

# Bianchi Stress Questionnaire

ESCALA BIANCHI DE STRESS

ESCALA DE ESTRÉS BIANCHI

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## ABSTRACT

The Bianchi Stress Questionnaire was built and validated to assess the stress level of hospital nurses. The questionnaire is self-applicable, composed of 51 items, and divided into six subscales, each receiving a score that ranges from 1 to 7. Subscales are composed of activities that involve nursing care and management. The use of this questionnaire highlights the most stressing subscale for either groups of nurses or for each individual, and also assesses the most stressing activities in the researched institution. The questionnaire is a supportive instrument in the decision-making process towards the implementation of strategies to cope with the hospital nurse's stress.

## KEY WORDS

Stress.  
Evaluation.  
Working conditions.  
Nursing staff hospital.  
Validation studies.

## RESUMO

A Escala Bianchi de Stress foi construída e validada para avaliar o nível de stress do enfermeiro hospitalar no desempenho básico de suas atividades. É auto-aplicável, composta por 51 itens, divididos em seis domínios, que recebem uma pontuação com variação de 1 a 7. Os domínios são compostos por atividades envolvendo a assistência e o gerenciamento do cuidado. Com a sua utilização, pode-se verificar o domínio mais estressante para o grupo de enfermeiros ou para cada indivíduo e também avaliar as atividades mais estressantes naquela instituição. É um instrumento que auxilia na tomada de decisão para a implantação de estratégias de enfrentamento do stress do enfermeiro hospitalar.

## DESCRIPTORES

Estresse.  
Avaliação.  
Condições de trabalho.  
Recursos humanos de enfermagem no hospital.  
Estudos de validação.

## RESUMEN

Escala de Estrés Bianchi fue construido y validado para evaluar el nivel de estrés de la enfermera en sus actividades en el hospital. Es auto-aplicable, compuesto de 51 ítem, divididos en seis factores, que reciben una puntuación con una variación entre el 1 y 7. Los factores están compuestos por actividades relacionadas con la asistencia y la gestión de la atención. Con su uso, el factor estressante para el grupo de enfermeras o de cada individuo puede ser verificado, y también para evaluar las actividades estressantes en esa institución. Es un instrumento que ayuda en la toma de decisión para la implantación de estrategias de enfrentamiento del estrés del enfermero en el hospital.

## DESCRIPTORES

Estrés.  
Evaluación.  
Condiciones de trabajo.  
Personal de enfermería en hospital.  
Estudios de validación.

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## INTRODUCTION

The occurrence of stress in modern life is remarkable in that it is present in both professional and personal life. The nurse is the professional who assists patients and their families, most often in hospital areas, experiencing conflicting aspects such as birth and death.

Research on surgery cancellation<sup>(1)</sup> showed that the nurses employed in the surgical center often presented a higher level of stress than the interviewed patients. Another study<sup>(2)</sup> attempted to list the hospital nurse's stressors, regardless of function. The bibliographic survey of the study indicated that the obtained stress inventories were originally written in other languages, leading to a difficult cultural adaptation, since the nurse's functional realities are quite unique to each nation.

During the data collection process, we realized that nurses from other hospital areas would require an independent survey that was not specifically bound to nurse's work in the surgical center.

Counting on the experience of the creation of the data collection instrument to measure the specific stressors involved in the performance of the nurse in the surgical center, the Bianchi Stress Questionnaire (BSQ) was formulated in order to assess the stress level of the hospital nurse, described in this present article.

## OBJECTIVE

The BSQ is aimed at measuring the level of stress that nurses assign to the activities performed in day-to-day professional hospital environments. The questionnaire is composed of 51 items that are then categorized into subscales that make possible the identification of the stressor's degree of intensity, which is then associated with the nurse's stress level.

