



## Analysis of the Work Environment and Burnout among Nurses, Technicians and Nursing Assistants in Brazilian Institutions

Lucianna Reis Novaes<sup>1\*</sup>, Michel Matos de Barros<sup>2</sup>, Fabrício dos Santos Cirino<sup>3</sup>

<sup>1</sup>Graduação em Enfermagem pela Pontifícia Universidade Católica de Campinas (PUCCampinas); especialização em Administração Hospitalar pela Faculdade de Ciências Médicas da Santa Casa de São Paulo (FCMSCSP); especialização em Estomaterapia pela Faculdade de Ciências Médicas da Universidade Estadual de Campinas (Unicamp); avaliadora do Instituto Qualisa de Gestão (IQG), São Paulo/SP, Brazil

<sup>2</sup>Graduação em Enfermagem pelo Centro Universitário Faculdades Metropolitanas Unidas (FMU); especialização em Enfermagem em Urgência e Emergência pela FMU; MBA em Gestão em Saúde pelo Centro Universitário São Camilo; avaliador do Instituto Qualisa de Gestão (IQG), São Paulo/SP, Brazil

<sup>3</sup>Graduação em Farmácia pela Universidade Católica de Santos (UniSantos); especialização em Farmacologia Clínica pela UniSantos; mestrado em Saúde Coletiva – Meio Ambiente e Saúde pela UniSantos; doutorado em Ciências pela Faculdade de Medicina da Universidade de São Paulo (FMUSP); avaliador do Instituto Qualisa de Gestão (IQG), São Paulo/SP, Brazil

Corresponding Author: **Lucianna Reis Novaes**

**Address:** Avaliadora do Instituto Qualisa de Gestão (IQG), R. Nelson Gama de Oliveira, 311 - Vila Andrade, São Paulo - SP, 05734-150, Brazil; Tel: +55 (11) 37722098; Email: [enfermagem@iqg.com.br](mailto:enfermagem@iqg.com.br)

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### Abstract

In addition to causing damage to the health of patients, the Covid 19 pandemic has brought a greater burden to health systems directly affecting professionals, leading many to physical and emotional exhaustion. The present study aims to demonstrate the perceptions of the professional practice environment of nurses, technicians and nursing assistants through the use of the Environment of Professional Practice research (Practice Environment Scale of the Nursing Work Index – PES/NWI) and the Maslach Burnout Inventory (MBI), in addition to comparing them. The researches were applied in private and public administrative institutions in four Brazilian states, these being Amazonas (AM), Minas Gerais (MG), Mato Grosso do Sul (MS) and Rio de Janeiro (RJ) that are part of the IQG Nursing Certification, from December 2020 to June 2021, with the participation of 1484 professionals from the six invited institutions. The nursing team-physician relationships are identified as the most favorable characteristics of the work environment in the PES/NWI, and the foundations for nursing practice, however, identified as unfavorable to the participation of nursing in hospital affairs and adequacy of personnel and resources. Regarding the dimensions of the MBI research the best results are related to emotional exhaustion. However, the rates of low professional fulfillment were 69.1%. There are impacts on *burnout* related to emotional exhaustion and professional fulfillment related to the work environment, more frequently in the group of nurses. The analysis showed differences in the perceptions of nurses when compared to nursing assistants and technicians, with attention to inter-professional working relationships and the availability of resources. Therefore, the importance of guiding actions aimed at the management of these health resources is portrayed, with attention to the risk to the quality and safety of care, but also to the health of these professionals. The role of the leader,

represented by the nurse, needs more attention and preparation, given its potential in guiding the best practices, professional engagement and promoting changes in the environment of professional practice.

## Keywords

Organizational Environment Research, Burnout, Exhaustion, Stress, People Management, Nursing

## Introduction

The environment of professional nursing practice can be defined by the characteristics that allow safe and quality clinical practice for patients [1]. This has been the object of study in different countries and is directly related to patient safety outcomes [2]. Actions to improve this environment have a direct impact on reducing staff absences, as well as increasing the satisfaction of professionals and patients [3,4]. They can also result in the empowerment of nurses, and greater professional engagement, impacting lower risk rates for burnout in addition to retaining these professionals in health institutions [5-7].

