Assessment of Stressors on Patients Pre/Post Open Heart Surgery

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ABSTRACT

Background: Cardiovascular diseases are the leading cause of death globally. Controlling and managing stress and stressors experienced by sick patients should be undertaken by all care providers. Professional nurse play an important role in the pre and post-operative care of the patient undergoing open heart surgery for obtaining a positive outcome.

Aim: This study aimed to assess stressors on patient's pre /post of open heart surgery in El Sheikh Zayed Specialized Hospital.

Design: A descriptive exploratory design was utilized in this study. **Subject:** A convenience sample of (135) patients.

Setting: This study was conducted in the open heart Intensive Care Units at El shiekh Zayed specialized Hospital.

Data collection tools: Tool (I)A structured Interview Questionnaire. (Part1): Socio-demographic data.(Part2): Patient Medical Data. (Part3): patient's Life style. Tool (II): The Intensive Care Unit Environment Stressors Scale (ICUESS)

Results:65.9% from studied patients had moderate level of environmental stressor pre-operative, 79.3% from studied patients had moderate level of environmental stressor post-operative, while 86.7% from studied patients had moderate level of total environmental stressor. Highly statistically significant relation between socio-demographic characteristics, length of hospital stay, frequency of ICU admissionand total level of ICU environmental stressors among the studied patients. Highly statistically positive correlation found between total score of pre-operative environmental stressors and total score of post-operative environmental stressors.

Conclusion: Highly statistically positive correlation between total score of pre-operative environmental stressors and total score of post-operative environmental stressors.

Recommendations: In the level of education, multi-dimensions for open heart patient's assessment to stress level before cardiac surgery should be carried out to consider interventions aimed at reducing post-operative complications and enhance recovery in these patients.

Introduction:

Open Heart Surgery (OHS) is one of the most important procedures that can resolve many cardiac problems. Most patients undergoing coronary artery bypass graft (CABG) surgery for the first time experienced high levels of anxiety and distress for different reasons. But the accompanying decreased quality of life and diminished treatment tolerance could worsen course of disease and recovery. Evidence suggests that the presence of anxiety and depression is to be anticipated among patients scheduled for CABG surgery considering the stressors patients undergoing CABG experienced **(Hanita et al ., 2022).**

Patients are being subjected to closing monitoring, and are also witnessing various events in the ward such as sudden deterioration of illness, emergency resuscitation procedures and death, all of which could be sources of stressors that lead to post-operative stress disorder. Anxiety and depression were experienced as a high insult result of pre-operative phase according to previous studies **(Shang et al., 2020).**

Postoperative stressors occur in approximately 20% of patients following surgery, with additionally elevated rates in specific surgical groups. Potential risk factors include the perceived uncontrollable nature of high-risk surgery, psychiatric history, intraoperative awareness, dissociation, surgical complications, medication administration, delirium, and pain **(El-Gabalawy et al., 2019).**

Controlling and managing stress and stressors experienced by sick patients should be undertaken by all care providers in the medical team. Attention to this issue will assist in the identification of stressors patient's experience during critical care. It will also provide nurses with a greater insight into the perception of patients about stressors management and good effect on shorten patients length of hospital stay and recovery process **(Sedaghat et al., 2019).**

Operational definition of stressors: refers to various environmental, physical and psychological state of tension on the patients that expressed verbally in response to the interview schedule constricted for the purpose.

Significance of the study

According to the World Health Organization, about 50,000 CABG surgeries areconducted in India each year, with more than 800,000 CABG surgeries performedworldwide. In addition there is multiple risk of a severe complication following surgery**(Abo-Elata et al., 2021).**

Preoperative mild anxiety was observed in 64% of patients and moderate to severe anxiety in 36% of patients. 29.3% accounted for fear of postoperative course followed by 19.5% and complications during/after the procedure 11.4% **(Kashif et al., 2022) & (Abate et al., 2020).**

Aim of the study:

The aim of this study was to assess stressors on patient's pre /post of open heart surgery in El Sheikh Zayed Specialized Hospital.

