

FACTORS DERIVED FROM THE INTRAHOSPITAL LABORATORIES THAT CAUSE STRESS IN INFIRMARY STUDENTS

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Quantitative, correlation cross-sectional study with descriptive analysis, whose objective was to assess the factors derived from the intra-hospital laboratories that affect the stress appearance in Infirmary students. The sample consisted of 129 students, which voluntarily acceded to answer questionnaires Evaluative Scale of Hamilton for the Anxiety, validated in 2003, and Questionnaire KEZKAK, both adapted by the investigating group. The obtained data was processed through Microsoft Excel program, appearing: the 100% of the students presented Stress. From the manifestations of Stress, the tensional anxiety and insomnia appear with the biggest percentages. From the Stress producing Factors, in Student's competitions: "having errors on its work and harming the patient", and in the Educational "receiving contradictory orders" are the ones that present greater frequency of intensity, being the Educational factor the preponderant in the appearance of stress. One concludes that is necessary to adapt the educational positions of a guardian in the clinical practices given greater emphasis to the support that will have to be lend to student, with the purpose of diminishing stress favoring the learning.

DESCRIPTORS: stress; students, nursing; laboratories, hospital

FACTORES DERIVADOS DE LOS LABORATORIOS INTRAHOSPITALARIOS QUE PROVOCAN ESTRÉS EN LOS ESTUDIANTES DE ENFERMERÍA

Estudio transversal, cuantitativo, correlacional con análisis descriptivo, cuyo objetivo fue conocer los factores derivados de los laboratorios intrahospitalarios que inciden en la aparición de estrés en 129 estudiantes de Enfermería, que contestaron los cuestionarios Escala Hamilton y KEZKAK. Los datos fueron procesados con el programa Microsoft Excel, según los resultados: el 100% presenta Estrés. Ansiedad, tensión e insomnio, aparecen con mayor porcentaje. Los Factores Competencias del alumno: "cometer errores en su trabajo y perjudicar al paciente", y en Docente: "recibir ordenes contradictorias" son los que presentan mayor frecuencia, siendo el Docente el predominante en la aparición de estrés. Se concluye que es necesario adecuar las tutorías docentes en las prácticas clínicas, dando mayor énfasis al apoyo que deberá prestarse al alumno, con el fin de disminuir el estrés y favorecer el aprendizaje.

DESCRIPTORES: estrés; estudiantes de enfermería; laboratorios de hospital

FATORES DERIVADOS DOS LABORATÓRIOS INTRA-HOSPITALARES QUE PROVOCAM ESTRESSE NOS ESTUDANTES DE ENFERMAGEM

Estudo transversal, quantitativo, de correlação com análise descritiva, que teve como objetivo conhecer os fatores derivados dos laboratórios intra-hospitalares que incidem na aparição de estresse em 129 estudantes de Enfermagem, que responderam os questionários Escala Hamilton e KEZKAK. Os dados foram processados no programa Microsoft Excel, aparecendo: que 100% apresentam estresse. A ansiedade, tensão e insônia aparecem com maior percentagem. Os Fatores Competências do aluno: "cometer erros no seu trabalho e prejudicar o paciente", e em Docente: "receber ordens contraditórias" são os que apresentam maior frequência, sendo o Docente o preponderante na aparição do estresse. Conclui-se que é necessário adequar as tutorias docentes às práticas clínicas, dando maior ênfase ao apoio que deverá ser oferecido ao aluno, com a finalidade de diminuir o estresse e favorecer o aprendizado.

DESCRITORES: estresse; estudantes de enfermagem; laboratórios de hospital

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FOREWORDS

The outline of the social functioning is based in assuming responsibilities and reach goals, however, there are persons that have difficulties to be able to adapt to them, arising a condition known as "Stress". The stress is useful as a motivation to overcoming obstacles, however, a constantly presence of stress may finish the energies of a person, making him feeling over demanded, interfering his life and his goals⁽¹⁾. The stress in college life can be defined as when physical and emotional reactions appears when curriculum demands over exceed capacities, resources and needs of the student.

