

The psychological impact of intensive care unit admission on relatives of critically ill patients

Authors: O. A. Ige^{1*}; I. K. Kolawole¹; P. O. Ajiboye¹

Affiliations: ¹University of Ilorin, Ilorin, Nigeria

ABSTRACT

INTRODUCTION: It is recognized that ICU patients are exposed to massive stresses both from their life-threatening illness and the necessary intensive medical procedures they are subjected to. These stresses may lead to psychological problems like depression, anxiety and post-traumatic stress disorder. However, the psychological demands and impact of the ICU on the relatives of these patients are often not appreciated.

We aimed to determine the prevalence of anxiety and depression and the influence of ICU specific interventions on the development of psychological symptoms in relatives of ICU patients.

METHODS: This prospective, descriptive, questionnaire-based study was conducted on all consenting primary caregivers of patients on admission in the intensive care unit during the study period. The Hospital Anxiety and Depression Scale and the General Health Questionnaire were used to determine the presence of psychological disorders during this study.

RESULT: In this study, GHQ demonstrated a 72.5% prevalence of psychological illness in relatives of ICU patients. The prevalence of psychological illness using Hospital Anxiety and Depression Scale (HADS) was 56.3% on the anxiety scale and 55% on the depression scale.

CONCLUSION: Critical care can result in the development of psychological disorders among primary caregivers of ICU patients. Intensive care physicians need to pay more attention to their care's impact on the psychological health of their patients' relatives.

Keywords: Critical Care, Intensive Care, Psychological Stress, Anxiety Disorder, Depression

INTRODUCTION

The intensive care unit (ICU) is one of the major components of the modern health care system. The development of this unit has made the care of seriously sick patients possible. It allows the utilization of more technically oriented tools to monitor and get information instantly about any changes in the patient's physiological parameters to enable the development of new strategies

to save a life. Consequently, more patients with severe illness and many families of patients with chronic, life-limiting diseases are now opting for a trial period of intensive care. In this regard, the intensive care unit has offered hope to many critically ill patients; and many survive life-threatening conditions that could only have been treated in the intensive care unit.

However, the intensive care unit is also a highly tense environment, where patients are likely to

***Corresponding author:** O.A. Ige, Department of Anaesthesia, University of Ilorin/University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria. E-mail: femiigedoc@yahoo.com. Telephone number: +2348033801220; **Potential Conflicts of Interest (CoI):** All authors: no potential conflicts of interest disclosed; **Funding:** All authors: no funding has been sought or gained for this project; **Academic Integrity.** All authors confirm that they have made substantial academic contributions to this manuscript as defined by the ICMJE; **Ethics of human subject participation:** The study was approved by the local Institutional Review Board. Informed consent was sought and gained where applicable; **Originality:** All authors: this manuscript is original has not been published elsewhere; **Review:** This manuscript was peer-reviewed by three reviewers in a double-blind review process; **Type-editor:** Cardillo (USA).

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be anxious, and relatives may be apprehensive and fearful. It is recognized that ICU patients are exposed to massive stresses both from their life-threatening illness and the necessary intensive medical procedures they are subjected to [1]. These stresses may lead to psychological problems like depression [2], anxiety [2] and post-traumatic stress disorder [3]. In South Africa, a study revealed anxiety symptoms in 48%, depressive symptoms in 28% and symptoms of post-traumatic stress disorder (PTSD) in 32% of ICU patients after discharge [4]. These patients are usually dependent on the advanced care provided in the ICU and on care and support from their relatives. On the part of the relatives, having a patient in the Intensive Care Unit (ICU) is probably one of the most stressful events a family carer can go through. In most cases, the individual has had no time to prepare but just find himself/herself in a complex environment full of anxieties and questions. This experience could pose a great emotional, physical, and practical challenge, enough to overwhelm the individual's coping abilities. However, the psychological demands and impact of the ICU on these relatives is often not appreciated.