## CONCEPTUAL BASIS

Selye<sup>(3)</sup> is known as the *father of the Stress Theory*. He was the first researcher to fully dedicate himself to the development of concepts that examined the connection between emotions and the discharge of neuroendocrine chemical reactions. Following this phase, named *biological stress-based studies*, works directed at the association between emotions and the release of hormones responsible for the occurrence of physical and behavioral symptoms appeared; researchers such as Lazarus and Launier<sup>(4)</sup>, and the stress interactionist model.

In this model, the individual undergoes a primary appraisal; during this appraisal, it is determined whether or not the event is considered as a stressor, whether it is positive (a challenge) or negative (a threat), and also if stress hormones (catecholamine and corticosteroids) are produced and released.

International and national literature diversely approach stress by the application of individual and subjective appraisals, and by the validation of knowledge of stress levels and sources of stress. This fact makes the study of the issue a very difficult process. A similar situation is observed in the history of the Brazilian studies based on populations of nurses.

When the existing literature on stress in nursing environments is analyzed, it is observed that the theoretical reference standpoint is quite diverse. It is worth emphasizing that a vitally important aspect in the interactionist model is the interference of individual and organizational characteristics in the appraisal of stressors and in the options for coping strategies.

A stressor can be any internal or external event that leads an individual to the cognitive appraisal of such an event. The nursing professional experiences stressors within his daily activity. The situation of dealing with the extreme states of life and death can be represented as a stressor by the nurse, an event that can be interpreted as a challenge (a positive event in his work) in the interactionist model's primary appraisal, or as a threat (a negative event in his performance); in both conditions, however, the event is deemed as stressing and thus demands stress physiological and behavioral reflections<sup>(4-6)</sup>.

For a brief summary on the research history of stress in nursing in the international arena, the first studies were performed by psychiatrists and psychologists who identified as their target population the nurses employed in newly implemented intensive care units in the 1970's. After the appraisal phase of this area, other studies were performed in order to compare the in-hospital work areas, such as public health, occupational health, among others<sup>(7-9)</sup>.

The difficulties in the analysis of stress studies, particularly in the nursing area, are due to the use of several data collection instruments, as well as the employment of both quantity and quality analyses. One of the suggestions was the creation of a *stress meter* that would be able to measure stress levels in order to make easier the appraisal processes and, consequently, the research on stress<sup>(10)</sup>.

In a pioneer approach to the literature review of nursing stress<sup>(11)</sup> based on data inserted in the CINAHL, MEDLINE and COCHRANE databases from 1985 and 2003, the following considerations were listed: stress is a subjective phenomenon based on individual perception; the nurse's work place is a source of multiple stressors; organizations have individual initiatives towards reducing the nurses' stress levels, particularly concerning the adequate distribution of personnel and preparation on themes such as leadership and management; and individual stress coping programs and mechanisms should be stimulated and the importance of the individual experience in assessing stress should be emphasized.

The BSQ is aimed at measuring the level of stress that nurses assign to the activities performed in day-to-day professional hospital environments.

## DEVELOPMENT OF THE BSQ

Based on the creation of the stress questionnaire for the nurse's activities in the surgical center, we observed that the questionnaire's subscales should be broadened in order to make possible the application of the instrument to nurses from different hospital units. The original instrument<sup>(12)</sup> was composed of 67 items and comprised data specific to the unit's profile, such as *forwarding biopsy and anatomopathologic materials for exam*.

After being redesigned, the questionnaire was submitted to the examination of five judges, who had vast experience in the following hospital areas: general medical care units; emergency services; intensive care units; post-surgical care units; and specialized exam units. There was no suggestion for content-related alterations; some adjustments were implemented to the instrument's lay-out, such as, for instance, the removal of the lines parallel to the questionnaire numbers.

A pilot test was applied to 50 nurses in a hospital located in Sao Paulo in order to verify the document's filling-out process, comprehension of the items, and amplitude of the questions. All items were accepted by over 80% of respondents and, as there were no other suggestions, the questionnaire was maintained in its original format.