In some of the stress that stands out in the university curriculum system we can mention among others: teachers, exams, curriculum system, academic demands and practice or laboratories activities.

The university students generally have stress, and it is increased in certain periods, such as exams and tests, and in certain situations, like being tested by a teacher with such characteristics that makes the student to be under pressure or nervous⁽²⁾. Under these situations we can notice a great deal of stress, especially when the student, besides studying, must work, or present personal stressing facts, such as direct or indirect pressure from his family regarding success or failure⁽³⁾.

It is said that around a 25% of university people has stress. In the university young people are confronted to a new world, with increasing demands. This situation becomes obvious due to recent studies in our country, where psychology's attention has been increased from 20% to 58% in some university centers. It is remarkable that stress appears mostly in health careers, according to a research in Universidad Austral de Chile in the year 2004. Results shows that Infirmary Career presents the higher level in stress⁽⁴⁾.

Clinic practices are basic in the formation of nurse students, in which they are allowed to apply theoretical knowledge, and to develop skills to patients care. However, students besides facing academic situations similar to other groups of students, they have an extra stress, since they are immersed in situations working with human beings, implying lots of risk and responsibilities.

The pressure of tests and examinations, lack of time, responsibility of being in charge of persons, and the pressure inside hospital practices, could be some of the reasons that explain this phenomenon in nurse students⁽⁵⁾. In spite that there are no statistics,

numbers of several universities, shows that stress and other psychological diseases between these students has been increased in recent years⁽⁶⁻⁷⁾.

In accordance with studies done in Santiago, Chile, in medical schools of Universidad de Santiago de Chile and Universidad de Chile, in health careers, nurse careers has the higher level of stress. In the same study, it refers about the disparity of results between what perceived by nurse students and facts given by surveys applied, denoting that what generates more stress is all connected with the academic sphere (time pressure, over work, limited time to study, and hours of work and study). Nevertheless, student's point of view gives more stress to teaching (continuous evaluations, everyday reproaches, and unjust criticism)⁽⁸⁾.

This is important and remarkable, due to these are the principal complains given by students, however, in the moment of evaluating them, they are not noted so stressing by the students. It is known that if pressure is increased, it is probable that the cognitive evaluation done in this kind of stress becomes smaller and vice versa, situation that explains this result⁽⁹⁾.

The curriculum system of nurse career in Universidad de Valparaíso has the obtaining of knowledge through a practical/theoretical formation⁽¹⁰⁾. This also includes the development of hospital laboratories, and according to the student's perception through generations of these laboratories mainly comes the facts that generate stress on them.

Due to the increasing importance that nursing is obtaining in health and disease prevention, and accepting that stress is a risk factor in several diseases, it is important to make a practical study of factors that generate stress and their signs in nursing students, since they can be considered a risk group⁽¹¹⁾.

We pretend through a research of quantitative, correlative type, with a descriptive analysis, of a transverse cut, investigate the stress appearance, its more frequent manifestations, and facts that induce its appearance in university students of 2nd and 3rd year of nurse career of the Universidad de Valparaíso, during hospital practice and adult and senile subjects II and III.

As a general objective, it is proposed to describe facts derived from hospital practices that generates mainly stress in students, having as a main targets to identify the percentage of students presenting stress during hospital laboratories, to identify the main signs of stress, to identify the main hospital practices facts that generates stress, and to

identify the higher percentage in each of the dimensions of competitive and teaching between the variable operations.

The dependent variable was the stress, and independent variables were the facts of hospital practices that could influence in stress appearance during practices.

METHOD AND MATERIAL

Research of quantitative type, correlative, with descriptive analysis, which purpose is to describe the existence of stress and factors derived from hospital practices that produce it, in 145 students of second and third year that are studying professional nurse careers in Universidad de Valparaíso. In the choice selection of the whole, was considered that this group of students was the most vulnerable of presenting stress, due to they are in the first hospital practices of the career, for the stage of their lives and by the over work demanded by their studies. As a viewpoint of exclusion appears: students not wanting to participate in this research, students absent when research was done, students studying for second or third time the course, and students with no stress, according to Hamilton Scale for Anxiety. The selection was finally of 129 students, 65 of second year, and 64 of 3 third year.