Due to the complexity of health organizations, it is acknowledged that changes in nursing working conditions directly affect factors such as the work environment, professional satisfaction, burnout, the quality of care and patient safety [8]. Related to this inherent condition of health care, the Covid-19 pandemic has evidenced the overload of the public and private health system; This condition has exacerbated the work overload of health professionals.

Thus, there is a high risk of *burnout*, a syndrome characterized mainly by three feelings: emotional exhaustion, depersonalization of the other individuals around (patients, colleagues, and the very organization in which the worker is inserted) and low professional fulfillment. As a consequence, the person affected by this syndrome feels unhappy with himself and with the work he performs, and with low energy level to continue with his daily activities [9,10].

The main factors observed as causes for the burnout syndrome in health workers are the excessive workload, the low availability of personnel to meet the continuous demand of patients in a state of urgency and emergency, the daily coexistence with the suffering and death (including of children), inadequate remuneration and little professional recognition

[10,11].

This condition also refers to difficulties in relationships with colleagues, due to personal differences in professional training or the very urgent nature of the activity. In this scenario, a small mistake made by one team member can cause a domino effect that will affect everyone's work and could result in the death of a patient. These are factors that can lead professionals to the syndrome, when accumulated for a certain period [10].

It is important to remember that *Burnout* differs from stress because it involves relational elements between its causes and effects. While stress can be caused by any strong emotion, good or bad, and manifests itself mainly in the physical sense of lack of energy and motivation, *burnout* syndrome has a strong manifestation on the feelings of those who are affected by it towards people around you. Thus, the individual starts to see patients and colleagues no longer as human beings, but as inanimate objects, and performing activities in a depersonalized way, with increases irritability and loss of motivation [10,11]. He feels invaded by negative feelings about himself, the work he performs, his colleagues, his boss and the patients he treats, tending to assume a cold attitude and seeking isolation whenever possible as he can no longer cope with the emotions of others and not with his own [10].

As an implication of Burnout Syndrome, we can identify emotional exhaustion defined by lack of energy and feeling of resource depletion, depersonalization characterized by impersonality, feeling of complete indifference and decreased professional fulfillment characterized by a negative evaluation of oneself or in relation to professional and personal situations [12]. Understanding the factors related to professional stress is necessary for measures to be taken to mitigate damage and prevent the occurrence of Burnout.

The consequences for the work environment are related to the efficiency of an organization, with the decrease in productivity and the quality of the health care provided [13]. Thus, mapping and understanding the factors related to professional stress in the work environment is essential so that measures can be taken to mitigate damage and prevent the occurrence of Burnout in health professionals.

In this regard, the objective of this study was to assess the differences in perceptions of the professional practice environment between nurses and nursing technicians or assistants in the current Brazilian scenario, based on the application of the environment research and Burnout inventory.

## Methodology

This study used a quantitative and cross-sectional design to assess the environment of professional nursing practice, as well as the risk of burnout in these professionals. A convenience sample was used by the invitation made to six Brazilian institutions that are part of the IQG Nursing Services Certification Program. These institutions, which consented to their participation in the research, are characterized by both the private and public administrative spheres of four Brazilian states, these being Amazonas (AM), Minas Gerais (MG), Mato Grosso do Sul (MS) and Rio de Janeiro (RJ).

The research took place between December 2020 and June 2021, with the inclusion criterion of being part of the professional category of nurses, nursing technicians and nursing assistants, in addition to the acceptance given to the consent form. Thus, the Professional Practice Environment Scale of the Nursing Work Index - PES/NWI and the Maslash Burnout Inventory (MBI) scales were applied.

The first scale used, PES/NWI, translated and validated for the Brazilian reality, is an instrument considered practical and safe, applied with the objective of recognizing the work environment and gathering the team's perceptions about the institution. The questionnaire consists of 31 questions divided into five dimensions: nursing participation in hospital matters; nursing foundations for the quality of care;

capacity of the nurse manager, leadership and support to nurses; adequacy of personnel and resources; and positive working relationships between nurses and doctors [13].