The BSQ is comprised of 51 items that encompass the hospital nurse's activities; the instrument's analyses are categorized into six subscales, namely: interpersonal relationship(A), adequate function of the unit(B); personnel management(C); nursing care(D); unit management(E); and work conditions(F).

The questionnaire was tested for internal reliability by means of the Cronbach's alpha and the instrument obtained a score of 0.96 for the total scale and 0.70 in the above-mentioned subscales, thus proving the instrument's consistency: subscale A=0.84; subscale B=0.88; subscale C=0.79; subscale D=0.93; subscale E=0.79; and subscale F=0.71.

In order to verify the distribution of items in the above-mentioned subscales, a factorial analysis was performed; it was observed that any eventual change would not alter the previously achieved data<sup>(13)</sup>.

The questionnaire is composed of two parts (Appendix):

1. Population characterization data: gender, age, position, work unit, length of time working in the unit; length of time after graduation, post-graduation courses;

2. Nursing activity stressors containing 51 items using a 7-point Likert scale, ranging from 1 to 7; 1 is considered as *little stress*; 4 is considered as *medium*, and 7 is considered as *high stress*. The zero value was set apart to indicate that the nurse does not develop the mentioned activity.

The questionnaire is self-applicable and requires approximately 15 minutes to be fully completed.

The analysis possibilities are as follows:

### 1. Total score of nursing stress

The total marked score shows the nurse's level of stress; since it is highly stressed to perform all activities indicated in the instrument; must take into account the appraisal of the stressor and the further repercussions of the discharged neuroendocrine chemicals. This total score ranges from 51 (when the nurse indicates a low level of stress for all activities) to 357 (when all activities receive a total score of 7).

### 2. Average score for each item (stressor)

The average score for each item can be useful to describe the intensity of the stressor for particular groups of nurses. All values ascribed to the given group are added for each item and the amount of zero indications is subtracted; the equation now shows the real total score of the analyzed stressor. In order to obtain the average score of a given group, the stressor's real total score is divided by the number of respondents that indicated values other than zero for that item. The resulting score will be the real average for each stressor (item). This average will vary from 1.0 to 7.0, and its values will be translated into decimals. The average scores of the 51 items can be cross-referenced in order to identify the most intense stressor in the group of interest.

In the next step, the scores achieved for the 51 items of an individual nurse can also be compared, thus showing the most intense stressor for that specific nurse.

### 3. A score for each subscale.

Aiming at comparing the different stressors among the nurse's activities, the 51 items were divided into six subscales:

- A. Interpersonal Relationship (nine items: 40, 41, 42, 43, 44, 45, 46, 50, 51);
- B. Activities related to the adequate function of the unit (six items: 1, 2, 3, 4, 5, 6);
- C. Activities related to the personnel management (six items: 7, 8, 9, 12, 13, 14);
- D. Nursing care (fifteen items: 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30);
- E. Unit management (eight items: 10, 11, 15, 31, 32, 38, 39, 47);
- F. Work conditions (seven items: 33, 34, 35, 36, 37, 48, 49).

The score of each subscale is calculated as a sum of item scores enclosed in each subscale and divides by the number of items. The score variation in the subscales also ranges from 1.0 to 7.0.

In the analysis of the nurse's average score for each item and each subscale, the stress level followed the standardized scoring below:

- Equal to or below 3.0 = low stress level;
- Between 3.1 and 5.9 = medium stress level;
- Equal to or above 6.0 = high stress level.

## BSQ APPLICATION

This questionnaire was applied to several studies of different functional areas of the nurse in the hospital environment. The instrument was used in some studies as a basis for the elaboration of other instruments<sup>(14-16)</sup>.