Research Questions:

To fulfill the aim of the study, the following research questions were formulated:

1. What are stressors on patients preoperatively of open heart surgery during hospitalization?
2. What are the stressors postoperatively on patients open heart surgery during hospitalization?
3. What is the relation between patient's demographic characteristics, medical history and lifestyle with stressors?

Research design& setting:

A descriptive exploratory design will be utilized in this studyon 135 patients inopen heart ICU of El Shiekh Zayed Specialized Hospital.

Tools of data collection:

I- Two tools was used to collect data:

Tool 1: A structured interview questionnaire:

This Tool was developed by the investigator after reviewing the most recent and relevant national and international related literatureas

Result:

(Khalil et al ., 2017) and **(Abd El-gafour et al., 2021).** It consists of 3 parts as the following:

Part (1): Patient's socio-demographic characteristics:

It was developed by the investigator, it composed of 6 close ended questions and it was designed to collect demographic characteristics such as demographic characteristics such as (patient's age, gender, education level, place of residence, marital status and occupation).

Part (2):Patient Medical Data:

It was developed by the investigator,it composed of 7 close ended questions to collect such as (patient history, length of hospital stay, frequency of admission to ICU, clinical comorbidity, and the type of surgery).

Part (3): patient's Life style:

It was developed by the investigator, it composed of 6 close ended questions and it was designed to assess patient's life style or habits like smoking, drinking coffee or tea performing exercises, practicing recreational activities, obesity, and eating fast food or not.

Tool II: The Intensive Care Unit Environment Stressors Scale (ICUESS):

This tool was adapted from **Awad (2006),**modified &updated by**(Khalil et al ., 2017).**The tool is a Likert scale answered by 3 points likert scale: 1= not stressful, 2=moderately stressful, 3=very stressful. This tool divided to two main parts, **first part** 21 statement representing five sources of stressors in preoperative environmental stressors, consist of (a) design and physical structure of general ward (5),(b) rules and regulations (1), (c) health team personnel and workers(8),(d) others patient's surrounding (2), and (e) patient him/herself (5). **Second part** 51 statements representing five sources of stressors in postoperative environmental stressors in the ICU including (a) design and physical structure of ICU (9), (b) rules and regulations (9), (c) health team personnel and workers(12),(d) others patient's surrounding (3), and finally (e) patient him/herself (18).

Scoring system:

This tool consisted of 72 items with a total score (216). Result was summed, calculated, and converted to percentage and categorized to:

Low level of environmental stressors was < 60% with total score < 130

Moderate level of environmental stressors was from 60%-75% with total score of 131-162.

High level of environmental stressors was 75% with total score > 162.

Table (1): Frequency and percentage distribution of socio-demographic characteristics among the studied patients (n= 135)

Items	No.	%
18- < 30	17	12.6

Age (year)	30_< 40	15	11.1
	40_ < 50	53	**39.3**
	50 ≤ 60	50	37.0
	Mean ± SD	**39.37 ± 10.08**	
Gender	Male	85	**63.0**
	Female	50	37.0
Educational level	Doesn't read and write	16	11.9
	Read and write	17	12.6
	Secondary school / Diploma	56	**41.5**
	Bachelor	34	25.2
	Postgraduate	12	8.9
Place of residence	Rural	42	31.1
	Urban	93	**68.9**
Marital status	Single	16	11.9
	Married	104	**77.0**
	Widowed	7	5.2
	Divorced	8	5.9
Occupation	Employee	58	**43.0**
	Housewife	38	28.1
	Worker – farmer	33	24.4
	Retired	6	4.4

Table (1): It show that 39.3% of the studied patients age was between 40 < 50 years old with a mean age of 39.37 ± 10.08. Also, 63% of the studied patients were male. Additionally, related to educational level41.5% of them holding a Secondary school degree/ diploma. Moreover, 68.9% of them were from urbanarea. In relation to marital status 77% of the studied patients were married. Considering occupation, 43% of them were employee.

