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Anxiety symptoms in patients admitted in medical intensive care unit: A cross-sectional study

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ABSTRACT

Objective: Patients admitted to the medical intensive care unit (MICU) for various medical morbidities are prone to suffer various psychiatric symptoms. Common conditions for which psychiatric consultation is sought are anxiety, delirium, self-harm attempt, and adjustment disorder. Anxiety is a commonly encountered problem and can affect the treatment outcome and compliance. This study was carried out in the MICU of tertiary care hospital to assess the pattern of anxiety symptoms in patients admitted to the MICU.

Material and Methods: Sixty patients admitted to MICU were included in the study and assessed using semi-structured pro forma, Hamilton Anxiety Rating Scale (HAM-A), Brief Psychiatric Rating Scale, and Faces Anxiety Scale. Data were statistically analyzed using mean, Chi-square test, *t*-test, and logistic regression test.

Results: The majority of the participants were male, predominantly belonging to the age group of 40–59 years. Most of them had some physical, behavioral, or psychological symptoms of anxiety in a mild form. Although the extent of the anxiety symptoms in most of the patients was mild, a few also reported a moderate level of anxiety. Patients with cardiac and respiratory disorders had higher scores on anxiety rating scales than those with other diagnoses. Male gender, cardiorespiratory disease, and the presence or absence of anxiety had a negative correlation (r = −1.79) whereas gender, disease, and presence of mild or moderate anxiety had no statistical significance.

Conclusion: Most of the patients, especially those admitted with cardiac and respiratory disorders, had mild anxiety symptoms. Assessment of anxiety in MICU patients can be an important aspect to prevent or reduce the overall disease burden.

Keywords: Intensive care unit, Medical illness, Anxiety

INTRODUCTION

Anxiety is a normal adaptive biological response to a threat. It is associated with apprehension about an uncertain future and a state of helplessness due to the perceived inability to predict or control the desired outcome.[1] For most people, it is transient and results in minor consequences. As it is a common emotion, its consequences are usually under-appreciated.

Anxiety manifests in various ways resulting in physical, affective, behavioral, and cognitive symptoms and signs. It is protective to a certain extent as it triggers coping responses that protect an individual from threats. In this way, anxiety becomes adaptive. It becomes maladaptive when it increases or persists to such a degree that the individual can no longer function effectively in everyday life. Thus, anxiety exists on a continuum from normal (physiological) to pathological. At all stages along the continuum, anxiety has similar physical, cognitive, neurobiological, and behavioral components. According to the different diagnostic systems (diagnostic and statistical manual for mental disorders and International Classification of Diseases 10th edition, anxiety disorders have been classified into various subtypes such as panic disorder, phobias, acute stress disorder, post-traumatic stress disorder, generalized anxiety disorder, and mixed variety.

Patients with medical illnesses are vulnerable to developing anxiety. The experience of the course of illness, treatment protocols, and setting could be stressful and anxiety-provoking to them. Anxiety is a commonly reported symptom of critically ill patients in the medical intensive care unit (MICU). It is an unpleasant emotion and an important issue in intensive care unit (ICU) settings because of its prevalence, adverse effects, and severity.[2] Despite this fact, it is rarely

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assessed routinely in a systematic manner.[3] Symptoms and signs of many medical conditions overlap with those of anxiety; hence, it is important to assess anxiety judiciously in patients who are in MICU. Many patients find MICU as an alien environment. There is a restriction in the activities, decreased independence, loss of privacy, and potential threat to health. The situation/environment may exacerbate the anxiety that patients may be already experiencing from the illness. Thus, MICU is a potential place that can produce or aggravate anxiety in these patients. This may affect the course of the medical illness and overall prognosis depending on the severity. Many a time, these patients receive anti-anxiety drugs periodically to alleviate the anxiety symptoms. Some studies have demonstrated more than 60% prevalence of anxiety symptoms in patients admitted to the critical care unit.[4]

Studies show that depression, stress, and anxiety are well known among patients in ICU and often affect the outcome of treatment.[5] Anxiety is a frequently encountered psychiatric phenomenon by treating MICU physicians and is of important concern. Analysis of anxiety in these patients can provide more insight into the extent of anxiety in them and the relationship of anxiety with various factors affecting it. In Indian literature, there are very few such studies that propelled us to carry out this study to assess anxiety symptoms in patients admitted to ICU.