The answers to the questions are of free choice in the form of the Likert psychometric scale, in which each answer corresponds to a score: strongly disagree (score one), disagree (score two), agree (score three) and strongly agree (score four). Based on the average obtained for each of the dimensions there are considered favorable environments for the professional practice of nursing: 2.5 in four or five subscales. Environments that score above 2.5 on two or three subscales are considered mixed, and those that score above 2.5 on none or only one subscale are considered unfavorable to professional nursing practice [13].

The second scale applied was the Maslash Burnout Inventory (MBI), also validated for the Brazilian reality and which is applicable to all health professionals, in all areas of activity, with dimensions at three levels: emotional exhaustion; depersonalization; and professional fulfillment. The MBI questionnaire has 22 statements also with free choice responses in the form of the Likert scale: never, rarely, sometimes, frequently and always, where scores range from zero to four respectively. For all items, the sum of the dimensions is performed: emotional exhaustion, depersonalization and professional fulfillment. For each of the dimensions, the risk level is calculated as low, medium and high [14].

A descriptive analysis of all variables was performed using average, standard deviation and minimum and maximum values, according to the distribution of quantitative variables, frequencies and percentages for qualitative variables. Pearson and Spearman correlations by variables were also used to examine the strength and direction of bivariate relationships between key study variables. Finally, a multivariate logistic regression analysis was performed. The level of statistical significance was set at  $p < 0.05$ , and the Minitab 19.0 statistical package was used.

## Results

### *Characteristics of the participants:*

A total of 1484 professionals from the six invited institutions participated in the research. Among the participants 74.3% were from public administrative institutions and 25.7% from private institutions. There

is a greater participation of professionals from the state of Amazonas with 793 professionals followed by the state of São Paulo with 425 professionals, as shown in **Table-1**.

**Table-1: Institutional context of research participants**

|                       | Characteristics | #    | %     |
|-----------------------|-----------------|------|-------|
| Administrative sphere | Private         | 381  | 25,67 |
|                       | Public          | 1103 | 74,33 |
| Total                 |                 | 1484 | 100,0 |
| State                 | AM              | 793  | 53,44 |
|                       | MG              | 38   | 2,56  |
|                       | MS              | 67   | 4,51  |
|                       | RJ              | 161  | 10,85 |
|                       | SP              | 425  | 28,64 |
| Total                 |                 | 1484 | 100,0 |

The profile of research participants is also observed, most of them being nurses, which totalled 68.1% of the total number of participants, and the position referred to by these professionals was mostly Assistance (94.4%). The time of professional experience was also observed being the most frequent in the group of more than five years. Professionals with one to three years in the current position (42.2%) are the most reported among professionals.

Of the nursing team as a whole, it is observed that most of them reported having some complementary education to the initial one (64.9%). Among the group of nurses 95.2% reported having some specialization, master or doctorate degree in the area.

Among the units of operation, the greater participation is of nurses and nursing technicians working in clinical or surgical inpatient units (31.2%), highlighting that this operation was aimed at both the pediatric and adult areas.

Professional performance was reported in more than one bond (33.5%) being less frequent when compared to the single bond. For the group of nurses, this proportion rises to 67.0% of professionals with a single job, while for technicians or nursing assistants the absence of double shifts is at 65.5%.

The most representative work shift among the participants was the night shift adding up to 676 professionals, followed by the morning shift with 645 professionals (**Table-2**).

#### *PES/NWI application:*

Research participants rated the capacity of the nurse manager, leadership and support of nurses ( $M=2.84$ ,  $DP=0.61$ ) as the most favorable characteristic present in the practice environment, followed by the relationship between the nursing team and physician ( $M=2.80$ ,  $DP=0.58$ ) and foundations for quality nursing practice ( $M=2.77$ ,  $DP=0.46$ ). The adequacy of personnel and resources ( $M=2.50$ ,  $DP=0.66$ ) and the participation of nursing in hospital affairs ( $M=2.71$ ,  $DP=0.53$ ) were qualified as the least favorable characteristics of this environment.