The Diagnostic and statistical manual of mental disorders (DSM) 5 criteria defines a psychological stressor as direct exposure to death or threatened death, or witnessing these in another person and the knowledge that a close relative or friend has been exposed to actual or threatened death [5]. ICU patients are critically ill with life-threatening conditions. Therefore, their relatives, especially those directly involved in their care, are exposed to severe psychological stress and may exhibit high distress levels that persist throughout their relatives' ICU admission [6]. Some of them subsequently develop psychological problems such as post-traumatic stress disorder.

The psychological impact of ICU admission of a patient on relatives may differ among populations with differing sociocultural factors. Studies have shown anxiety symptoms in American hospitals in 10-42% and depressive symptoms in 16-35% of relatives of ICU patients [7,8,9]. In French hospitals, 73% of relatives of ICU patients had anxiety symptoms, while 35% had symptoms of depression [10]. A study in India found anxiety symptoms in 21% and depressive symptoms in 28% of relatives of ICU patients [11].

In Nigeria, a country with a low life expectancy of 55.2 years [12], it is expected that having a critically

ill relative would pose major psychological stress. A previous study in Nigeria found that mothers with children on admission in the Emergency Pediatric Unit were exposed to stressful factors, which included a poor attitude of nursing staff, non-conducive hospital environment, long history taking, frequent changes in medications and request for many laboratory tests by hospital doctors [13]. However, the impact of a patient's ICU admission on his/her relatives has not been adequately studied in Nigeria. Our objectives are to determine the prevalence of anxiety and depression and the influence of ICU specific interventions on the development of psychological symptoms in relatives of ICU patients.

METHODS

After obtaining ethical permission from our institution's Ethical Review Board (NHREC/02/05/2010), a prospective, descriptive, questionnaire-based study was conducted on all consenting primary caregivers of patients on admission in the intensive care unit during the study period. Exclusion criteria were relatives aged less than 18 years, communication difficulties, refusal to consent by patients or relatives and patient's death within 48 hours of ICU admission. The study was carried out at the University of Ilorin Teaching Hospital, Ilorin, Nigeria. This hospital is a referral centre for patients from Kwara State and neighbouring states of Kogi, Niger, Ekiti and Oyo. It has a four-bedded ICU that cares for patients from various specialties, including neurosurgery, general surgery, orthopaedics, pediatric internal medicine, obstetrics, and gynaecology.

The sample size was calculated using Fisher's formula [14]. A previous study by Kulkarni et al. found the incidence of anxiety to be 21% while using Hospital Anxiety and Depression Scale (HADS). This value was taken as the proportion in the target population estimated to have the characteristic (anxiety) [11]. Since the total ICU admission in the previous year was 500, the sample size was calculated to be 186.

Participants: The relative primarily responsible for the patient's care was invited to participate in the study between 48 hours and 72 hours of the patient's ICU admission. This time frame was chosen because anxiety symptoms have been established in relatives of ICU patients after 24 hours of ICU admission [15]. Relatives were

excluded if the patient did not survive beyond 48 hours of ICU admission.

The questionnaire: It consisted of demographic information of both patients and relatives. Also included were other clinical variables such as the reason for ICU transfer, the modes of management the patient has been exposed to in ICU and complications that developed during ICU admission. There was also an assessment of the adequacy of the information provided to the relatives, their perception of prognosis and their ability to participate in the decision-making process.

To ensure uniformity, the questionnaires were administered by a single resident doctor in the department of Anaesthesia. The interviews were conducted in a room to ensure privacy and the questionnaires were verbally administered in person. The relatives were given the option of not answering any question they were not comfortable with and they were allowed to withdraw from the interview at any time if they so wished.

Psychological scales: The Hospital Anxiety and Depression Scale and the General Health Questionnaire were used to determine the presence of psychological disorders during this study.

The hospital anxiety and depression scale [16] is a 14-item scale (seven items for anxiety and seven for depression) that is used to evaluate patients for symptoms of anxiety (HADS-A) and depression (HADS-D). It was developed for use in a non-psychiatric population. It differentiates psychological symptoms from those which arise as a result of physical illness. Each item was scored using a four-point scale ranging from 0 (not at all) to 3 (very often indeed); therefore, the scores range from 0 to 21 in each of the two subsets. A HADS-A score of > 10 indicates the presence of anxiety symptoms and a similar score in HADS-D suggests the presence of depression.