The research carried out among nurses in private and governmental hospitals<sup>(17)</sup> showed similar results between both types of institutions; in other words, there was no meaningful difference between the stressors presented in the BAQ and the type of institution, age, and type of unit. The highest stress score average was achieved by subscale F, which takes the work conditions into account, followed by subscale B, related to the adequate function of the unit. These results demonstrated that the use of the BSQ can be diversified (there are reports that point out the occurrence of stress in several work conditions, regardless of higher or lower human resources, and material and financial resources; this result depends on the nurse's appraisal and individual coping strategies used).

The application of the BSQ to other realities proved that this questionnaire is reliable - Cronbach's alpha = 0.94<sup>(18)</sup> - and ratified previous results in which the subscales had the highest stress levels were the *work conditions* and the *adequate function of unit*.

For the specific reality of a privately funded hospital<sup>(19)</sup> it was necessary to include other items in the BSQ, thus totaling 55 items and keeping the proposed division for each subscale. In the instrument's internal reliability study, the Cronbach's alpha reached 0.95, thus providing the evidence of the instrument's internal consistency. The obtained results point out a difference in the hierarchy of stressors; the *activities related to the personnel management* showed the highest score, followed by the *adequate function of unit*.

In the study that analyzed the stress of nurses working in centers for organ transplants<sup>(20)</sup>, the BSQ was modified in order to comply with the different working reality of such nurses. The achieved questionnaire was composed of 39 items and was divided into the same subscales. Cronbach's alpha reached 0.94. Predominant subscales for this studied population were, in decreasing order - *interpersonal relationships* and *nursing care to the organ donor* - thus indicating a discriminatory reality in the use of the BSQ.

The research carried out with nurses in emergency services<sup>(21)</sup> also revealed that the BSQ was a highly reliable instrument (Cronbach's alpha = 0.97), and that the subscales that indicated the highest levels of stress were the subscales that encompassed the *personnel management* and *work conditions*.

Another study was carried out<sup>(13)</sup> in hospitals with over 100 beds and located in Brazilian capitals, including a total of 1,345 nurses; the BSQ reliability was once again shown in the data collection process (Cronbach's alpha = 0.98). The subscales that presented the highest levels of stress were also the *personnel management* and *work conditions*.

The nurse's activities in Brazil's intensive care units<sup>(22)</sup> were analyzed by another study and the BSQ's Cronbach's alpha reached 0.91. The highest level of stress was found in the *personnel management* subscale. The study performed with nurses who work in emergency services in Brazil<sup>(23)</sup> showed that the *work conditions* subscale presented the highest level of stress, regardless of the analyzed region.

Bearing the above-mentioned data in mind, it is clear that the BSQ is an instrument that analyzes the variation of stress levels among nurses in each type of unit, and that the instrument is able to measure existing stressors, providing data that allows for both individual and collective alterations regarding the institution's workflow.

The achieved results can lead the nurse to self-knowledge, providing options to cope with the stressors that are identified by means of the application of the BSQ. In addition, results can also provide a perspective on the stressors that afflict the institution itself.

As each reality contains a determined uniqueness, there are some necessary adjustments in the types of stressors that might affect each nurse in his/her professional activities. As such, the BSQ application should be restricted, or the indicated stressors should be necessarily broadened. The need for assessing the BSQ for its application to specific sectors such as clinical services, daycare treatment, and even for coordination positions, are fine examples. This is due to the need for adjusting the stressors; although the subscales that can indicate a high level of stress for the nurse are approached, it is most likely that the individual conditions will be quite different.

## FINAL CONSIDERATIONS

The creation of the BSQ was aimed at subsidizing the discussion regarding the stress of nurses in hospitals, demystifying stress as a problem of individual order, and thus providing support for the analysis of these professionals' performance and activities.

The achieved results can lead the nurse to self-knowledge, providing options to cope with the stressors that are identified by means of the application of the BSQ.

Each nurse must be able to recognize stressors and have the opportunity to decrease stressful situations, adapt to

them, or even solve a problematic situation with the lowest degree of personal damage.