The most favorable characteristics for the work environment pointed out by nursing technicians and assistants were: the nursing team-doctor relationships ( $M=2.84$ ,  $DP=0.58$ ) and the foundations for nursing practice ( $M=2,72$ ,  $DP=0.46$ ).

These findings, therefore, showed a favorable working environment for professional practice with three of the subscales with an average above 2.5, indicating as the most unfavorable points the adequacy of personnel and resources, as well as the participation

of nursing in hospital matters as can be seen in **Table-3**.

Despite a favorable environment for professional nursing practice observed in the institutions assessed, significant differences ( $p < 0.001$ ) were observed between the perception of nurses and nursing technicians or assistants in the dimensions: capacity of the nurse manager, leadership and support of nurses (i), adequacy of personnel and resources (ii), and

positive relationships between nursing staff and physicians (iii). More favorable averages were observed in all dimensions for the group of nurses, with the exception of the dimension related to the relationship with medical professionals, where the most positive perception is present in the group of technicians or nursing assistants. **Fig-1** shows these comparisons of the PES/NWI dimensions by professional category.

**Table-2: Characteristics of the research participants**

|                              | Profile                           | N    | %     |
|------------------------------|-----------------------------------|------|-------|
| Professional category        | Aux./Nursing technician           | 473  | 31,87 |
|                              | Nurse                             | 1011 | 68,13 |
| Position                     | Administrative                    | 45   | 3,03  |
|                              | Assistance                        | 1401 | 94,41 |
|                              | Management                        | 38   | 2,56  |
| Professional experience time | 0 to 1 year incomplete            | 100  | 6,74  |
|                              | 1 to 3 year incomplete            | 363  | 24,46 |
|                              | 3 to 5 year incomplete            | 291  | 19,61 |
|                              | 5 years or more                   | 730  | 49,19 |
| Time in current position     | 0 to 1 year incomplete            | 465  | 31,33 |
|                              | 1 to 3 year incomplete            | 631  | 42,52 |
|                              | 3 to 5 year incomplete            | 121  | 8,15  |
|                              | 5 years or more                   | 267  | 17,99 |
| Complementary education      | No                                | 521  | 35,11 |
|                              | Yes                               | 963  | 64,89 |
| Unit of operation            | Diagnostic support                | 23   | 1,55  |
|                              | Outpatient care                   | 50   | 3,37  |
|                              | Urgent and Emergency Care         | 431  | 29,04 |
|                              | Clinical/Surgical Hospitalization | 463  | 31,20 |
|                              | Adult Intensive Care              | 187  | 12,60 |
|                              | Pediatric/Neonatal Intensive Care | 30   | 2,02  |
|                              | Administrative                    | 75   | 5,05  |
|                              | Surgical ward                     | 225  | 15,16 |
| Another job                  | No                                | 987  | 66,51 |
|                              | Yes                               | 497  | 33,49 |
| Work shift                   | Administrative                    | 63   | 4,25  |
|                              | Morning                           | 645  | 43,46 |
|                              | Night                             | 676  | 45,55 |
|                              | Afternoon                         | 100  | 6,74  |

Table-3: Analysis of the dimensions of the work environment according to the participants' characteristics