MATERIAL AND METHODS

This was a cross-sectional single-interview study carried out in a tertiary care teaching hospital. The study protocol was approved by the Institutional Ethics Committee.

Out of 450 patients admitted to MICU during the study period of 5 months, 60 consecutive patients satisfying the criteria were enrolled in the study. Primary inclusion criteria were to consider those patients who are clinically and hemodynamically stable, as approved by the concerned physician, and able to understand/answer the pro forma questionnaire. Patients <18 years of age, those on ventilators, medically unstable, and not willing to participate, or give informed consent were excluded from the study.

Out of 450 patients, 87 (19.33%) patients died because of their medical condition before they could be assessed. Out of the remaining, 303 patients were excluded from the study for various reasons (age <18 years = 8 [2.64%], decline of permission to interview by physician = 150 [49.5%], not willing to participate = 138 [45.54%], and unable to answer = 7 [2.31%]).

Thus, only 60 patients could be interviewed for participation in the study. The assessment was carried out minimum of 24 h after admission or stabilization of medical condition. The attending physician's permission was taken before approaching the patients. Utmost care was taken not to disturb the ongoing treatment schedule of patients in MICU. The anonymity of the participants was ensured. Confidentiality of data was strictly maintained and privacy was ensured while completing the interview. Each interview took around 30 min to complete.

After written informed consent, each participant was individually interviewed using the following tools:

Semi-structured pro forma

It included a sociodemographic profile and clinical profile including the history of present medical and psychiatric complaints, family and personal history, clinical examination, and diagnosis along with the details about the personality profile.

Brief psychiatric rating scale (BPRS)

BPRS was used to assess various psychiatric symptoms along with their severity. Psychiatric symptoms include depression, anxiety, hallucinations, and unusual behavior. Each item is measured along a 7-point continuum from "not present" to "extremely severe." It can be scored from 0 to 6 or 1 to 7, and depending on the version, a score between a total of 18 and 24 symptoms is scored. It permits the recording of the severity of 18 (originally 16). The scale has specific questions to assess anxiety which were scored and given special consideration in this study.

Hamilton anxiety rating scale (HAM A)

This scale was used to assess the extent of anxiety in patients. It is a 14-item scale measuring the severity of anxiety symptoms. It is sometimes called as Hamilton Anxiety Scale. It provides a measure of overall anxiety, psychic anxiety (mental agitation and psychological distress), and somatic anxiety (physical complaints related to anxiety). Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score ranging from 0 to 56. Score <17 indicates mild severity, 18–24 mild-to-moderate severity, and 25–30 moderate to severe. The seven items of psychic anxiety elicit a score that ranges from 0 to 28. The remaining seven items yield a somatic anxiety score that also ranges from 0 to 28.

Faces anxiety scale (FAS)

This self-report measure was developed by McKinley *et al*.[6] and used to assess state anxiety. It is a single-item scale with five responses ranging from a neutral face to one showing extreme fear. The faces were based on photographs of faces exhibiting fear.[7]

These pictorial representations have been considered a valid alternative to photographs of facial expressions.[8] This scale is appropriate for subjects with limited cognitive capacity (as in

ICU patients) and is relatively free from outside influences.[9] The human face provides the expression of emotions such as happiness, anger, and anxiety[10] and can reliably help to distinguish between emotions, for example, anger versus fear.[11]

It is easy to administer and has good continuous measurement properties. It is a good tool for research to rigorously evaluate interventions to reduce anxiety in ICU patients and investigate the relationship between patients' anxiety and recovery in the critically ill population.[6]

Statistical analysis

Data thus collected were tabulated and analyzed statistically using mean, standard deviation, Chi-square test, and multiple logistic regression test. $P = 0.05$ or less was considered statistically significant.

RESULTS

Sociodemographic and clinical profiles are given in Table 1.

The mean age of the participants was 43.1 years (SD – 12.9). Age-wise distribution showed that the maximum number of participants (31.7%) were from the age group of 40–49 years. The majority 41 (68.3%) of the participants were male. More than 3/4th of the participants were married. Most of the participants were educated. In this study, the mean duration of the present stay before the patient was deemed fit for psychiatric assessment was 4.08 days (SD = 1.81) (range 2–9 days).

