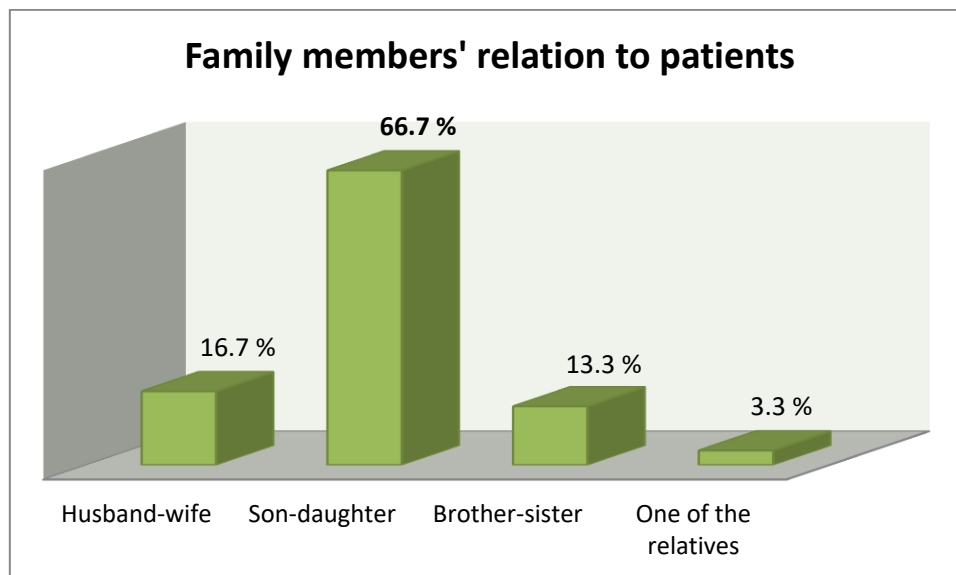


Figure (2): Percentage distribution of the studied family members according to their relation to patients (N=60)

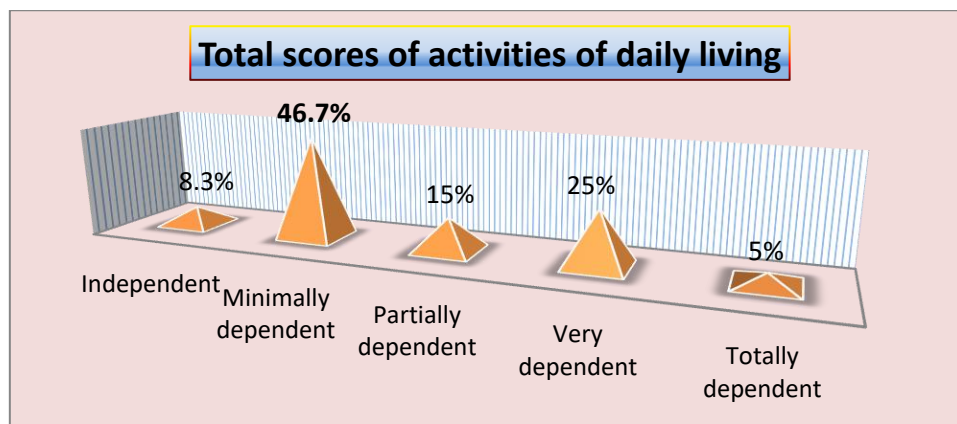


Figure (3): Frequency distribution of the studied patients according to total scores of activities of daily living (N=60)

Table (3): Total mean scores of studied patients' intensive care unit stressors (N=60)

Items	Mean \pm SD	Percentage	Rank
Environmental stressors (11 items)	26.43 \pm 5.86	97.8	1
Physical, disease or treatment related stressors (11 items)	24.08 \pm 3.56	83.7	2
Communication stressors (7 items)	15.05 \pm 2.12	81.7	3
Psychological stressors (13 items)	28.91 \pm 2.68	81.0	4

Table (4): Total mean scores of studied family members' needs (N=60)