Table (2): Frequency and percentage distribution of patient's medical, family, and surgical history among the studied patients (n= 135)

	Items	No.	%
Medical history	Not suffered	36	26.7
	Suffered	**99**	**73.3**
Suffered: n= (99)	HTN	53	**53.5**
	DM	35	35.4
	Bronchial asthma	4	**4.0**
	HCV	7	7.1
Surgical history	Not suffered	65	48.1
	Suffered	**70**	**51.9**
Suffered: n= (70)	Renal	1	**1.4**
	Appendectomy	5	7.1
	Cholecystectomy	8	11.4
	Cervical	5	7.1
	PCI	16	**22.9**
	AVR	3	4.3
	Tonsillectomy	3	4.3

|			
	Liver Biopsy	1	**1.4**
	Hysterectomy	7	10
	CS	13	18.6
	Lumber Puncture	7	10
	Mastectomy	1	**1.4**
Family history	Not suffered	115	85.2
	Suffered	**20**	**14.8**
Suffered: n= (20)	HTN	10	**50.0**
	DM	3	**15.0**
	IHD	7	35

Table (2): show that 73.3% of the studied patient suffered of medical history. Out of this percentage, 53.5% suffered of HTN while only 4% bronchial asthma. Moreover 51.9% of the studied patient suffered of surgical history. Out of this percentage, 22.9% performed PCI. In addition to14.8% of the studied patient had a family history of medical diseases. Out of this percentage, 50% of patients' family suffered from HTN while only 15% had a family history of DM.

Table (3): Frequency and percentage distribution of length of hospital stay among the studied patients (n= 135)

Items		No.	%
Length of hospital stay	4 days ≥1 week	93	**68.9**
	>1 week -2weeks	29	21.5
	> 2 weeks	13	9.6
	Mean ± SD	**7.57 ± 3.66**	

Table (3): shows that 68.9% of the studied patients were stayed for 4 days ≥1 week in the hospital with Mean ± SD = 7.57 ± 3.66.

Figure (3): Percentage distribution aboutfrequency of admission to ICU among the studied patients (n= 135)

	Once	twice	3 times	≥ 4 times
Percentage	66.7	23.7	1.5	8.1

Frequency of admission to ICU
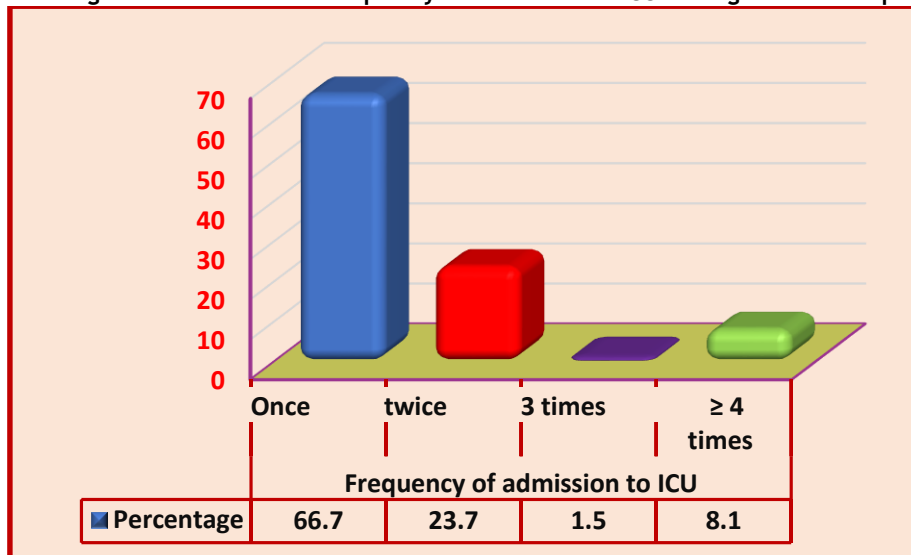
Figure (3): It illustrates that 66.7% of the studied patients were admitted once in ICU. While 1.5% were admitted to ICU more than 3 times.