Among the patients undergoing treatment in MICU and those who participated in the study, 41.7% had diagnosis of cardiovascular disorders, 33.3% of patients had respiratory illness, 18.3% of patients had poisoning, and 6.7% of patients had other diagnoses (diabetes mellitus, seizure disorder, malaria, and urinary tract infection). Thus, most (75%) of the patients were under treatment for cardiorespiratory conditions.

The majority (51.7%) of the patients did not report a history of any medical illness in the past. Only 1 (1.7%) patient had a history of surgical illness. He had undergone an appendicectomy procedure. About 80% of patients did not report a history of any medical or surgical illness among family members. Most (85%) of the patients did not receive any anti-anxiety medications during their stay in the MICU before assessment. Only 15% of the patients were given anti-anxiety drugs (lorazepam and alprazolam) intermittently for symptomatic relief [Table 1].

In this study, none of the patients reported any psychiatric symptoms or anxiety symptoms as chief complaints. About 15% of patients reported anxiety as an occasional psychiatric complaint. Psychiatric consultation was sought for 18.3% of patients with an alleged history of poisoning and they were found to have impulsive deliberate self-harm (DSH) after a detailed psychiatric assessment. None of the patients reported a history of any major psychiatric illness.

Table 1: Sociodemographic and clinical profile.

Sociodemographic characteristics	**Mean**	**SD**
Age (years)	43.1	12.9
Education (years)	10.15	4.16
Occupation	**Number**	**Percentage**
Unskilled	49	81.67
Skilled	11	18.33
Marital status		
Single	14	23.3
Married	46	76.7
Gender		
Males	41	68.4
Females	19	31.6
Clinical characteristics – medical	**Mean**	**SD**
Duration of stay in MICU (days) before patient was deemed fit for assessment	4.08	1.81
Medical diagnosis (system wise)	**Number**	**Percentage**
Cardiovascular	25	41.7
Respiratory	20	33.3
Poisoning	11	18.3
Others	4	6.7
Past history (medical illness)		
Cardiac	9	15
Respiratory	17	28.3
Diabetes mellitus	3	5
Nil	31	51.7
Past history (surgical illness)		
Yes	1	1.7
No	59	98.3
Family history of medical or surgical illness		
Cardiac illness (and hypertension)	5	8.3
Respiratory illness	4	6.7
Diabetes mellitus	3	5
Treatment with anti-anxiety drugs		
Yes	9	15
No	51	85

MICU: Medical intensive care unit

Only 6.7% of the patients reported a family history of anxiety disorders, while 25% reported the presence of significant stressors in their families. A few (16.7%) patients reported the presence of alcohol use disorders in their family members. Avoidant and dependent traits were found in 33.3% and 21.7% of the participants, respectively. Borderline and histrionic traits were also present in some of them. Although 18.3% of patients had a diagnosis of impulsive DSH, no other psychiatric diagnosis could be made in the study participants.

All the patients had some physical, behavioral, or psychological symptoms of anxiety. Sleep disturbances

53 (88.3%), anxious worries 50 (83.3%), generalized pains and aches 45 (75%), choking or constriction in the chest 43 (71.67%), tingling and numbness 35 (58.3%), and fatigability and tremulousness 33 (55%) were commonly reported symptoms by them.

In this study, the mean BPRS total score was 4.5 (SD = 1.7) and the mean BPRS anxiety score was 2.0 (SD = 0.8), respectively. Fifty (83.3%) patients scored in the range of 3–7 on BPRS, while 13.3% of patients scored in the range of 1–2, and only 3.34% scored in the range of 8–9.

The mean score of BPRS total (5.1, SD – 1.63) and BPRS anxiety (2, SD – 0.94) was significantly higher in females compared to males. The mean BPRS anxiety score was higher (2.31, SD – 0.58) in the age group of 40–49 years followed by the 30–39 years age group.

The mean BPRS total score of 5.5 (SD = 3.0) and mean BPRS anxiety score of 2.25 (SD = 0.5) were seen in another group of diseases. When cardiac and respiratory diseases are considered together, the mean BPRS total and mean BPRS anxiety score were significantly higher in the cardiorespiratory diseases group compared to other diseases.