The dependent variable was: the stress defined as the general answer or a specific of the organism to a stress factor or a stress situation causing stress, considering the subdimensions: anxiety, strains, fears, insomnia, low mood, and somatic symptoms: muscular, sensors, heart breathing, gastrics, urinary and autonomous actions. It was considered as an indicator, the frequency of occurrence of these situations, measured in the following intensity range: void: 0, low: 1, moderate: 2, intense: 3, very intense: 4.

The independent variables: the hospital practices that could influence in stress appearance during practices which sizes were: students concerning, with the frequent indicator of the following situations: <Question 1> to make a mistake, <Question2> feeling useless, <Question 3> to auto puncture with infected needle, <Question 4> to damage a patient, <Question 5> to make a psychological damage, <Question 6> to confuse medication, <Question 7> ignorance of what to do in some situation, <Question 8> don't know what to do in an urgent situation, <Question 9> affected by

patients emotions, <Question 10> have to talk with patient of his sufferings, <Question 11> maltreatment from the patient, <Question 12> not knowing how to answer to patients hopes, <Question 13> interaction difficulty, <Question14> bad relationship with a patient, <Question15> to cause pain to a patient, <Question16> to be engaged emotionally.

Were measured in intensity range: Never: 0, Sometimes: 1, Frequently: 2, Always: 3.

Guiding teacher with subdimensions:
1- Supervision that consider the indicators: <Question 17> Overload of activities given to the student, <Question 18> Judgment of the teacher when assigning patients, <Question 19> To give contradictory orders, <Question 21> Efficiency demanding, <Question 22> Constant supervision.
2- Availability with indicator: <Question 20> Teacher absent. Behavior, with indicators: <Question 23> Personal behavior, <Question 24> Oral answer, <Question 25> Way of calling attention, and <Question 26> Way of expressing an opinion of the student.

They were measured as per the frequency of occurrence in the following range: Never: 0, Sometimes: 1, Frequently: 2, Always: 3.

Two instruments for collecting figures were used:

The Evaluation Scale of Hamilton for Anxiety⁽¹²⁾ validated in 2003, allowed measuring the stress levels presented by students during their hospital practices. It was modified by the researchers in the way of application, since the figures were not asked in an interview, but by a questionnaire.

The bilingual questionnaire of stressors for nurse students in clinic practice, KEZKAK, adapted by researchers for the investigation, that allowed to evaluate the etiology of stress in students, based in two factors that produce stress, which are: Competence and Teaching⁽¹³⁾. It consists in a questionnaire of 55 questions with four options of answers, which were gathered in order of the investigation in the following nine items: Item 1: connected with the fear to damage, or cannot help the patient or to be damaged, items that are connected with lack of competence. Item 2: it refers to contact situations with suffering. Item 3: has to be with the relations with teachers and partners. Item 4: connected with the impotence and uncertainly. Item 5: connected with no controlling relation with patient. Item 6: refers with the emotional involvement either with patient and work. Item 7: it refers with not being well treated by patient and resulting damaged in that relation. Item 8: in connection with patients behavior

looking for an intimate relation with student. Item 9: refers to surcharge situations for the student.

For this investigation, the KEZKAK instrument has been modified and reorganized, considering the nine items, but taking from them only those more relevant questions and in accordance with the reality of the hospital practices of the subjects Adults and Senile II and III of Nurse Career of the Universidad de Valparaíso, choosing 26 questions that were shown in variable definitions.

The questionnaires were given by the researchers to each of the group's class (2nd and 3rd year) during the third week after they start their practices, in a meeting specially assigned for this purpose.

Regarding the reliance of instruments following is obtained:

Hamilton Evaluation Scale for Anxiety, modified, gives a Cronbach Alfa of 0,812. This results means, that the internal consistence of the instrument is high reliable, where the coefficient counting of Cronbach Alfa goes from 0 to 1, meaning 0 void reliability and 1 complete reliability.