Table (11): Comparison between dimensions of preoperative environmental stressors among the studied patients (n= 135)

Preoperative environmental stressors	Min	Max	Weight $\bar{x}$	SD	Rank	F Test	P value
Physical structure	1	3	1.49	0.365	5	54.3	0.000**
Rules and regulations	1	3	1.72	0.936	4		
Health care workers	2	3	2.00	0.228	3		
Patient's surrounding	2	3	2.29	0.332	1		
Patients themselves	2	3	2.11	0.274	2		
Total weight mean	2	3	1.92	0.258	-	--	--
Total mean (Range:21 to 63)	35	54	40.30	4.33	-	-	-

**Highly significant p < 0.01   F Test : Anova test

Table: (11):shows that patient's surrounding dimension of preoperative environmental stressors gained the higher weight mean 2.29 ± 0.332, followed by patients themselves 2.11+0.274. On other hand physical structure dimension of preoperative environmental stressors gained the lower weight mean 1.49+ 0.365.   In relation to mean of total preoperative environmental stressors, was $\bar{x}$ ± SD= 40.30 ± 4.33 which reflect moderate level of environmental stressors.

Table (17): Comparison between dimensions of postoperative environmental stressors among the studied patients (n= 135)

Variable	Min	Max	Weight $\bar{x}$	SD	Rank	F Test	P value
Physical structure	1.44	2.78	1.86	0.301	4	96.8	0.000**
Rules and regulations	1.33	2.89	1.80	0.295	5		
Health care workers	1.58	3.0	2.02	0.268	3		
Patient's surrounding	1.67	3.0	2.35	0.359	1		
Patients themselves	1.78	3.0	2.29	0.216	2		
Total weight mean	1.33	3	2.06	0.365		--	--
Total mean (Range:51 to 153)	89	149	105.4	10.65		-	-

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*Highly significant p < 0.01   F Test : Anova test

Table (17):shows that patient's surrounding dimension of postoperative environmental stressors gained the higher weight mean 2.35 ± 0.359, followed by patients themselves 2.29+0.216. On other hand rules and regulations dimension of preoperative environmental stressors gained the lower weight mean 1.80+ 0.295. In relation to mean of total postoperative environmental stressors, was $\bar{x}$ ± SD= 105.4 ± 10.65 which reflect a moderate level of environmental stressors.

Figure (6): Percentage distribution for total level of environmental stressors among the studied patients (n= 135)
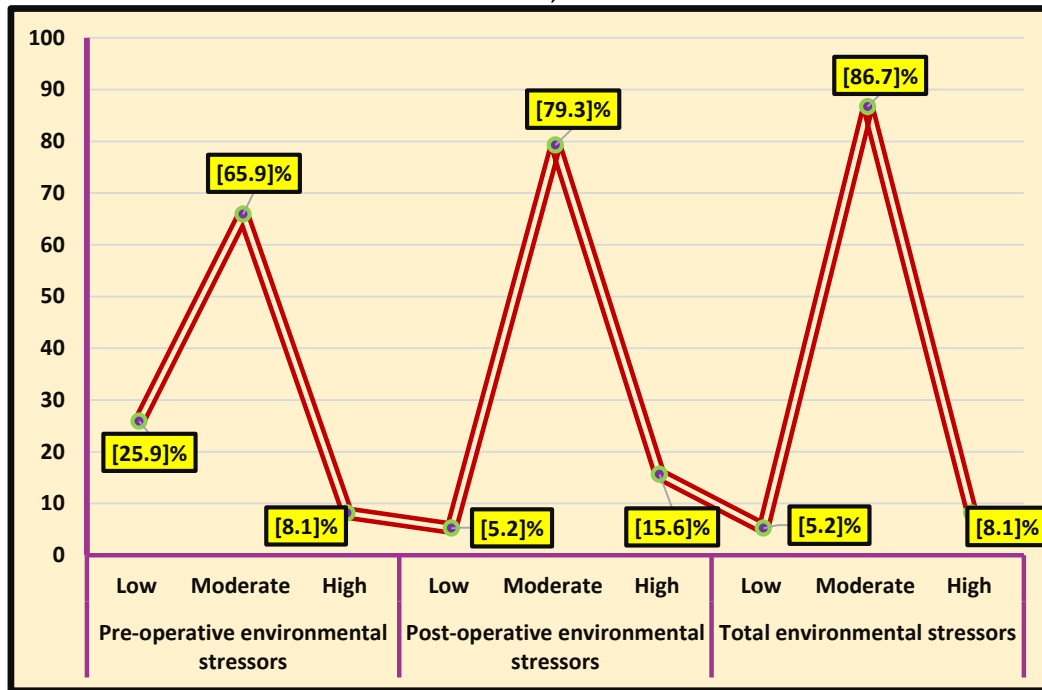

Figure (6): it illustrate that 65.9% from studied patients were had pre-operative moderate level of environmental stressors, post-operative 79.3% had a moderate level of stress, while 86.7% of the studied patients had moderate level of total environmental stressors.