The mean BPRS total score of 4.3(SD = 1.31) and mean BPRS anxiety score of 2.03 (SD = 0.61) were found in males with a cardiorespiratory disease which was significantly higher than in males with non-cardiorespiratory diseases. The mean BPRS total of 5.46 (SD = 0.99) and BPRS anxiety score of 2.2 (SD = 0.77) were observed in females with a cardiorespiratory disease which was significantly higher than in females with the non-cardiorespiratory disease [Table 2].

Table 2: BPRS score and its correlations.

N	BPRS total		BPRS anxiety	
	Mean	SD	Mean	SD
60	4.5	1.7	2	0.8
Gender				
Male	4.2	1.71	1.92	0.68
Female	5.1	1.63	2.0	0.942
P-value	0.04		0.043	
Age (years)				
18–29	4.0	2.54	1.64	1.00
30–39	5.25	1.25	2.25	0.95
40–49	4.63	1.53	2.31	0.58
50–59	4.47	1.32	1.88	0.60
>60	5.0	1.26	1.5	0.54
Disease wise				
Cardiovascular	4.2	1.32	2.04	0.675
Respiratory	5.3	1.080	2.15	0.670
Poisoning	3.45	2.296	1.27	0.904
Others	5.5	3.0	2.25	0.5
P-value	0.12		0.23	
Cardiorespiratory and non-cardiorespiratory				
Cardiorespiratory	4.68	1.32	2.08	0.668
Non-cardiorespiratory	4	2.48	1.53	0.915
P-value	0.046		0.039	
Cardiorespiratory and non-cardiorespiratory gender wise				
Male				
Cardiorespiratory	4.3	1.31	2.03	0.61
Non-cardiorespiratory	4.09	2.58	1.63	0.80
P-value	0.048		0.041	
Female				
Cardiorespiratory	5.46	0.99	2.2	0.77
Non-cardiorespiratory	3.75	2.87	1.25	1.25
P-value	0.034		0.037	

HAM A scale

The mean HAM A score was 7.35 (SD – 2.87) with no statistical difference between male and female participants. Mean HAM A score was significantly higher in other diseases category among males (*P* – 0.021) whereas in females, HAM A score was significantly higher in those with cardiac

Table 3: Hamilton Anxiety Rating Scale.

n=60	Mean	SD	*P*-value
	7.35	2.87	
Gender			
Male	7.09	2.71	0.33
Female	7.89	3.19	
Disease			
Cardiac	8.24	2.30	0.0003
Respiratory	4.18	2.56	
Poisoning	7.75	2.56	
Others	2.93	1.71	
Male			
Cardiac	7.61	1.91	0.021
Respiratory	7.5	1.78	
Poisoning	4.28	2.13	
Others	8.5	5.80	
Female			
Cardiac	9.85	2.54	0.05
Respiratory	8.12	1.64	
Poisoning	4	3.55	
Others	0	0	
Cardiorespiratory and non-cardiorespiratory disease			
Cardiorespiratory	8.02	2.05	0.029
Non-cardiorespiratory	5.33	3.97	
Cardiorespiratory and non-cardiorespiratory disease with gender			
Male			
Cardiorespiratory	7.56	1.83	0.031
Non-cardiorespiratory	5.81	4.16	
Female			
Cardiorespiratory	8.93	2.21	0.023
Non-cardiorespiratory	4	3.55	

diseases. When cardiac and respiratory diseases were clubbed together, the mean anxiety score was significantly higher in both genders with $P < 0.05$ [Table 3].

FACES scale

The mean FACES anxiety score was 2.0 (SD = 0.75) in this study [Table 4].

Out of 60 participants, this study showed that 43.4% of patients (38.4% of males and 5% of females) had mild anxiety, 28.3% of patients (11.6% of males and 16.7% of females) had moderate anxiety, while 28.3% of patients (18.3% of males and 10% of females) had no anxiety as per FACES scale.

In this study, 56.1% (23 out of 41) males and 15.8% (three out of 19) females showed mild anxiety, moderate anxiety was noticed in 17.1% of males (seven out of 41), and 52.6% (10 out of 19) of females whereas 26.8% of males and 31.6% of females did not report any anxiety.