| Variables                |                                   | #    | Nursing participation in hospital affairs |      | Nursing foundations for the quality of care |      | Capacity of the nurse manager, leadership and support of nurses |      | Adequacy of personnel and resources |      | Positive working relationships between staff and physicians |      |
|--------------------------|-----------------------------------|------|-------------------------------------------|------|---------------------------------------------|------|-----------------------------------------------------------------|------|-------------------------------------|------|-------------------------------------------------------------|------|
|                          |                                   |      | M                                         | DP   | M                                           | DP   | M                                                               | DP   | M                                   | DP   | M                                                           | DP   |
| Professional category    | Nurse                             | 1011 | 2,67                                      | 0,53 | 2,79                                        | 0,46 | 2,92                                                            | 0,57 | 2,56                                | 0,64 | 2,77                                                        | 0,57 |
|                          | Tec./Nursing Aux.                 | 473  | 2,62                                      | 0,55 | 2,72                                        | 0,46 | 2,68                                                            | 0,66 | 2,36                                | 0,67 | 2,84                                                        | 0,58 |
| Education time (years)   | < 1                               | 100  | 2,77                                      | 0,52 | 2,82                                        | 0,49 | 2,93                                                            | 0,66 | 2,51                                | 0,68 | 2,83                                                        | 0,63 |
|                          | ≥ 1 e < 3                         | 363  | 2,72                                      | 0,53 | 2,80                                        | 0,46 | 2,94                                                            | 0,57 | 2,58                                | 0,65 | 2,81                                                        | 0,59 |
|                          | ≥ 3 e < 5                         | 291  | 2,69                                      | 0,53 | 2,80                                        | 0,45 | 2,89                                                            | 0,58 | 2,55                                | 0,62 | 2,77                                                        | 0,60 |
|                          | ≥ 5                               | 730  | 2,59                                      | 0,54 | 2,74                                        | 0,46 | 2,76                                                            | 0,62 | 2,43                                | 0,67 | 2,79                                                        | 0,55 |
| Time in current position | < 1                               | 514  | 2,76                                      | 0,50 | 2,84                                        | 0,45 | 2,97                                                            | 0,59 | 2,57                                | 0,67 | 2,82                                                        | 0,61 |
|                          | ≥ 1 e < 3                         | 620  | 2,66                                      | 0,52 | 2,79                                        | 0,45 | 2,86                                                            | 0,56 | 2,55                                | 0,63 | 2,81                                                        | 0,55 |
|                          | ≥ 3 e < 5                         | 114  | 2,56                                      | 0,54 | 2,70                                        | 0,44 | 2,68                                                            | 0,58 | 2,46                                | 0,61 | 2,75                                                        | 0,55 |
|                          | ≥ 5                               | 236  | 2,45                                      | 0,57 | 2,60                                        | 0,46 | 2,58                                                            | 0,67 | 2,22                                | 0,67 | 2,73                                                        | 0,59 |
| Complementary education  | Yes                               | 514  | 2,76                                      | 0,50 | 2,84                                        | 0,45 | 2,97                                                            | 0,59 | 2,57                                | 0,67 | 2,82                                                        | 0,61 |
|                          | No                                | 521  | 2,62                                      | 0,54 | 2,72                                        | 0,46 | 2,69                                                            | 0,65 | 2,37                                | 0,66 | 2,83                                                        | 0,58 |
| Position                 | Administrative                    | 45   | 2,81                                      | 0,55 | 2,81                                        | 0,49 | 2,96                                                            | 0,68 | 2,50                                | 0,82 | 2,60                                                        | 0,68 |
|                          | Assistance                        | 1401 | 2,65                                      | 0,53 | 2,77                                        | 0,46 | 2,84                                                            | 0,60 | 2,51                                | 0,65 | 2,80                                                        | 0,57 |