Items	Mean \pm SD	Percentage	Rank
Assurance and anxiety reduction needs (7 items)	19.11 \pm 1.61	98.6	1
Information needs (8 items)	19.91 \pm 1.70	90.0	2
Proximity and accessibility needs (9 items)	21.18 \pm 1.88	85.4	3
Support needs (13 items)	22.05 \pm 2.66	63.3	4
Comfort needs (6 items)	9.33 \pm 1.80	61.8	5

**Table (5): Relation between total mean scores of studied patients' intensive care unit stressors and their demographic characteristics (N=60)**

Items	Physical stressors	Psychological stressors	Environmental stressors	Communication stressors	
Age					
3	0<40	21.5 ± 3.8	31.0 ± 1.8	28.5 ± 4.1	12.2 ± 1.2
40	<50	21.2 ± 4.2	30.3 ± 1.8	29.7 ± 2.6	10.7 ± 2.9
50 or more		20.2 ± 3.3	29.5 ± 2.7	29.1 ± 3.3	10.6 ± 1.9
P value		0.65	0.45	0.79	0.32
Gender					
Male		20.6 ± 3.9	29.8 ± 2.4	29.7 ± 3.4	10.3 ± 2.1
Female		20.4 ± 3.0	29.7 ± 2.7	28.7 ± 2.9	11.1 ± 1.9
P value		0.85	0.92	0.23	0.12
Educational level					
Do not read or write		23.1 ± 3.1	29.8 ± 2.9	29.3 ± 2.5	11.6 ± 1.4
Primary education		21.7 ± 3.4	29.7 ± 2.4	28.9 ± 3.8	9.9 ± 2.4
Secondary education		19.9 ± 3.5	29.2 ± 2.4	29.3 ± 3.8	10.1 ± 2.3
University		19.4 ± 3.0	30.6 ± 2.2	29.3 ± 3.3	10.5 ± 2.1
Post graduate		20.5 ± 3.4	29.7 ± 2.6	29.2 ± 3.2	10.7 ± 2.0
P value		0.05 *	0.67	0.77	0.10

* Significant (S) $p \leq 0.05$

Table (6): Relation between total mean scores of studied family members' needs and demographic characteristics (n=60)

Items	Total assurance	Total comfort	Total information	Total proximity	Total support
Gender					
Male	19.26 ± 1.39	9.19 ± 1.67	21.68 ± 1.55	21.24 ± 1.81	25.39 ± 2.50
Female	18.78 ± 2.01	9.63 ± 2.06	21.31 ± 2.18	21.05 ± 2.06	24.94 ± 3.76
P value	0.290	0.387	0.459	0.718	0.591
Educational level					
Do not read or write	19.25 ± 1.50	10.00 ± 2.44	22.16 ± 1.09	21.00 ± 1.41	25.00 ± 3.55
Primary education	19.50 ± 1.29	10.20 ± 2.62	21.75 ± 2.62	22.00 ± 0.81	24.25 ± 2.98
Secondary education	19.10 ± 2.00	9.28 ± 1.76	21.28 ± 1.84	20.82 ± 1.90	26.14 ± 2.82
University	19.04 ± 1.19	9.12 ± 1.65	19.75 ± 2.62	21.50 ± 2.02	24.04 ± 2.84
P value	0.961	0.599	0.048 *	0.484	0.171



Relation with patients					
Husband - Wife	19.00 ± 1.63	9.70 ± 1.82	21.00 ± 2.21	21.50 ± 1.58	25.00 ± 2.53
Son - Daughter	19.20 ± 1.60	9.45 ± 1.75	21.85 ± 1.47	21.07 ± 2.04	25.22 ± 3.19
Brother - Sister	18.50 ± 1.77	8.37 ± 2.13	21.37 ± 2.38	21.37 ± 1.68	25.62 ± 2.66
One relative	20.50 ± 0.70	9.00 ± 0.01	19.50 ± 0.70	21.00 ± 1.41	25.00 ± 0.70
P value	0.435	0.413	0.182	0.919	0.976
Number of family member's visits to patient					
The first	18.00 ± 2.00	8.16 ± 1.16	22.33 ± 1.36	21.00 ± 0.89	26.37 ± 2.06
The second	18.60 ± 1.88	9.46 ± 2.32	21.66 ± 1.67	21.13 ± 1.72	25.26 ± 2.86
The third	19.53 ± 1.24	9.40 ± 1.68	21.40 ± 2.19	21.41 ± 2.38	24.46 ± 2.89
Morethan Third	19.45 ± 1.41	9.50 ± 1.61	21.41 ± 1.66	21.12 ± 1.89	22.66 ± 2.76
P value	0.088	0.428	0.697	0.964	0.022 *