[Table 5] Disease-wise distribution showed the highest mean FACES anxiety score of 2.16 (SD = 0.74) in patients with cardiovascular diseases whereas the lowest mean FACES anxiety score of 1.36 (SD = 0.67) was seen in poisoning cases. This correlation was statistically significant with $P = 0.01$. On system-wise distribution, mean anxiety score on FACES scale was higher in cardiorespiratory patients (mean – 2.15 and SD – 0.70) compared to that in non-cardiorespiratory patients (mean – 1.53 and SD – 0.74) [Table 6].

In a comparison of various age groups, it was evident that the mean FACES anxiety score was high in the age group of above 40 years compared to that in the age group of <40 years on the same scale. This shows that patients above 40 years have more anxiety than younger ones. However, the correlation was not significant statistically.

On analyzing the mean FACES scale scores across the gender, it was evident that females had higher mean FACES anxiety scores (mean – 2.21 and SD – 0.96) compared to males (mean – 1.90 and SD – 0.66). This shows that females have more anxiety than their male counterparts. However, no significant statistical difference was observed.

Analysis across the marital status variables showed that the mean FACES anxiety score was high in the married category (mean – 2.11 and SD – 0.74) and low (mean – 1.64 and SD – 0.74) in the unmarried category (single, divorced, widow, and widower). This was statistically significant with $P = 0.043$. This shows that married persons had higher anxiety than single ones. No statistically significant difference was noted between anxiety on FACES scale and education status of participants.

When HAM A score was compared with the above factors, no statistically significant correlation was found with any of the factors.

Multivariate analysis

Multiple logistic regression analysis was [Table 6] applied to the factor of disease (cardiorespiratory and non-cardiorespiratory) with the gender of the patient (male and female) and "presence or absence" and "severity" (mild and moderate) of anxiety. In this analysis, it was found that male sex, cardiorespiratory disease, and the presence or absence of anxiety had a negative correlation (r = −1.79), and the finding was statistically significant ($P = 0.021$). While correlation among gender, disease and severity, that is, the presence of mild or moderate anxiety had no statistical significance.

DISCUSSION

The primary purpose of this study was to assess anxiety in patients admitted to MICU. The majority (60%) of the patients belonged to the age group of 40–59 years suggesting that patients of this age group are frequently admitted to MICU and this was expected as the incidence of medical

Table 4: FACES scale scores.

Mean-2 SD-0.75	No anxiety (%)	Little bit anxiety (%)	Bit more anxiety (%)	More anxiety (%)	Extreme anxiety (%)
Total (*n*=60)	17 (28.3)	26 (43.4)	17 (28.3)	0 (0)	0 (0)
Male (*n*=41)	11 (18.3)	23 (38.4)	7 (11.6)	0 (0)	0 (0)
Female (*n*=19)	6 (10)	3 (5)	10 (16.7)	0 (0)	0 (0)
Age (years)					
18–29 (*n*=14)	8 (57.2)	3 (21.4)	3 (21.4)	0 (0)	0 (0)
30–39 (*n*=4)	1 (25)	1 (25)	2 (50)	0 (0)	0 (0)
40–49 (*n*=19)	1 (5.3)	8 (42.1)	10 (52.6)	0 (0)	0 (0)
50–59 (*n*=17)	4 (23.5)	11 (64.7)	2 (11.8)	0 (0)	0 (0)
>60 (*n*=6)	3 (50)	3 (50)	0 (0)	0 (0)	0 (0)
Gender					
Male (*n*=41)	11 (26.8)	23 (56.1)	7 (17.1)	0 (0)	0 (0)
Female (*n*=19)	6 (31.6)	3 (15.8)	10 (52.6)	0 (0)	0 (0)

Table 5: FACES scale scores and correlation.