Table (23): Correlational matrix between total score of Pre- and post-operative environmental stressors among the studied patients (n= 135)

Postoperative environmental stressors		Pre-operative environmental stressors				
		Physical structure	Rules and regulations	Health team workers	Patient's surrounding	Patients themselves
Physical structure	r	0.932	0.798	0.917	0.757	0.958
	p-value	0.000**	0.000**	0.000**	0.000**	0.000**
Rules and regulations	r	0.940	0.816	0.937	0.804	0.953
	p-value	0.000**	0.000**	0.000**	0.000**	0.000**
Health team workers	r	0.977	0.806	0.960	0.863	0.905
	p-value	0.000**	0.000**	0.000**	0.000**	0.000**
Patient's surrounding	r	0.889	0.816	0.932	0.839	0.863
	p-value	0.000**	0.000**	0.000**	0.000**	0.000**
Patients themselves	r	0.952	0.742	0.955	0.902	0.871
	p-value	0.000**	0.000**	0.000**	0.000**	0.000**
Total	r	0.968				
	p-value	0.000**				

r-Pearson Correlation Coefficient; **Highly significant p $\leq$0.01

Table (23): It clarifies that, there was a highly statistically positive correlation between total score of pre-operative environmental stressors physical structure, rules and regulations, health team workers, patient's surrounding, and patients themselves and total score of post-operative environmental stressors physical structure, rules and regulations, health team workers, patient's

surrounding, and patients themselves among the studied patients among the studied patients at P = 0.000**.

Discussion:
The main finding of this study revealed that an analyzing of socio-demographic characteristic of the studied patients showed:

Regarding to age of the studied patients under the present study the result showed that 39.3% from studied patients was between 40 _< 50 years old with a mean age of 39.37 ± 10.08.Additionally regarding to gender, about two-thirds of the studied patients were male. Additionally, educational level, more than two-fifths (41.5%) of them holding a Secondary school degree/diploma. Moreover, more than two third (68.9%) of them were from urban area. In relation to marital status, more than three quarters (77%) of the studied patients were married. Considering occupation, more than two-fifths (43%) of them were employee.

Regard to total level of environmental stressors, 65.9% from studied patients were have preoperative moderate level of environmental stressors, while 79.3% were have post-operative environmental stressors, and 86.7% were have moderate level of total environmental stressors.

There was a highly statistically significant relation between socio-demographic data (age, gender, educational level, place of residence, marital status and occupation) and total level of total level of ICU environmental stressors among the studied patients, at P = ≤ 0.01.

Also, there was a highly statistically significant relation between length of hospital stay and total level of ICU environmental stressors among the studied patients, at P = 0.000**. There was a highly statistically significant relation between frequency of admission to ICU and total level of total level of ICU environmental stressors among the studied patients, at P = 0.000**

There was a highly statistically positive correlation between total score of pre-operative environmental stressors (physical structure, rules and regulations, health team workers, patient's surrounding, and patients themselves) and total score of post-operative environmental stressors (physical structure, rules and regulations, health team workers, patient's surrounding, and patients themselves) among the studied patients among the studied patients at (P = 0.000**).

Conclusion:
Based on findings of the current study, two third of the studied patients have a moderate level of preoperative environmental stressors, while more than three quarters of them have a moderate level of post-operative environmental stressors. In addition there was a highly statistically significant relation between socio-demographic characteristics, frequency of admission to ICU, lifestyle and total

level of ICU environmental stressors among the studied patients.

As well as there was a highly statistically positive correlation between total score of pre-operative environmental stressors and total score of post-operative environmental stressors among the studied patients among the studied patients.

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