

RELATION BETWEEN STRESSORS AND SOCIODEMOGRAPHIC AND CLINICAL CHARACTERISTICS OF PATIENTS HOSPITALIZED AT A CORONARY UNIT¹

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This descriptive study aimed to correlate the stressors of patients hospitalized at a coronary care unit and their sociodemographic and clinical characteristics. We interviewed 43 patients who were hospitalized at a large hospital. The stressors were evaluated by means of a 4-point Likert scale, which measured stress intensity for 42 possible stressors, ranging from 1 (not stressful) to 4 (very stressful). We collected data on sociodemographic and clinical characteristics and about the coronary unit. Data were analyzed through non parametrical statistics, using Mann-Whitney, Kruskal-Wallis and Spearman's correlation test. A 0.05 significance level was adopted. Greater stress was found among younger female patients who did not receive psychotherapeutic medication, including the presence of more than two pieces of equipment and no earlier hospitalization at this kind of intensive therapy unit.

DESCRIPTORS: stress; intensive care units; cardiovascular diseases

RELACIÓN ENTRE ESTRESORES Y CARACTERÍSTICAS SOCIODEMOGRÁFICAS Y CLÍNICAS DE PACIENTES INTERNADOS EN UNA UNIDAD CORONARIA

La finalidad de este estudio descriptivo fue establecer correlación entre los estresores de los pacientes internados en una unidad coronaria y sus características sociodemográficas y clínicas. Entrevistamos a 43 individuos internados en un hospital de gran porte. Para la evaluación de los estresores utilizamos una escala Likert de 4 puntos que evaluó la intensidad del estrés para 42 posibles estresores, variando de 1 (no estresante) a 4 (muy estresante). Recopilamos datos para la caracterización sociodemográfica y clínica y respecto a la unidad coronaria. Para el análisis de los datos utilizamos la estadística no paramétrica, con los tests de Mann-Whitney y de Kruskal Wallis y el test de correlación de Spearman. El nivel de significancia adoptado fue de 0,05. Constatamos mayor estrés entre los pacientes más jóvenes, del sexo femenino, no medicados con psicoterápicos, con presencia de más de dos equipamientos y sin internación anterior en este tipo de unidad de terapia intensiva.

DESCRIPTORES: estrés; unidades de terapia intensiva; enfermedades cardiovasculares

RELAÇÃO ENTRE ESTRESSORES E CARACTERÍSTICAS SÓCIO-DEMOGRÁFICAS E CLÍNICAS DE PACIENTES INTERNADOS EM UMA UNIDADE CORONARIANA

Estudo descritivo, realizado com objetivo de correlacionar os estressores dos pacientes internados em uma unidade coronariana com suas características sociodemográficas e clínicas. Foram entrevistados 43 indivíduos internados em um hospital de grande porte. Para a avaliação dos estressores, foi utilizada escala tipo Likert de 4 pontos que avaliou a intensidade do estresse para 42 possíveis estressores, variando de 1 (não estressante) a 4 (muito estressante). Foram coletados dados para a caracterização sociodemográfica, clínica e relativos à unidade coronariana. Para análise dos dados foi utilizada estatística não-paramétrica com os testes de Mann-Whitney e de Kruskal Wallis e teste de correlação de Spearman. O nível de significância adotado foi de 0,05. Constatou-se maior estresse entre os pacientes mais jovens, do sexo feminino, não medicados com psicoterápicos, com presença de mais de dois equipamentos e sem internação anterior nesse tipo de unidade de tratamento intensivo.

DESCRIPTORES: estresse; unidades de terapia intensiva; doenças cardiovasculares

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INTRODUCTION

The Coronary Care Unit (CCU) is a care area for cardiac patients with a particular physical design and a large variety of equipment, in order to guarantee care in critical health conditions. The stimuli present in this unit's physical and social environment can be sources of stress to patients, such as, for example: side-by-side placement of beds, so that patient participate in what is happening with the neighboring patient; constant expectation of emergencies; interruption of routine activities by "medical urgencies"; presence of equipment close to beds; artificial and permanent luminosity; absence of windows, at most units, that allow patients to follow the time of day; existence of sound and light alarms from apparatus⁽¹⁾. Moreover, patients lose privacy, as men and women are placed in the same environment. Other discomforts are caused by the continuous monitoring of vital signs and cardiac activity, the absence of any type of recreation for patients, and subsequent interventions by the medical and nursing teams⁽¹⁾.