* Significant (S) $p \leq 0.05$

RESULTS

Table (1) illustrates that 78.3% of the studied patients were aged 50 years or more with a mean age (61.00 ± 13.28). 50.0% and 46.7% of the studied patients were male or female and weren't working respectively. As well, 66.7% and 55.0% of them were married and were from the rural area respectively. Concerning monthly income, 53.3% of the studied patients had sufficient monthly income for treatment expenses. Regarding costs of treatment, 70.0% of the studied patients received free treatment on state expense. 56.7% of them weren't responsible for their families.

Figure (1): shows that 38.4% of the studied patients didn't read or write and 30% of them had secondary educational level

Table (2): presents that 38.3% of the studied family members were in the age group from 30 to less than 40 years with a mean age (36.68 ± 11.08). 46.6% of the family members had a secondary education. As well; 56.7% of them were working at private settings, while, 96.7% of them were single. Concerning number of family member's visits to patient, 40.0% of the studied family members were visiting their patients more than three visit.

Figure (2): presents that 66.7% of the studied family members had son or daughter relation to their patients.

Figure (3): illustrates that 46.7% of the studied patients were minimally dependent in performing their activities of daily living.

Table (3): shows that the highest mean score of intensive care unit stressors of the studied patients was for environmental stressors (26.43 ± 5.86). While, the lowest mean score was for psychological stressors (28.91 ± 2.68).



Table (4): presents that the highest mean score of studied family members' needs was for assurance and anxiety reduction needs (19.11 ± 1.61). While, the lowest mean score was for comfort needs (9.33 ± 1.80).

Table (5): illustrates that there was a statistically significant relation between the total mean scores of physical stressors and educational level of the studied patients with P (0.05).

Table (6): presents that there was a statistically significant relation between the total mean scores of information needs and educational level of the studied family members with P (0.048), as well there was a statistically significant relation between the total mean scores of support needs and number of family member's visits to patient with P (0.022).

DISCUSSION

The critically ill patients have many physical needs as oxygen, feeding, bathing and toilet. The psychological needs of critically ill patients and psychological needs for their families are frequently overlooked as a great deal this time. The ICU nurse has big duties toward providing physical and psychological needs for patients and supporting their families (*Edwards & Williams, 2019*).

In relation to demographic characteristics, the results of the present study showed that, the majority of studied patients were aged from 50 years or more and less than half of them weren't working. This study result is in agreement with *TenHoorn, et al, (2016)* who conducted a study titled "communicating with conscious and mechanically ventilated critically ill patients", found that more than half of studied patients aged more than 50 years and one quarter of them weren't working.

The present study revealed that two thirds of studied patients were married. This could be due to the age of the majority of the studied patients of 50 years or more and by this age they are married according to Egyptian society culture. This finding agrees with *Duffy et al. (2018)* who carried out a pilot study about assessing the spiritual, emotional, physical/environmental, and physiological needs of mechanically ventilated surgical intensive care unit patients and clarified that majority of studied patients were married.

Concerning monthly income, the present study reported that, more than half of studied patients had sufficient family income for treatment expenses. This may be due to more than two thirds of them received free treatment on state expense. This result is consistent with *Meneguín et al. (2018)* Association between comfort and needs of ICU patients' family members who identified the family members' level of comfort and needs and analyzed the sociodemographic/ clinical variables that influence this association and reported that two thirds of studied patients had sufficient income for treatment costs.

The current study illustrated that more than half of the studied patients weren't responsible for their families and all of them were living with their families. This may be due to the advanced age and history of chronic diseases of the majority of them. This finding is supported by *Guidet et al. (2019)* whose study titled "The contribution of frailty, cognition, activity of daily life and comorbidities on outcome in acutely admitted patients over 80 years in European ICUs", and found that one quarter of them were responsible for their families.