The General health questionnaire (GHQ) [17] was a 12 item self-administered questionnaire designed to assess psychological wellbeing among

adults. It assessed minor psychological disorders in the general population or non-psychiatric clinical setting, i.e. it was used to screen for psychiatric morbidity. It assessed four main domains of psychological health, namely depression, anxiety, social impairment and hypochondriasis. It had been validated in this environment and a cut-off point of 3 had been recommended [18].

Those who met the criteria for anxiety, depression and symptoms of psychological distress were counselled to seek further management at the Department of Behavioural Sciences. The decision to seek further management and the timing of such management rested solely on the relatives.

Statistical Analysis: All data were analyzed using SPSS version 20 (SPSS Inc, Chicago, Illinois, 2011). Necessary frequency tables were generated. Categorical variables were compared using the chi-square test while the students t-test was used for continuous variables. A p-value < 0.05 shall be taken to be statistically significant.

RESULTS

One hundred and sixty patients and their relatives were enrolled on the study. The average age of the patients was 34.2 +/- 19.2686yrs with a range of 5-77yrs. There were 88 males and 72 females. The mean age of male patients was 36.48 +/- 20.8062, while that of female patients was 29.83 +/- 16.933. The mean age for relatives was 37.61 +/- 11.8284. There were 60 male relatives and 100 female relatives. One hundred and forty-two relatives were from the patients' nuclear family, while 18 were from the extended family.

One hundred and fifty-two (95%) patients reported they were provided with information on the patient's condition; however, only 103 (64.4%) said the information was adequate. Only 64 (40%) respondents met the consultants in charge of their patients, while 102 (63.8%) were involved in decision making, with 92 (57.5%) reporting that their participation in decision making was adequate. One hundred and fifty (93.8%) relatives

Table 1: Psychological test results

	Abnormal/Positive	Borderline	Normal/Negative
HADS anxiety	90 (56.3%)	26 (16.3%)	44 (27.5%)
HADS depression	88 (55%)	44 (27.5%)	28 (17.5%)
GHQ	116 (72.5%)	-	44 (27.5%)

HADS: Hospital Anxiety and Depression Scale, GHQ: General Health Questionnaire

Table 2: Hospital Anxiety and Depression Scale-Anxiety (HADS-A)

	Normal	Borderline	Abnormal	χ^2	p-value
Patients gender					
Male	32	14	42	8.126	0.0172
Female	12	12	48		
Relatives' gender					
Male	14	10	36	0.856	0.65171
Female	30	16	54		
Relationship to patient					
Nuclear	32	24	86		0.16059
Extended	8	2	8		
Mechanical ventilation					
Yes	78	18	32	5.8392	0.053956
No	12	8	12		
Postoperative patient					
Yes	38	18	26	7.3831	0.024933
No	52	8	18		
Level of participation					
Adequate	22	18	52	2.891	0.235577
Inadequate	4	0	6		
Frequency of visitation					
Frequent	28	8	34	12.4526	0.001977
Infrequent	16	18	66		
Information on extent of illness					
Yes	28	14	74	10.538	0.00515
No	16	12	16		
Satisfaction with information					
Very/Moderately	34	12	74	14.1634	0.00084
Mildly/Not satisfied	10	14	16		

Table 3: Hospital Anxiety and Depression Scale-Depression (HADS-d)

	Normal	Borderline	Abnormal	χ^2	p-value
Patients gender					
Male	18	28	42	4.182	0.12356
Female	10	16	46		
Relatives' gender					
Male	14	20	26	5.43	0.06619
Female	14	24	62		
Relationship to patient					
Nuclear	22	38	82	4.888	0.08683
Extended	6	6	6		
Mechanical ventilation					
Yes	76	32	20	4.9675	0.083428
No	12	12	8		
Postoperative patient					
Yes	44	24	14	0.2638	0.876428
No	44	20	14		
Level of participation					
Adequate	14	24	54	1.322	0.51634
Inadequate	2	4	4		
Frequency of visitation					
Often	16	18	36	2.4737	0.290295
Otherwise	12	26	52		
Information on extent of illness					
Yes	18	32	66	1.225	0.5421
No	10	12	22		
Satisfaction with information					
Very/Moderately	22	32	66	0.3117	0.855693
Mildly/Not satisfied	6	12	22		

were permitted to see the patients but only 70 (43.8%) said the visitations were frequent.