Stressors are defined as stimuli that precede or precipitate change, and are classified as internal or external. Responses to stress are influenced by the intensity, duration and environment of the stress, as well as by the number of stressors present at a specific moment⁽²⁾. It has been suspected for a long time that acute and chronic mental stress states constitute risk factors for higher morbidity and mortality levels due to cardiovascular diseases⁽³⁾.

Care delivery to cardiac patients hospitalized at coronary units is aimed at detecting possible complications deriving from the clinical situation, reestablishing hemodynamics and favoring the patients' recovery. Understanding how patients feel can help nurses and their team to define stressors at the unit, thus stimulating the construction of protocols to turn the sector more adequate and pleasant⁽⁴⁾.

Due to their complexity, coronary units are considered intensive therapy centers. Various studies have investigated stress among patients hospitalized at these units⁽⁴⁻⁵⁾. The importance of assessing stress during hospitalization, with a focus on patients with heart diseases, is based on all of the physiological alterations, mainly in the cardiovascular system, caused by stress. Thus, eliminating sources of stress means guaranteeing a better recovery for cardiac patients hospitalized at coronary units.

As no specific studies have been published to assess stress at coronary units, we based ourselves on existing literature about stress at intensive therapy centers. We found that the humanization of these units is closely linked with health professionals' action upon stressors⁽⁶⁾. Nursing care is the key point in hospitalization at these units, as it permits the establishment of relations that contribute to the relief of stressors for patients and their relatives⁽⁷⁾.

One important point some researchers have highlighted is the existing difference in how patients and nursing professionals perceive stressors^(5,8-9). Nurses tend to classify stressors as more intense and consider the following as the main sources of stress: feeling pain, having tubes in the nose and/or mouth, being tied up by tubes, not receiving explanations about treatment and not managing to sleep^(6,10). Patients, on the other hand, indicate the following as the most stressful factors: feeling pain, not managing to sleep, having tubes in the nose and/or mouth and not having control over oneself⁽⁶⁾.

Therefore, this study aimed to observe how stress experienced by people hospitalized at a coronary unit and these patients' sociodemographic and clinical variables, as well as aspects of their hospitalization at the CCU.

OBJECTIVES

- Correlate stress referred by patients hospitalized at the CCU with their sociodemographic and clinical characteristics;
- Correlate stress referred by patients with variables related to the environment of the Coronary Care Unit.

METHODOLOGY

This descriptive, correlational and cross-sectional study was carried out at the CCU of a teaching hospital located in the interior of São Paulo State, Brazil. During the study period, between May and September 2004, 171 patients were hospitalized at this unit. Only 99 of these complied with one of the inclusion criteria, i.e. hospitalization at the CCU for at least 48 hours. This criterion was stipulated to guarantee that patients could spend sufficient time at the unit to experience all aspects addressed by

the stress assessment instrument. Of these 99 patients, three passed away, resulting in 96 potential participants. Then, we constituted a convenience sample with 43 patients who complied with the other inclusion criteria: age over 21; clinical (physical and psychological) conditions to be interviewed by the researchers and agreement to participate in the study.

The project was approved by the Research Ethics Committee at the study hospital. The study participants were properly informed about the research, both orally and in writing. Both patients and researchers signed the informed consent term.

Data were collected through individual interviews with patients during their hospitalization at the CCU. Although the researchers offered the possibility for patients to fill out the data collection instrument themselves, only four of them (10.7%) actually did this. Most of them did not manage to fill out the instrument due to physical (deficient sight) or cognitive difficulties (not knowing how to read and/or write), and were interviewed by one of the researchers.

The data collection instrument addressed the following sociodemographic variables: gender (female or male); civil status (married or living with somebody, single, widowed, disunited/divorced); education (years at education institutions); professional situation (active, retired, retired with paid activities, at home, unemployed/temporarily suspended from work). Age was calculated by means of the patient's birth date and interview date. The following clinical data were collected from the patient's medical file: medical diagnosis(es) when hospitalized at the CCU and medication prescribed during the last 24 hours.

Other relevant data included in data collection were: existence of previous hospitalization experience at an intensive therapy unit (yes or no) and number of previous hospitalizations, bed occupied at the CCU and presence of equipment/devices during hospitalization (oral/nasogastric catheter, urinary catheter, venipuncture, arterial puncture, respirator, oral/nasotracheal tube, heart monitor, intra-aortic balloon).