Regarding educational level, the current study illustrates that, more than one third of the studied patients didn't read or write and less than one third of them had secondary educational level. This result agrees with *Creutzfeldt et al. (2017)* who conducted a study about "Palliative care needs assessment in the neurological ICU: effect on family", and mentioned that one third of the patients had secondary educational level.

Concerning demographic characteristics of the studied family members, the present study mentioned that, slightly more than one third of studied family members were in the age group from 30 to less than 40 years with a mean age 36.68 ± 11.08 and about half of them had a secondary education.

This finding is supported by *Moghaddam et al. (2016)* in their study about "Psychosocial needs of families of intensive care patients: perceptions of nurses and families", showed that more than one third of studied family members were more than 20 years with a mean age 36.44 ± 10.30 .

Considering number of family member's visits to patient, more than one third of studied family members were visiting their patients more than 3 visits. This result disagrees with *Padilla-Fortunatti et al. (2018)* who assessed needs of relatives of critically ill patients in an academic hospital in Chile and revealed that more than half of studied family members were visiting their patients once.

Considering patients' total scores of activities of daily living, about one half of them were minimally dependent. This result agrees with *Nielsen et al. (2018)* who assessed associations between eating difficulties, nutritional status and activity of daily living in acute ill patients and found that more than one third of studied patients were minimally dependent.

As regards to total mean scores of intensive care unit stressors, the present study showed that, the highest mean score of intensive care unit stressors of the studied patients was for environmental stressors, this could be due to more than one third of them were admitting to this ICU for the first time. While, the lowest mean score was for psychological stressors.

Regarding total mean scores of family members' needs, the present study illustrated that, the highest mean score of studied family members' needs was for assurance and anxiety reduction needs. While, the lowest mean score was for comfort needs. This finding disagree with *Saleh, et al, (2020)* who illustrated that assurance and anxiety reduction needs had the highest importance score and support needs had the lowest importance score. *Considering the relation between total mean scores of intensive care unit stressors and demographic characteristics of patients*, there was a statistically significant relation between physical needs and their educational level, with a higher mean score of physical needs in patients who didn't read or write. This could be due to lack of information about their disease and treatment. This finding is consistent with *Mollaogu, et al., (2021)* who reported that illiterate patients had significantly higher mean stressor score compared to those with high school.

As regards to relation between total mean scores of studied family members' needs and their demographic characteristics, the present study reported that there was a statistically significant relation between total mean scores of information needs and their educational level and there was a statistically significant relation between total mean scores of support needs and numbers of family member's visits to patient, with support mean score was higher during the first visit. This may be due to unfamiliarity of family members with hospital ICU



and complex ICU equipments during their first visit to patient increased their need for support. This finding isn't supported by *Hasandoost, et al., (2018)* Family needs of patients admitted to the intensive care units who mentioned a relationship between demographic data of family members and their needs.

CONCLUSION

The present study showed that less than half of the studied patients were minimally dependent, the highest mean score of intensive care unit stressors of the studied patients was for environmental stressors, while, the lowest mean score was for psychological stressors. The highest mean score of studied family members' needs was for assurance and anxiety reduction needs, while, the lowest mean score was for comfort needs. There was a statistically significant relation between physical needs and educational level of the studied patients, as well, there was a statistically significant relation between the total mean scores of information needs and educational level of the studied family members and between the total mean scores of support needs and number of family member's visits to patient.

RECOMMENDATIONS

Recommendations for patients and family members related factors:

- Assess the effect of meeting patients' needs on their health condition.
- Assess the effect of meeting family members' needs on their satisfaction regarding care provided.
- Continuous assessment of the most important and largely unmet needs of critically ill patients and their family members.

Recommendations for further studies:

- Replication of the study on larger sample to be able to generalize the result study.
- Future studies should target diverse populations to test whether similar needs are similarly important for ICU patients' and their family members.
- Developing a simplified illustrated and comprehensive Arabic booklet for meeting the most important needs of ICU patients and their family members.
- Conducting an educational program for ICU nursing staff about the importance of patients and family needs meeting



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