Number of participants	Mean	SD
60	2.0	0.75
Disease wise		
Cardiovascular	2.16	0.74
Respiratory	2.15	0.67
Poisoning	1.36	0.67
Others	2	0.81
	P-0.01	
Cardiorespiratory disease and non-cardiorespiratory disease		
Cardiorespiratory	2.15	0.70
Non-cardiorespiratory	1.53	0.74
Gender and disease wise with cardiorespiratory and non-cardiorespiratory		
Male		
Cardiac	2.05	0.639
Respiratory	2.00	0.603
Poisoning	1.28	0.487
Others	2.00	0.816
Cardiorespiratory	2.03	0.614
Non-cardiorespiratory	1.54	0.687
Female		
Cardiac	2.42	0.975
Respiratory	2.37	0.744
Poisoning	1.5	1.0
Others	0.00	0
Cardiorespiratory	2.4	0.828
Non-cardiorespiratory	1.5	1.0

morbidity and mortality increases with age. Some studies found that patients above 45 years of age (i.e., 46–60 years) more commonly experience anxiety symptoms mainly after the cardiac event and get hospitalized in ICU for the same.[12] In another study, it was found that South Asians are vulnerable to cardiac illness at an earlier age compared to individuals from other geographic regions in the world, and thus, the possibility of admission to MICU is more for them.[13] In this study, male patients were more compared to their female counterparts. This is in concurrence with other studies, where the authors mentioned that males constitute a significant majority.[12,14] This pattern is similar to some other studies from India[15] also. Sex differences in health-care access and utilization in South Asia have also been reported[16] putting females at a disadvantage throughout their life cycle for health seeking. This gender difference can also be reflective of the increased occurrence of cardiac and respiratory diseases in men as they are exposed to a multitude of risk factors such as smoking and alcoholism. In this study, the majority of the participants had a short ICU stay of 1–5 days, suggesting that most of the participants included in this study were not critically ill for a prolonged period. Studies have shown that patients generally require 4–5 days to get stabilized in ICU.[3] Around 42% of the participants in this study had a cardiovascular system-related diagnosis, 33.3% had respiratory disorders, and 18.3% had a diagnosis of poisoning (DSH). Whereas, only a few patients had other disorders including diabetes mellitus Type II, seizure disorder, malaria, and urinary tract infection. Cardiovascular-related indications are the leading cause of ICU admission in the emergency group. Cardiac and respiratory diseases generally present similar kinds of symptoms, and in many situations, they are intermingled and assisted jointly. Around 15% of the patients received anti-anxiety drugs for their periodic anxiety symptoms during their stay in the ICU at the discretion of treating physicians. Alprazolam and lorazepam in low doses were commonly used when required to control anxiety symptoms in these patients. The literature shows that, in critically ill patients, benzodiazepines, antidepressants, and antipsychotics are commonly used.[17] Although many of the participants reported experiencing mild anxiety in the ICU setting, none of them reported it as "chief complaints" over their medical problems. Psychiatric reference for 18.3% of poisoning patients was made for evaluation and management after stabilization of the medical condition. They were found to have impulsive DSH and were advised counseling (psychotherapy) for the same. This finding is not surprising; as, in a hospital set-up, critical poisoning cases are managed in ICU. The impulsive nature of the DSH is generally secondary to adjustment problems or stressful situations. In this study, none of the patients reported a history of any major psychiatric illness. There is also a remote possibility that patients may have been reluctant to divulge such sensitive information because of the stigma attached to mental illness.

Some of the participants gave a history of occasional intake of alcohol and a history of nicotine intake. None of the participants gave a history suggestive of alcohol dependence. Alcohol and nicotine are the most common substances used throughout the world and are risk factors for cardiovascular and respiratory illnesses. Consuming alcohol and nicotine for a long time is the major risk factor for cardiac and respiratory illnesses and hence the reasons for admission to ICU. A few patients had a family history of anxiety and some patients had the presence of stressors in their family. Family-related and external factors are frequent causes of anxiety. These can be trauma from a life-changing event (e.g., abuse and death of a loved one), the stress in a personal relationship, workplace or family, and financial worries.

Most of the participants mentioned instances of feeling afraid or anxious. Anxiety-related symptoms were rated clinically into mild, moderate, or severe types. The symptom most frequently reported was the patient's verbalization of anxiety as "anxious worries." Patients attributed anxiety to worries about breathlessness, choking sensation in the throat, being left alone, or encountering caregivers who were considered "mean" or impatient.

Table 6: Logistic regression.