KESKAK Questionnaire. In this instrument, by measure reasons, the questions had to be joined according to Competences and Teaching dimensions, established in the functioning variable, Competence: questions 1 to 16, gives a Cronbach Alfa of 0,847 and Teaching: questions 17 to 26 gives a Cronbach Alfa of 0,847.

In conclusion, the instruments used for this research, presents a high level of reliability which implies that they have an internal consistence, therefore are highly reliable.

The figure analysis obtained was done putting them first in a data base, and afterwards being processed through a Microsoft Excel program.

The analysis of figures was done for each of the dimensions of collecting instruments. Besides, we tried to establish some type of connection to know the association between the variable of the research. The shown of figures was done through comparatives tables in percentages, or frequencies of intensity expressed in arabic numbers.

RESULTS

Valuation of participation

From a total of 145 students attending Nurse Career Adult and Senile II and III, the questionnaire was answered by a total of 129 students. 65 of 2nd

year and 64 of 3rd year. The 16 students to which was not possible to apply the instruments, the main reason was that they were absent at the moment of application. However, the relationship between the universe of the research, and the number of students representing the population study, 129 students equivalent to 88,96% is satisfactory to comply to the research objectives. Of these students, 50,4% belongs to second year and 49,6% to third year.

The age range of second year was between 19 and 24 years with an average of 20,3 years; and for the third year, between 20 and 26 years with an average of 21,3 years.

As per sex, in second year is 78% of females and 21,5 of males, and in third year, 93.8% females and 6,2% of males.

Table 1 - Distribution of stress level in the students

Stress Level	Second year		Third year	
	Nº Persons	%	Nº Persons	%
Not shown [0 points]	0	0,0	0	0,0
Light [1-13 points]	17	26,2	10	15,6
Moderate [14-26 points]	30	46,2	37	57,8
Severe [27-39 points]	16	24,6	16	25,0
Very severe [39-52 points]	2	3,1	1	1,6
Total	65	100,0	64	100,0

The 100% of polled presents some degrees of stress being the light level the most significant for both classes.

Table 2 - Distribution of stress signs in the students

Signs	Second year	Third year
	Frecuency	Frecuency
Anxiety	2,3	2,5
Tenses	2,2	2,5
Fears	0,6	0,7
Insomnia	2,1	2,3
Intellectual functions	1,9	2,1
Depressed mood	1,9	2,0
S. Somatic: Muscular	1,8	2,2
S. Somatic: Sensoric	1,8	1,1
Cardiovasculars	1,0	1,1
Breathings	0,8	0,8
Gastrics	1,5	1,8
Genitals	0,6	0,7
Autonomous	1,5	1,9

To analyze descriptably the frequencies of intensity of the different stress signs, the following ranges of level were used, from 0 Void, 1 Light, 2 Moderate, 3 Intense, 4 Very Intense, which belongs to ways used in Hamilton Evaluation Scale of Hamilton for Anxiety, modified.

When examining this scale it is clearly noted that signs that appears more frequently are in first place the Anxiety, with a frequency in 2nd year of 2,3 an for 3rd year a frequency of 2,5; which put them between range Moderate and Intense. In second place are the tenses signs with a frequency in 2nd year of 2,2 and for 3rd year a frequency of 2,5; which placed them between ranges Moderate and Intense. In Third place are Insomnia Signs with a frequency in 2nd year of 2,1 and for 3rd year with a frequency of 2,3; which put them between range Moderate and Intense

Table 3 – Distribution of Dimensions Competence and Teaching

Dimension	Second year Frequency	Third year Frequency
Competence	1,2	1,3
Teaching	1,9	2,1

When analyzing describable the frequencies of dimensions Competitiveness and Teaching the following ranges of intentions were used, from 0 Void, 1 Sometimes, 2 Frequently, and 3 Always, that belongs to forms used in Questionnaire Stressing Factor in Nurse students on their Hospital Practices.