## REFERENCES

1. Bianchi ERF. Estudo exploratório sobre suspensão de cirurgia: a comunicação da suspensão e a reação relatada pelo paciente frente ao fato [dissertação]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 1983.
2. Bianchi ERF. Enfermeiro hospitalar e o estresse. *Rev Esc Enferm USP*. 2000;34(4):390-4.
3. Selye H. *The stress of life*. New York: Mc Graw Hill; 1956.
4. Lazarus RS, Launier S. Stress related transaction between person and environment. In: Dervin LA, Lewis M, editores. *Perspectives in international psychology*. New York: Plenum; 1978. p. 387-427.
5. Menzies IEP. Nurses under stress. *Int Nurs Rev*. 1960;7(6): 9-16.
6. Bianchi ERF. Stress and coping among cardiovascular nurses: a survey in Brazil. *Issues Ment Health Nurs*. 2004;25(7):737-45.
7. Gentry WD, Foster SB, Froehling S. Psychological response to situational stress in intensive and non-intensive nursing. *Heart Lung*. 1972;11(1):43-7.
8. Gray-Toft P, Anderson JA. The nursing stress scale: development of an instrument. *J Behav Assess*. 1981;3(1):11-23.
9. Healy CM, McKay MF. Nursing stress: the effects of coping strategies and job satisfaction in a sample of Australian nurses. *J Adv Nurs*. 2000;31(3):681-6.
10. Santos OA. *Ninguém morre de trabalhar*. 3ª ed. São Paulo: Textonovo; 1995.
11. McVicar A. Workplace stress in nursing: a literature review. *J Adv Nurs*. 2003;44(6):633-42.
12. Bianchi ERF. *Estresse em enfermagem: análise da atuação do enfermeiro em centro cirúrgico* [tese]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 1990.
13. Bianchi ERF. *Stress entre enfermeiros brasileiros [relatório de pesquisa]*. São Paulo: EEUSP/CNPq; 2006.
14. Anabuki MH. *Situações geradoras de estresse: a percepção das enfermeiras de um hospital de ensino* [dissertação]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 2001.
15. Fernandes SMBA. *Estresse ocupacional e o mundo do trabalho atual* [dissertação]. Natal: Universidade Federal do Rio Grande do Norte; 2005.
16. Rocha MCP. *Estresse e o ciclo vigília-sono do enfermeiro que atua em diferentes setores do ambiente hospitalar* [dissertação]. Campinas: Departamento de Enfermagem, Faculdade de Ciências Médicas, Universidade de Campinas; 2008.
17. Bianchi ERF. *Stress entre enfermeiros hospitalares* [tese livre-docência]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 1999.
18. Guido LA. *Stress e coping entre enfermeiros de centro cirúrgico e recuperação anestésica* [tese]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 2003.
19. Sangiuliano LA. *Stress na atuação dos enfermeiros em um hospital privado e as conseqüências no seu estado de saúde* [dissertação]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 2004.
20. Guarino AJ. *Stress e captação de órgãos: uma realidade vivenciada pelos enfermeiros* [dissertação]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 2005.
21. Batista KM, Bianchi ERF. *Estresse entre enfermeiros da Unidade de Emergência*. *Rev Lat Am Enferm*. 2006;14(4):534-9.
22. Guerrer FJL, Bianchi ERF. *Caracterização do estresse nos enfermeiros de Unidades de Terapia Intensiva*. *Rev Esc Enferm USP*. 2008;42(2):355-62.
23. Menzani G. *Estresse entre enfermeiros de pronto atendimento no Brasil* [dissertação]. São Paulo: Escola de Enfermagem, Universidade de São Paulo; 2007.