Factors cluster	Variable	Regression coefficient	Standard error	Chi-square beta=0	Prob. level	Last R-squared	Odds ratio	Lower 95% conf. limit	Conf. limit upper 95%	Model R-squared	Model D.F.	Model Chi-square	Model prob.
Correlation of disease (cardiorespiratory) with gender of the patient and presence of anxiety or no anxiety. Male	Intercept	3.401197	1.15181	8.72	0.003148	0.182728	0.166667	0.036212	0.767078	0.123507	1	0.55	0.019066
	Disease	−1.791759	0.7788881	5.29	0.021425	0.119477							
Correlation of disease (cardiorespiratory) with gender of the patient and presence of anxiety or no anxiety. Female	Intercept	3.871201	1.732051	5.00	0.025415	0.227111	0.083333	0.006234	1.113916	0.197664	1	4.19	0.040708
	Disease	−2.484907	1.322876	3.53	0.060325	0.171880							
Correlation of disease (cardiorespiratory) with gender of the patient with presence of mild anxiety or moderate anxiety. Male	Intercept	−0.9190646	1.45849	0.40	0.528598	0.013983	0.791667	0.073580	8.517713	0.001368	1	0.04	0.844750
	Disease	−0.2336148	1.212146	0.04	0.847172	0.001325							
Correlation of disease (cardiorespiratory) with gender of the patient with presence of mild anxiety or moderate anxiety. Female	Intercept	−11.00567	736.1614	0.00	0.988072	0.000020	–	0.000000	-	0.047558	1	0.55	0.458620
	Disease	12.10428	736.1605	0.00	0.986881	0.000025							

Among physiological symptoms, fatigability, tremulousness, and rapid breathing were high in many patients and among behavioral symptoms, anxious worries, sleep disturbance, and difficulty in concentration were more common. Among somatic symptoms, generalized aches and pains, tachycardia, and chest discomfort were more prominent while loss of interest and fear were reported by patients among psychological symptoms.

Anxiety in various forms is a commonly reported symptom with an incidence that ranges from 30% to 80% and patients generally do not use the term "anxiety," to describe their experience, rather, they use words linked conceptually to the anxiety to describe their feelings, such as fear, panic, and frustration.[18-20]

BPRS scores did not point toward any major psychopathology though mild anxiety was reported by all patients on BPRS. BPRS anxiety score was high in cardiorespiratory patients, suggesting that anxiety was seen more in them. Most of the participants had mild anxiety scores on HAM A also. The prominence of somatic symptoms on HAM A, which are akin to the physical symptoms, such as chest discomfort and indigestion, reported by the patients with heart problems and expression of distress in the form of somatic symptoms are seen contributing to the anxiety. All the participants responded to FAS. More than two-thirds of the participants self-reported mild-to-moderate anxiety with a mean score of 2 (SD = 0.75); whereas, none reported more anxiety (severe anxiety) or extreme anxiety. Studies using the FACES scale in the ICU setting found anxiety in around 70% of the participants.[3,21] Patients on mechanical ventilation have also been found to have a similar frequency of state anxiety on FAS.[22] Another study showed extremely severe anxiety in 60% and severe anxiety levels in 25% of the patients in the ICU.[5] The higher incidence of anxiety in critically ill patients could be related to physiological alterations and the critical care environment.[23] Women were more anxious than men in a study related to cardiac patients.[24] Patients in MICU under treatment for cardiac and respiratory system disorders had significantly higher anxiety on the FACES scale and HAM A. Most of the participants with cardiac illness reported mild-to-moderate state anxiety on the FACES scale which was statistically significant. A higher number of female participants with cardiac illness had a moderate level of state anxiety on FAS.

Anxiety is common among patients with acute cardiovascular disease. Studies have shown that elevated levels of self-reported anxiety are present in 20–50% of patients following acute myocardial infarction.[25,26] Up to one-quarter of the patients with acute myocardial infarction experience symptoms of anxiety at least as intense as the average inpatient in a psychiatric ward.[27] However, the incidence of anxiety could be much higher with up to 50% of the patients with MI reporting moderate-to-severe anxiety.[28] Women appear to have a higher risk than men for elevated levels of negative emotions after an acute cardiac event. Females with cardiac illnesses experience a moderate level of anxiety more frequently than males.[29,30] This pattern of higher anxiety in women was found across many countries.[24,31] In this study, anxiety was found high in the age group above 40 years compared to those below 40 years. Studies support this finding.[5] One study found that patients above 45 years of age (i.e., 46–60 years) were more likely to experience anxiety symptoms with a cardiac event in MICU.[12] The influence of age on the level of anxiety varies greatly. In some studies, younger participants had significantly higher anxiety scores than older participants.[30] Reactions to illness vary with age and older people anticipate illness as a foreseeable stress factor in old age.[32]