We can see in the table that Dimension Competence, has an average frequency for 2nd year of 1,2 , and for 3rd year 1,3 which put it between ranges Sometimes and Frequently. Regarding dimension Teaching it is noted that shows an increasing of frequency, being this for 2nd year 1,9 placing it between ranges Sometimes and Frequently, and for 3rd year of 2,1 putting it between ranges Frequently and Always.

Table 4 – Distribution by question of Dimension Competence in questionnaire Facts Generating Stress in Students

Question number	Second year Frequency	Third year Frequency
Question nº 1	1,9	2,0
Question nº 2	1,4	1,5
Question nº 3	1,4	1,4
Question nº 4	1,4	1,6
Question nº 5	1,1	1,3
Question nº 6	1,7	1,8
Question nº 7	1,8	1,9
Question nº 8	1,5	1,8
Question nº 9	1,0	1,0
Question nº 10	0,8	0,9
Question nº 11	1,0	1,0
Question nº 12	0,9	1,2
Question nº 13	0,7	1,0
Question nº 14	0,9	1,0
Question nº 15	1,2	1,2
Question nº 16	0,7	0,8

To analyze descriptably the ranges of intensity of different indicators of Dimension Competence following ranges were used from 0 Void, 1 Sometimes, 2 Frequently and 3 Always, which belongs to those used in questionnaire Stressing Factors of Nursing students during their Hospital Practices.

From analysis of Table N° 4 we can see that the question that has the higher level, for both classes, belongs to N° 1 that says: "To do mistakes in my work and damage the patient", which presents a range of 1,9 for 2nd year and 2,0 for 3rd year, this means that the range of answers of this question is between levels of Sometimes and Frequently. In second place follows question N° 7 that says : "To be in some situation not knowing what to do", which presents a range of 1,8 for 2nd year and 1.9 for 3rd year, putting it between ranges Some times and Frequently. In third place is the question N° 6 that says: "To confuse treatment", which presents a frequency of 1,7 for 2nd and 1,8 for 3rd, placing it between ranges Sometimes and Frequently.

Table 5 - Distribution by question of indicators of Teaching Dimension in questionnaire Factors of Stress Generators in Nurse Students

Question number	Subdimention teaching	Second year Frequency	Third year Frequency
Question nº17	Supervision	2,1	2,2
Question nº 18	Supervision	1,8	2,2
Question nº 19	Supervision	2,3	2,4
Question nº 20	Availability	1,7	2,0
Question nº 21	Supervision	1,9	2,2
Question nº 22	Supervision	1,4	1,8
Question nº 23	Conduct	1,7	1,9
Question nº 24	Conduct	1,8	2,0
Question nº 25	Conduct	2,2	2,3
Question nº 26	Conduct	1,8	2,1

With the purpose of analyze descriptably the frequencies of the indicators of the Teaching dimension, following ranges of intensity were used, from 0 Void, 1 Sometimes, 2 Frequently, and 3 Always, which belongs to approaches used in questionnaire Stressing Factors of Nurse Students During their Hospital Practices.

From Analysis of Table N° 5 we can see that questions that presents higher ranges of intensity in their answers, for both classes, are in first place question N°19, which says: "To receive contradictory orders from teachers", which presents a range of 2,3 for second, and 2,4 for third year, this implies that the range of answers of this question is between levels

of frequently and always. In second place follows the question N° 25 that says "That the guiding teacher call your attention in front of the patient and health staff", which presents a range of 2,2 for second and 2,3 for third; which place them between ranges Frequently and Always. And last in third place, is the question N°17 that says: "The extra work of activities assigned by teacher in laboratories, by example: in connection to N° of patients assigned and daily operations", which presents a range of 2,1 for second and 2,2 for third; placing them between ranges Frequently and Always.

We can deduce starting from this table that the average frequency of subdimension Conduct correspond for 2nd year 1,9 , and for 3rd year 2,1 which place it between ranges Some times and Always; the subdimension Availability is for the 2nd year 1,7 and for the 3rd year 2,0 which place it between Sometimes and Frequently; and for the subdimension Supervision they belongs to 1,9 for the 2nd and 2,2 for the third, which is between ranges Sometimes and Always.