|                          | Management                        | 38   | 2,58                                      | 0,60 | 2,71                                        | 0,53 | 2,80                                                            | 0,74 | 2,23                                | 0,85 | 2,78                                                        | 0,63 |
| Work Area                | Diagnostic support                | 23   | 2,53                                      | 0,42 | 2,66                                        | 0,42 | 2,59                                                            | 0,54 | 2,33                                | 0,51 | 2,75                                                        | 0,47 |
|                          | Clinical/Surgical Hospitalization | 463  | 2,63                                      | 0,54 | 2,76                                        | 0,46 | 2,83                                                            | 0,61 | 2,42                                | 0,66 | 2,74                                                        | 0,58 |
|                          | Adult Intensive Care              | 187  | 2,55                                      | 0,59 | 2,70                                        | 0,51 | 2,63                                                            | 0,72 | 2,38                                | 0,70 | 2,90                                                        | 0,60 |
|                          | Administrative                    | 75   | 2,84                                      | 0,53 | 2,85                                        | 0,44 | 3,02                                                            | 0,67 | 2,62                                | 0,76 | 2,63                                                        | 0,63 |
|                          | Urgent and Emergency Care         | 431  | 2,70                                      | 0,53 | 2,83                                        | 0,47 | 2,92                                                            | 0,58 | 2,60                                | 0,65 | 2,89                                                        | 0,55 |
|                          | Surgical ward                     | 225  | 2,65                                      | 0,48 | 2,73                                        | 0,40 | 2,83                                                            | 0,54 | 2,49                                | 0,60 | 2,67                                                        | 0,59 |
|                          | Outpatient care                   | 50   | 2,65                                      | 0,48 | 2,79                                        | 0,47 | 2,92                                                            | 0,43 | 2,60                                | 0,58 | 2,95                                                        | 0,51 |
|                          | Pediatric/Neonatal Intensive Care | 30   | 2,66                                      | 0,46 | 2,72                                        | 0,47 | 2,86                                                            | 0,54 | 2,78                                | 0,53 | 2,83                                                        | 0,37 |
| Work shift               | Administrative                    | 63   | 2,63                                      | 0,53 | 2,72                                        | 0,45 | 2,88                                                            | 0,60 | 2,43                                | 0,71 | 2,76                                                        | 0,63 |
|                          | Morning                           | 645  | 2,66                                      | 0,55 | 2,77                                        | 0,48 | 2,88                                                            | 0,58 | 2,50                                | 0,67 | 2,79                                                        | 0,59 |
|                          | Night                             | 676  | 2,65                                      | 0,53 | 2,78                                        | 0,44 | 2,81                                                            | 0,62 | 2,52                                | 0,65 | 2,80                                                        | 0,57 |
|                          | Afternoon                         | 100  | 2,60                                      | 0,47 | 2,72                                        | 0,45 | 2,76                                                            | 0,64 | 2,38                                | 0,59 | 2,86                                                        | 0,55 |
| Another job              | No                                | 987  | 2,65                                      | 0,52 | 2,77                                        | 0,46 | 2,84                                                            | 0,59 | 2,49                                | 0,66 | 2,80                                                        | 0,57 |
|                          | Yes                               | 497  | 2,66                                      | 0,56 | 2,77                                        | 0,47 | 2,84                                                            | 0,63 | 2,51                                | 0,65 | 2,78                                                        | 0,58 |
| Average                  |                                   | 1484 | 2,71                                      | 0,53 | 2,77                                        | 0,46 | 2,84                                                            | 0,61 | 2,50                                | 0,66 | 2,80                                                        | 0,58 |