The Intensive Care Stressors Scale (ICSS)^(8,11) was applied for stress assessment, using the version translated and validated for Portuguese⁽⁵⁾. The ICSS consists of 42 questions and its aim is to

identify factors causing stress in patients hospitalized in intensive therapy units. This is a four-point Likert scale, in which (1) means not stressful, (2) little stressful, (3) stressful and (4) very stressful. Results are assessed by adding up the scores for each of the 42 items, ranging from 42 to 168. The higher the total score, the greater the stress perceived by the patient.

Data were processed and analyzed through Statistical Package for Social Science (SPSS) software, version 13.0. To visualize the relation between the variable of interest (stressors at the CCU) and categorical variables (e.g.: gender, use of psychotherapeutic medication, first hospitalization at the CCU, presence of equipment and bed number occupied at the CCU), boxplot graphs were developed for the visual inspection of variables (graphs not included in the manuscript).

To test for possible differences between two groups in relation to the variable of interest, i.e. stressors at the CCU, Mann-Whitney's non-parametric tests were used. For example: gender (male/female); use of psychotherapeutic medication (yes/no); first hospitalization at the CCU (yes/no); number of equipment used (until two, more than two). Kruskal Wallis was used to test for differences between three or more groups, like for the variable bed number at the CCU (beds 1, 2, 3, 4 and 5). Spearman's non-parametric correlation test was applied to analyze the relation between stress score and patients' age. A 0.05 significance level was adopted.

RESULTS

Table 1 presents the 43 participants' sociodemographic characteristics. Patients' mean age was 56 years (SD=11.9), ranging from 21 to 78 years. Most patients were men (31 patients; 72.1%), 24 patients (55.8%) were married and eight widowed (18.6%). Only 14 (32.6%) patients were professionally active at the time of hospitalization; the others were retired (18; 41.9%), worked at home (2; 4.7%), retired with paid work (7.0%), temporarily suspended due to health problem (9.3%) or unemployed (4.7%). Only seven (16.3%) patients possessed more than eight years of formal education, which can justify the small number of patients who filled out the instruments alone.

Table 1 - Sociodemographic characterization of participants. Ribeirão Preto, 2005.

Variable (N= 43)	Interval	Median	Mean (SD)	N (%)
Age (years)	21 - 78	58,2	56,73 (11,9)	
Education (years)	0 - 18	4,0	5,0 (4,1)	
Until 4 years				27 (62,8)
Between 5 and 8 years				9 (20,9)
Between 9 and 11 years				4 (9,3)
More than 12 years				3 (7,0)
Gender				
Female				12 (27,9)
Male				31 (72,1)
Civil Status				
Married				24 (55,8)
Single				6 (14,0)
Widowed				8 (18,6)
Disunited/divorced				5 (11,6)
Professional Situation				
Active				14 (32,6)
Retired				18 (41,9)
Retired with paid activities				3 (7,0)
Salaried				
At home				2 (4,7)
Unemployed				2 (4,7)
Temporarily suspended due to health problem				4 (9,3)

Participants' clinical characteristics are shown in Table 2. The most frequent diagnosis at the moment of hospitalization was Acute Myocardial Infarction (23; 53.5%), followed by angina (11; 25.6%). We included the use of psychotropic medication on the medical prescription, on the day the interview was held, because the use of these drugs could affect the patient's perception about the stress caused by hospitalization. Thirty-one patients (72.1%) had not received any psychotropic drug during the 24 hours before the interview.

Table 2 - Clinical characterization of participants. Ribeirão Preto, 2005.

Variable (N=43)	N (%)
Diagnosis when hospitalized	
Acute Myocardial Infarction	23 (53,5)
Angina pectoris	11 (25,6)
Acute Lung Edema	2 (4,7)
Decompensated Heart Failure	3 (7,0)
Others	4 (9,3)
Use of psychotropic medication	
Yes	12 (27,9)
No	31 (72,1)

The location of beds at the CCU under study was considered a possible stressor, because it places patients in more unfavorable situations in terms of visualizing other patients and the bed's proximity to the door, so that patients have to tolerate more noise and luminosity. Figure 1 shows the placement of the

five existing beds and the distribution of the study participants across the beds they were hospitalized in. Most interviewees occupied bed 3 (12 patients; 27.9%) during hospitalization, followed by bed 1 (9; 20.9%), bed 5 (8; 18.6%), bed 2 (7; 16.3%) and bed 4 (7; 16.3%).