In this study, GHQ demonstrated a 72.5% prevalence of psychological illness in relatives of ICU patients. The prevalence of psychological illness using HADS was 56.3% on the anxiety scale and 55% on the depression scale (Table 1).

When the patients admitted to the ICU were female, the relatives of these patients had statistically higher HADS-A scores than when the ICU patients were males ($p = 0.0172$). Also, when patients were admitted to the ICU postoperatively, their relatives had statistically higher HADS-A than patients admitted to ICU after conservative, non-surgical management ($p = 0.0249$). Those relatives who frequently visited their patients in ICU had statistically lower HADS-A scores than those who could not frequently visit ($p = 0.00197$). When information about the extent of the illness was provided to the relatives, it led to statistically higher HADS-A scores in those relatives that received the information ($p = 0.00515$) (table 2).

While there were elevated HADS-D scores, these scores could not be related in a statistically significant manner to the gender of the patients, their relatives' gender, postoperative reasons for admission, level of participation of relatives with patients care and the extent of information provided to the relatives (Table 3).

When the patients admitted to the ICU were female, the relatives of these patients had statistically higher HADS-A scores than when the ICU patients were males ($p = 0.0172$). Also, when patients were admitted to the ICU postoperatively, their relatives had statistically higher HADS-A than patients admitted to ICU after conservative, non-surgical management ($p = 0.0249$). Those relatives who frequently visited their patients in ICU had statistically lower HADS-A scores than those who could not frequently visit ($p = 0.00197$). When information about the extent of the illness was provided to the relatives, it led to statistically higher HADS-A scores in those relatives that received the information $p = 0.00515$). Relatives of mechanically ventilated patients in the ICU and relatives who considered their level of participation in the care of the patients in the ICU adequate had statistically higher scores ($p = 0.001438$ and 0.01516 respectively) (Table 4).

DISCUSSION

This study demonstrated a high prevalence of psychological disorders in relatives of ICU patients (GHQ 72.5%, HADS Anxiety 56.3% and HADS Depression 55%). These relatives had no history of psychological disorders before they had to care for someone on ICU admission. This study demonstrates that ICU admission is a significant cause of psychological disorders among patients' relatives. Therefore more attention should be paid to their psychological health.

The figures in our study are higher than those in a similar study in South Africa, where anxiety symptoms were found in 48%, depressive symptoms in 28% of relatives of ICU patients [4]. In India, anxiety symptoms were found in 21%, while depressive symptoms in 28% of relatives of ICU patients [11]. Anxiety symptoms in the USA were found in 10-42%, while depressive symptoms were in 16-35% [7,8,9].

Relatives are often relied upon to make crucial decisions concerning the care of ICU patients. These decisions occasionally include end-of-life decisions. Relatives are expected to understand complex medical conditions, accept prognostic uncertainties, weigh various complex treatment options and take sole responsibility for end-of-life decision making and withdrawal of life support while dealing with their anxiety and depression. The competence of relatives to take these decisions on behalf of others has been challenged [19]. A study found that relatives who prefer a passive decision-making role are more likely to have anxiety or depression [20]. The high rate of psychological disorders in our study suggests that care must be taken when we ask relatives to make crucial decisions concerning patient care. The American College of Critical Care Medicine has recommended that a shared decision-making model be adopted between the ICU staff and patients' relatives rather than placing the burden of decision making on patients and their surrogates alone [21].