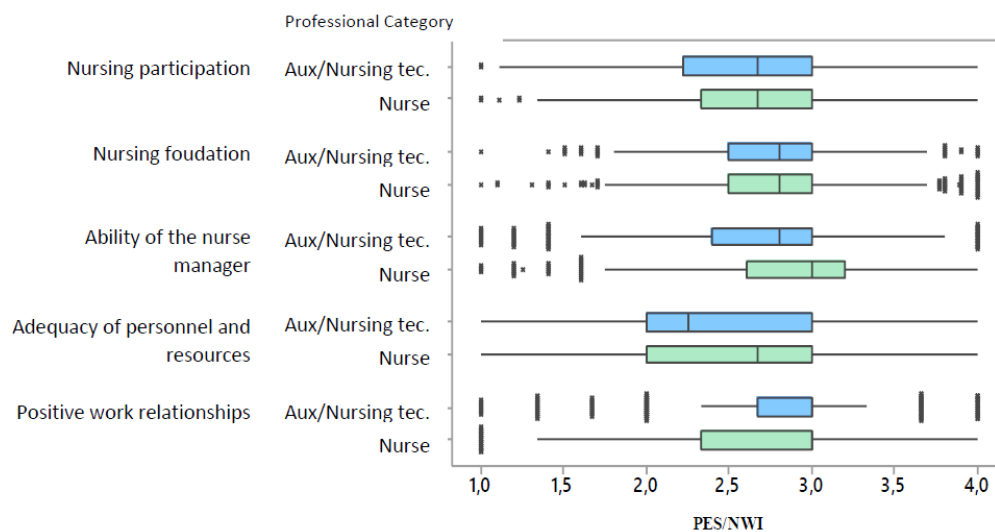


Fig-1: Analysis of PES/NWI dimensions according to professional category

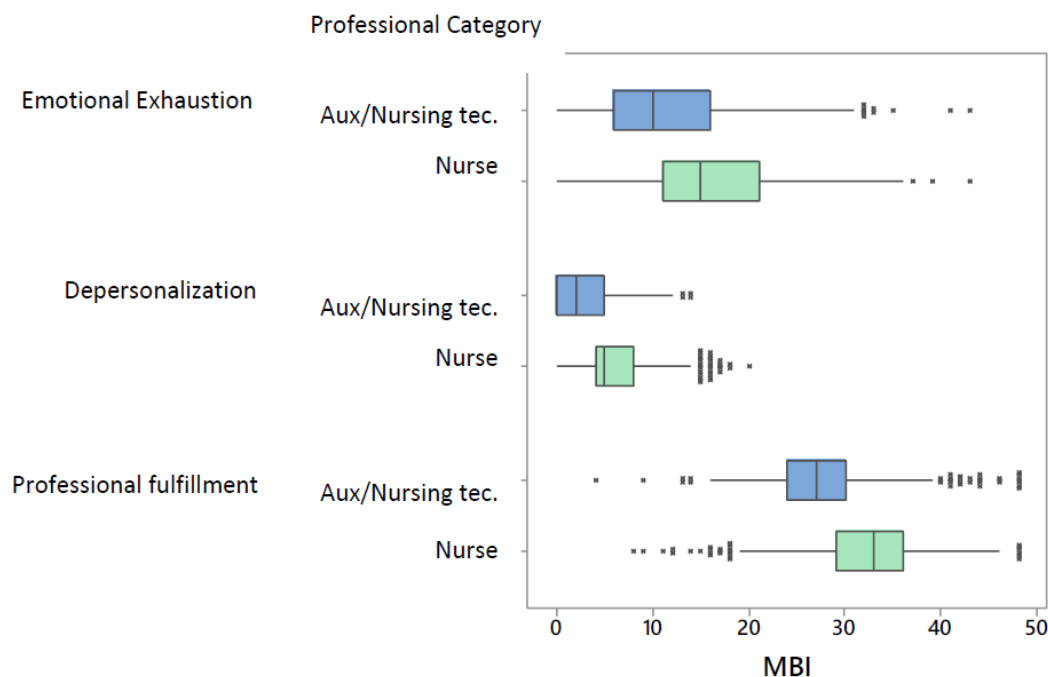


Fig-2: Analysis of MBI dimensions according to professional category

#### Application of the Maslach Burnout Inventory (MBI):

The dimensions of the MBI research were represented in low, medium and high-risk levels, as shown in **Table-4**. In it, it is noted that 17.9% of professionals were at high risk for emotional exhaustion and depersonalization. When it comes to the third dimension, the low professional fulfillment was 69.1%.

Better results regarding emotional exhaustion, depersonalization and professional fulfillment are

found in employees with less than one year of experience in the profession, or with less than one year in the institution.

In the same way, the results for the three dimensions of Burnout present a higher level of risk for professionals with additional education. Regarding the emotional aspect, it is present at a higher level of risk for administrative teams, as well as low professional fulfillment. For the management level, the lowest burnout risk indexes were found in the three dimensions.

# Original Article

According to **Fig-2**, higher proportions ( $p < 0.001$ ) of high risk for emotional exhaustion, depersonalization and low professional fulfillment are observed in the group of professional nurses.

## Comparative analysis of PES/NWI and Maslach Burnout Inventory (MBI):

From **Table-5** we can observe comparisons of

emotional exhaustion, depersonalization and professional fulfillment with the average for the PES-NWI questionnaire, respectively. There are effects of emotional exhaustion and professional fulfillment related to *burnout* for all dimensions of the work environment (PES-NWI). There was no correlation between depersonalization and work environment research.