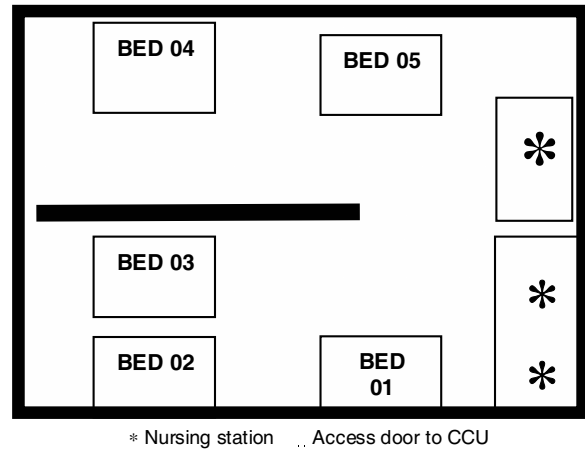


Figure 1 - Disposition of beds at CCU

The following aspects related to the CCU environment came up as possible stressors for patients: bed at CCU, hospitalization time, previous hospitalizations at the unit and equipment use. Table 3 represents the results of these characteristics.

Table 3 - Characterization of participants' hospitalization. Ribeirão Preto, 2005.

Variable	Interval	Median	Mean (SD)	N (%)
First hospitalization				
Yes				33 (76,7)
No				10 (23,3)
Hospitalization time at data collection	2 - 11	3,0	2,3 (1,9)	
Until 02 days				19 (44,2)
From 03 to 05 days				18 (41,9)
More than 06 days				6 (14,0)
Number of equipment	2 - 5	2,0	2,3 (0,7)	
Bed at CCU				
Bed 1				9 (20,9)
Bed 2				7 (16,3)
Bed 3				12 (27,9)
Bed 4				7 (16,3)
Bed 5				8 (18,6)

At data collection, 19 participants (44.2%) had been hospitalized for two days, 18 for between three and five days (41.9%) and the other patients for more than six days (14.0%). Thirty-three (76.7%) mentioned this was the first time they were hospitalized at the CCU or at another intensive therapy unit. In our sample, an average of 2.3 equipments and devices had been installed in patients (SD = 0.7), ranging

from 2 to 5. The most frequent equipments and devices were: venipuncture with serum therapy and heart monitoring, in all patients. Other equipment included: arterial puncture for monitoring or with an introductory sheath for percutaneous transluminal coronary angioplasty in 7 (16.3%) patients, Urinary catheter (5; 11.6%) and presence of intra-aortic balloon (2; 4.7%).

The variable of interest, i.e. stressors at the CCU, was measured by means of the Intensive Care Stressors Scale (ICSS)^(8,11), using the version translated and validated for Portuguese. Cronbach's Alpha corresponded to 0.93, that is, the instrument was reliable for use in the study sample. In another study involving nurses at the same teaching hospital, the authors used this scale to assess professionals' perception of stress in patients hospitalized in an intensive therapy unit, and also found a high Cronbach's Alpha coefficient (0.90)⁽¹⁰⁾.

The average score on the SSIT was 72.11 (SD = 21.7), with an interval from 43 to 134. The possible interval for the scale ranged from 42 (42 questions x 1) to 168 (42 x 4). The higher the total score, the greater the stress perceived at the CCU. In general, we could also assess the results of this scale by analyzing the mean score of answers to the items, i.e. score for all items divided by the number of items, equivalent to 1.7 in our study (SD = 0.5), with mean scores ranging from 1 to 3.2. As stress scores on the scale are: (1) not stressful, (2) little stressful, (3) stressful and (4) very stressful, in general, the study participants considered hospitalization at the CCU as a not stressing and little stressing experience.

We used non-parametric statistical tests to verify possible relations between the variable of interest (stressors at the CCU) and other variables (gender, bed at the CCU, first hospitalization at the unit or not, presence of equipment and use of psychotropic medication). With respect to sociodemographic variables, women presented a higher mean value of stressors than men in the study sample. However, Mann-Whitney showed that this difference was not statistically significant ($p > 0.05$). As to the relation between age and perceived stress, we found that, the younger the patient, the higher stress levels during hospitalization at the CCU. Spearman's correlation test confirmed a negative and statistically significant relation between these variables ($r = -0.324$; $p < 0.05$).