While 150 (93.8%) relatives were permitted to see the patients, only 70 (43.8%) said the visitations were frequent. Our study showed that anxiety symptoms were less frequent in relatives who were allowed frequent visitation than those with restricted visitation (Table II). Depressive symptoms were not statistically increased in relatives with restricted visitation, neither were GHQ scores

Table 4: General Health Questionnaire (GHQ)-Answers

	Negative	Positive	χ^2	p-value
Patients gender				
Male	32	56	7.7059	0.005504
Female	12	60		
Relatives' gender				
Male	22	38	4.046	0.04428
Female	22	78		
Relationship to patient				
Nuclear	34	108	8.007	0.00466
Extended	10	8		
Mechanical ventilation				
Yes	28	100	10.1567	0.001438
No	16	16		
Postoperative patient				
Yes	26	56	1.4934	0.221688
No	18	60		
Level of participation				
Adequate	22	70	5.898	0.01516
Inadequate	6	4		
Frequency of visitation				
Often	22	48	0.9633	0.32635
Otherwise	22	68		
Information on extent of illness				
Yes	34	82	0.693	0.40501
No	10	34		
Satisfaction with information				
Very/Moderately	32	88	0.1672	0.682622
Mildly/Not satisfied	12	28		

elevated. While an open visitation policy that allows relatives access to patients whenever they choose presents challenges to the nursing staff caring for the patients, it has been shown to affect 88% of the families positively. It reduces anxiety in 65% of them [22].

Sincere communication with healthcare practitioners is one of the relevant needs of relatives of ICU patients [23]. The American College of Critical Care Medicine recommends that family members receive regular updates in a language they understand. These meetings with the professional team should begin within 24-48hrs after ICU admission and should be repeated as dictated by the condition of the patient [18]. In our study, one hundred and fifty-two (95%) patients reported they were provided with information on the patient's condition, with 103 (64.4%) patients reporting that the information was adequate. However, the relatives that reported they received adequate information also had more anxiety symptoms than those that reported inadequate information (Table II). This suggests that the provision of copious amounts of information is not sufficient; how this information is delivered to the patient will determine the outcome of the information provided. Information that is not efficiently passed across may not give the desired result. Therefore, it is recommended that ICU caregivers receive training in communication, conflict management and meeting facilitation skills [19].

In a review article, McAdam et al. found a prevalence rate for anxiety in family members of ICU patients to be 35-73%. Risk factors associated with anxiety were being a patient's spouse and being a female family member [24]. These factors did not lead to an increase in HADS scores in our study. However, female gender in the patient, surgery, limited visitation rights and provision of adequate information on the extent of the patient's illness led to significantly higher HADS scores.

Female relatives were more likely to experience psychological disorders, as evidenced by statistically significant GHQ scores increase. Paparrigopoulos et al. found that anxiety and depressive symptoms were more frequent when the family members were women [6]. In our

study, HADS for anxiety and depression were not significantly elevated.

Critical care physicians need to pay more attention to their care's impact on the psychological health of their patients' relatives. When this is not done, the ICU designed to impact patients' health positively may create additional problems in their relatives.

To minimize the impact of ICU care on relatives, ICU staff must be aware of the negative impact of ICU admission on the relatives of their patients. The American College of Critical Care Medicine Task Force recommends that family members be provided with ample information in various formats on emotional needs in the ICU and methods appropriate to comfort and assist in care. Family support should also be provided by a multidisciplinary team of social workers, clergy, nursing, medicine, and parent support groups [21]. It is also recommended that ICU staff receive training on assessing family needs and family members' stress and anxiety levels [21].

It was also discovered that allowing relatives to participate in some nursing care procedures under supervision, such as passive exercises and trimming nails, has a long-term benefit in minimizing the negative psychological effects [25]. This type of participation gives the relatives a feeling of being needed. Curtis et al. suggested that clinician-family communication can be improved by employing the VALUE approach (V – Value family statements, A – Acknowledge family emotions, L – Listen to the family, U – Understand the patient as a person, E – Elicit family questions) [26]. ICU care can also be improved by encouraging a warm, empathetic attitude towards patient relatives and better collaboration between psychiatrists, psychologists and intensive care physicians.

CONCLUSION

When patients are admitted into the ICU, their relatives often experience significant psychological ill-health. Our attempts at managing critical illness should not result in worsening levels of anxiety and depression. This unintended consequence of critical care should be further studied to determine changes in practice that may mitigate it.

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