DISCUSSION

According to the figures analysis, the students of second and third year of the Nurse Career of the Universidad de Valparaíso present stress during Practical Laboratories. This finding matches with studies done in Universidad de Santiago de Chile, Universidad de Chile and Universidad de Los Andes, which shows that the Nursing Students are exposed during their education to a high stress level.

In connection to the stress level, independent, in both classes the level of the Moderate Stress is predominant⁽¹⁴⁾.

Regarding to symptoms derived from stress, these are numerous and varied, however, the students agree that the most frequent signs are: first the Anxiety, second Tensional Signs and third Insomnia Signs. These findings agreed with figures obtained from the research of stress in Nursing students of Universidad Austral de Chile, where these signs presents the higher score. Regarding the rest of signs it can be noted that there is a similar tendency in their appearance in each class, however, the 3rd year shows grades slightly higher, which can be to factors, either from Hospital Practices or derived from personal problems. This last fact was not approached in this research, nevertheless, we considered important to enclose it in further researches.

Regarding to dimensions Competitiveness and Teaching, both classes agreed that the factor that provokes more stress during their medical laboratories is Teaching dimension, that gave high scores, specially in questions referred as "To receive contradictory orders from teacher". In second place we find the question that refers to "The teacher call the attention in front of patient and/or health staff".

In connection to dimension Competence, it got lower scores to the former dimension, but is remarkable for the students, since that also got high scores. In this dimension the questions that got higher store of intensity refers that the student is confronted to situations like "Not to do mistakes while working" and "To damage the patient", and follows "To be in a situation not knowing what to do", and afterwards "Confuse treatment". For the 2nd year, in a lower level of intensity we find "To be in an urgent situation". As we can notice, the intensity of scores do not change between both classes, however, the scores are slightly higher in 3rd year of the career.

With this research we have joined to results found in several studies connected with stress present in nursing students, establishing that during their university education they are under several situations generating stress, especially in Hospital practices. Therefore, we conclude that the objectives proposed in the present research are fulfilled. However, is important to emphasize that other factors were not considered that could generate stress in the students. These could be classified as not concerning to laboratory and not depending of objectives defined in subjects, that is to say, they belong to those factors that are connected with the clinic environment, as example, the relation with professionals (Doctors, Nurses, and other Therapist) and with nurse assistants and service staff, to which we can add the characteristic nature of the Institution, the complexity of patients, and the personal character of each student, specially with their capacity of solving problems.

As a corollary of this research we could deduce that if nurses has an important part in the promotion of better standards of life and disease prevention, it is necessary to extrapolate these role to the education of nurse professional, in a way of converting the nurse practice in a way of learning not resulting in increasing the daily stress to levels mentioned in this research, and to favour a better disposition of the student for his development, obtaining to assume positively the role that in future

will perform. Besides, we think it is necessary to re-examine of the personal qualities requested to the teacher to perform pedagogic activities in nursing. The personal qualities that should possess those holding nursery teaching are: a personality well balanced and open minded, sensitiveness and extraversion, optimist and kindness. Must have self control over his own reactions, that is to say, to have an emotional intelligence that allow him to develop affection and empathy to the persons that is working and assisting. He needs also to be coherent and have clear and defined principles, beliefs and esteems of his own life, therefore, should be authentic and congruent between what he says and do, possess defined esteems based in self respect and to others, and a high sense of compromise in training other nurses that includes the student, the institution, person

and country. As educator, it is necessary to go through a period of training, which demands to develop skills such as knowing the subject he is teaching and pedagogic capacity that drive him to be a supplier of learning and development of students as persons and professionals, creating an adequate environment for the acquisition of experiences and learning⁽¹⁵⁾. It is important to have technical solvency to allow him to act with security in the attention of persons, transmitting that security to students. And last, should be a critical and stimulating person, engaged with teaching, so that knowledge's be coherent with didactic and methodological principles, facilitating the process, teaching and learning. This appearance demands a permanent training, together with the methodological advances of education and of its practical welfare area⁽¹⁶⁻¹⁷⁾.

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