We also looked at the relation with clinical variables and hospitalization at the CCU. Patients who did not receive psychotropic drugs during the 24 hours before the interview perceived stress more intensely than patients who did. However, this result was found statistically insignificant ($p > 0.05$) when applying Mann-Whitney's non-parametric test. Patients hospitalized in bed 1 obtained a higher mean score on the stressor scale than patients in other beds, but we found the result was statistically insignificant ($p > 0.05$) when applying Kruskal-Wallis. Patients who were hospitalized for the first time and patients who used more than two equipments during hospitalization reported more intense stress. Again, these results were not statistically significant ($p > 0.05$).

DISCUSSION

When we related perceived stress with participants' sociodemographic characteristics, we found that stress was inversely related to age, i.e. the older the patients, the lower their stress scores. The correlation between these two variables can be considered between weak and moderate ($r = -0.324$) and statistically significant ($p < 0.05$). In another study, the authors found a higher stress tolerance level among aged persons⁽¹²⁾, which confirms our results. Elderly persons are probably more conditioned to accept some discomforts and inconveniences during hospitalization and become compliant with treatment⁽¹²⁾. Other authors indicated age as an aspect that influences patients' coping response with hospitalization at an intensive care unit⁽¹³⁾. What gender is concerned, although women reported greater stress than men, this difference was not statistically significant. Studies about stress in intensive therapy patients have not revealed a relation between stress and patients' gender. Other aspects include the disease and its evolution, the patient's personality and emotional condition and aspects inherent to the environment at this unit, such as isolation and lack of sleep, among others⁽¹³⁾.

The use of psychotherapeutic medication was considered an emotional state modifier, making it easier for patients to be hospitalized at the CCU. In our study, patients receiving drugs, such as anxiolytic agents, indicated lower stress levels. One essential goal in critical patient treatment is pain control and sedation. An earlier study⁽¹⁴⁾ demonstrated that the

combination of analgesics and sedatives improves critical patients' stress response, which is in line with our study.

The experience of being hospitalized at an ICU, whether associated or not with the disease process or the specialized environment exerts an important impact on patients' recovery and rehabilitation⁽¹⁵⁾. As we agree with this statement and believe that the frequency at which patients live this experience could affect their stress perception, we correlated the existence of earlier hospitalizations in intensive therapy units with the stress referred during the present hospitalization. In the study sample, patients who were hospitalized for the first time reported more intense stress than other patients, although we did not find any study about this correlation in literature.

As to hospitalization at the CCU in itself, other researchers⁽¹⁶⁻¹⁸⁾ describe that most patients hospitalized at intensive therapy units are confined to a bed, many of whom have received a tube or tracheotomy and need mechanical ventilation. Besides assisted ventilation, which was not present in our patients, this study highlights the presence of arterial punctures, central venous lines, urinary catheter, as well as breathing and circulation monitoring by electrodes. These factors can cause the feeling of being tied up, which often causes fear. Our results demonstrated that, in the study sample, the more equipment patients use, the higher the stress levels they feel.

We found that patients hospitalized in bed (1) at the CCU (Figure 1) indicated higher stress scores than patient who were hospitalized in more favorable

beds in terms of privacy, more distant from other patients' noise and less illuminated. However, these results were not statistically significant either.

CONCLUSIONS AND FINAL CONSIDERATIONS

Although the results go against our initial perception about the stressing experience of being hospitalized at an intensive therapy unit, we believe this result can be justified by the small number of participants.

Hospitalization at the CCU was more stressful for younger female patients who had not received psychotherapeutic drugs during the last 24 hours before the interview and who were hospitalized for the first time at an intensive therapy unit.

Although we did not find a statistically significant correlation between stress, patients' sociodemographic and clinical variables and the CCU environment, we have observed that these differences do exist and can become statistically significant when a larger sample is used. However, due to the importance of minimizing stress in cardiac patients hospitalized in coronary units, with a view to preventing complications and aggravating their clinical situation, we believe further research is needed.

Nurses active at a CCU can advise patients who are hospitalized for the first time in an intensive therapy environment, with a view to decreasing perceived stress. Another aspect of nursing actions could be to modify the environment, minimizing noise and luminosity at the beds.

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