Women were found more anxious than men. A similar finding was seen in other studies.[5]Genetic and biological factors have been proposed to account for this variation not only relating to hormones but also to psychological and social factors. Women might experience greater stress associated with their societal role and especially in low- and middle-income countries, they might have less chance to escape, avoid, and modify a stressful environment.[33] However, the reason for this difference is not clear. Various causes have been indicated, such as the role of a woman as a family caregiver (taking care of all the family members and doing household chores).[29]

In another study, women reported mean anxiety levels 25% higher than those reported by men. They have higher anxiety than men after acute myocardial infarction (AMI) and this finding was consistent across the Western and Eastern cultures studied. Furthermore, this relationship was independent of age, education level, marital status, and the presence of comorbidities or severity of AMI. Although some investigators have failed to find gender differences in anxiety after AMI,[34] others reported that women are more anxious. It is important that gender differences in anxiety after AMI be explored because high anxiety is associated with poorer AMI recovery. Anxiety affects the way the heart beats, making it less able to adjust to an increase in the heart rate.[35] Anxiety has been linked to an increased risk of sudden cardiac death often with little or no warning signs.

This study reported that married women had higher anxiety than single and widowed women. Two different studies reported a significant association with marital status and found that married participants are more anxious than single.[36] Anxiety in married people may be partly due to the increased social responsibilities of married life.

Multiple logistic regression analysis findings suggested that the factors such as male gender, presence of cardiorespiratory

illness, and presence of state anxiety on the FACES rating scale showed significant correlation. It shows that males in this group (patients with cardiorespiratory illness) are having significantly less anxiety. Although patients with the cardiorespiratory illness have significantly higher anxiety than patients without cardiorespiratory illness, the male population in this group has significantly less anxiety. This means that males with cardiorespiratory illness are more protected than females from state anxiety in MICU.

Similarly, factors such as female gender, presence of cardiorespiratory illness, and presence of state anxiety on the FACES scale did not show any significant negative correlation. This suggests that, as far as state anxiety is concerned, females are not so significantly protected and tend to show more anxiety.

On multiple logistic regression among the factors such as gender, presence of cardiorespiratory illness, and presence of mild or moderate anxiety, there was no significant correlation found. It means that there might not be any relation between the severity of state anxiety and the gender of the patients with cardiorespiratory illness in the population under this study.

Thus, it can be said that there is an increased incidence of anxiety (state anxiety) in patients with cardiorespiratory disorders. Males with cardiorespiratory disorders had significantly less state anxiety whereas females had a significantly higher incidence of state anxiety in MICU settings.

CONCLUSION

More than two-thirds of patients in this study had cardiorespiratory system-related diagnoses. Most of the patients had a mild-to-moderate levels of anxiety with no significant other psychiatric problems. Females had more anxiety than male participants. Males with the cardiorespiratory disorder had significantly less state anxiety compared to females with cardiorespiratory disorders.

Except for the patients with impulsive DSH, no other major psychiatric diagnosis could be found in the study population. Although clinical anxiety symptoms were evident in them, they did not point toward any specific anxiety disorder. Occasional use of low-dose anti-anxiety drugs in some cases was generally followed for relief of anxiety symptoms.

Most of the patients had the presence of some or other physical, behavioral, or psychological symptoms of anxiety in a mild form. Sleep disturbances, anxious worries, generalized pains and aches, choking or constriction in the chest, tingling and numbness, fatigability, and tremulousness were the most commonly reported symptoms. Although mostly the extent of the anxiety symptoms was mild, a few also reported moderate forms of anxiety.

Limitations

It was a single-centered and single assessment-based study. A multicentric study with a larger sample size can be more conclusive and give more insight into the nature of anxiety in intensive care settings. The severity of pain (of any sort), which can affect the level of anxiety, was not a part of this study.

Declaration of patient consent

Institutional Review Board (IRB) permission was obtained for the study.

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Conflicts of interest

There are no conflicts of interest.

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