**PARTE 2**

1. Previsão de material a ser usado	0 1 2 3 4 5 6 7
2. Reposição de material	0 1 2 3 4 5 6 7
3. Controle de material usado	0 1 2 3 4 5 6 7
4. Controle de equipamento	0 1 2 3 4 5 6 7
5. Solicitação de revisão e consertos de equipamentos	0 1 2 3 4 5 6 7
6. Levantamento de quantidade de material existente na unidade	0 1 2 3 4 5 6 7
7. Controlar a equipe de enfermagem	0 1 2 3 4 5 6 7
8. Realizar a distribuição de funcionários	0 1 2 3 4 5 6 7
9. Supervisionar as atividades da equipe	0 1 2 3 4 5 6 7
10. Controlar a qualidade do cuidado	0 1 2 3 4 5 6 7
11. Coordenar as atividades da unidade	0 1 2 3 4 5 6 7
12. Realizar o treinamento	0 1 2 3 4 5 6 7
13. Avaliar o desempenho do funcionário	0 1 2 3 4 5 6 7
14. Elaborar escala mensal de funcionários	0 1 2 3 4 5 6 7
15. Elaborar relatório mensal da unidade	0 1 2 3 4 5 6 7
16. Admitir o paciente na unidade	0 1 2 3 4 5 6 7
17. Fazer exame físico do paciente	0 1 2 3 4 5 6 7
18. Prescrever cuidados de enfermagem	0 1 2 3 4 5 6 7
19. Avaliar as condições do paciente	0 1 2 3 4 5 6 7
20. Atender as necessidades do paciente	0 1 2 3 4 5 6 7
21. Atender as necessidades dos familiares	0 1 2 3 4 5 6 7
22. Orientar o paciente para o auto cuidado	0 1 2 3 4 5 6 7
23. Orientar os familiares para cuidar do paciente	0 1 2 3 4 5 6 7
24. Supervisionar o cuidado de enfermagem prestado	0 1 2 3 4 5 6 7
25. Orientar para a alta do paciente	0 1 2 3 4 5 6 7
26. Prestar os cuidados de enfermagem	0 1 2 3 4 5 6 7
27. Atender as emergências na unidade	0 1 2 3 4 5 6 7
28. Atender aos familiares de pacientes críticos	0 1 2 3 4 5 6 7
29. Enfrentar a morte do paciente	0 1 2 3 4 5 6 7
30. Orientar familiares de paciente crítico	0 1 2 3 4 5 6 7
31. Realizar discussão de caso com funcionários	0 1 2 3 4 5 6 7
32. Realizar discussão de caso com equipe multiprofissional	0 1 2 3 4 5 6 7
33. Participar de reuniões do Departamento de Enfermagem	0 1 2 3 4 5 6 7
34. Participar de comissões na instituição	0 1 2 3 4 5 6 7
35. Participar de eventos científicos	0 1 2 3 4 5 6 7

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36. O ambiente físico da unidade	0 1 2 3 4 5 6 7
37. Nível de barulho na unidade	0 1 2 3 4 5 6 7
38. Elaborar rotinas, normas e procedimentos	0 1 2 3 4 5 6 7
39. Atualizar rotinas, normas e procedimentos	0 1 2 3 4 5 6 7
40. Relacionamento com outras unidades	0 1 2 3 4 5 6 7
41. Relacionamento com centro cirúrgico	0 1 2 3 4 5 6 7
42. Relacionamento com centro de material	0 1 2 3 4 5 6 7
43. Relacionamento com almoxarifado	0 1 2 3 4 5 6 7
44. Relacionamento com farmácia	0 1 2 3 4 5 6 7
45. Relacionamento com manutenção	0 1 2 3 4 5 6 7
46. Relacionamento com admissão/alta de paciente	0 1 2 3 4 5 6 7
47. Definição das funções do enfermeiro	0 1 2 3 4 5 6 7
48. Realizar atividades burocráticas	0 1 2 3 4 5 6 7
49. Realizar tarefas com tempo mínimo disponível	0 1 2 3 4 5 6 7
50. Comunicação com supervisores de enfermagem	0 1 2 3 4 5 6 7
51. Comunicação com administração superior	0 1 2 3 4 5 6 7

Sugestões e comentários