**Table-4: Analysis of the dimensions of Burnout (MBI) according to the characteristics of the participants**

| Variables                | Professional category             | N°   | Emotional exhaustion |       |     |       |     |       | Depersonalization |       |     |       |     |       | Professional fulfillment |       |     |       |       |       |
|--------------------------|-----------------------------------|------|----------------------|-------|-----|-------|-----|-------|-------------------|-------|-----|-------|-----|-------|--------------------------|-------|-----|-------|-------|-------|
|                          |                                   |      | B                    | % B   | M   | % M   | A   | % A   | B                 | % B   | M   | % M   | A   | % A   | B                        | % B   | M   | % M   | A     | % A   |
| Professional category    | Nurse                             | 1011 | 195                  | 19,29 | 608 | 60,14 | 208 | 20,57 | 129               | 12,76 | 638 | 63,11 | 244 | 24,13 | 799                      | 79,03 | 172 | 17,01 | 40    | 3,96  |
|                          | Tec./Nursing Aux.                 | 473  | 238                  | 50,32 | 178 | 37,63 | 57  | 12,05 | 247               | 52,22 | 204 | 43,13 | 22  | 4,65  | 227                      | 47,99 | 199 | 42,07 | 47    | 9,94  |
| Education time (years)   | < 1                               | 100  | 46                   | 46,00 | 45  | 45,00 | 9   | 9,00  | 41                | 41,00 | 49  | 49,00 | 10  | 10,00 | 53                       | 53,00 | 35  | 35,00 | 12    | 12,00 |
|                          | ≥ 1 e < 3                         | 363  | 93                   | 25,62 | 199 | 54,82 | 71  | 19,56 | 70                | 19,28 | 209 | 57,58 | 84  | 23,14 | 271                      | 74,66 | 74  | 20,39 | 18    | 4,96  |
|                          | ≥ 3 e < 5                         | 291  | 65                   | 22,34 | 174 | 59,79 | 52  | 17,87 | 65                | 22,34 | 164 | 56,36 | 62  | 21,31 | 221                      | 75,95 | 64  | 21,99 | 6     | 2,06  |
|                          | ≥ 5                               | 730  | 229                  | 31,37 | 368 | 50,41 | 133 | 18,22 | 200               | 27,40 | 420 | 57,53 | 110 | 15,07 | 481                      | 65,89 | 198 | 27,12 | 51    | 6,99  |
| Time in current position | < 1                               | 514  | 182                  | 35,41 | 257 | 50,00 | 75  | 14,59 | 141               | 27,43 | 290 | 56,42 | 83  | 16,15 | 352                      | 68,48 | 139 | 27,04 | 23    | 4,47  |
|                          | ≥ 1 e < 3                         | 620  | 136                  | 21,94 | 360 | 58,06 | 124 | 20,00 | 103               | 16,61 | 380 | 61,29 | 137 | 22,10 | 487                      | 78,55 | 110 | 17,74 | 23    | 3,71  |
|                          | ≥ 3 e < 5                         | 114  | 39                   | 34,21 | 54  | 47,37 | 21  | 18,42 | 42                | 36,84 | 57  | 50,00 | 15  | 13,16 | 64                       | 56,14 | 45  | 39,47 | 5     | 4,39  |
|                          | ≥ 5                               | 236  | 76                   | 32,20 | 115 | 48,73 | 45  | 19,07 | 90                | 38,14 | 115 | 48,73 | 31  | 13,14 | 123                      | 52,12 | 77  | 32,63 | 36    | 15,25 |
| Complementary education  | Yes                               | 963  | 180                  | 18,69 | 581 | 60,33 | 202 | 20,98 | 114               | 11,84 | 612 | 63,55 | 237 | 24,61 | 775                      | 80,48 | 153 | 15,89 | 35    | 3,63  |
|                          | No                                | 521  | 253                  | 48,56 | 205 | 39,35 | 63  | 12,09 | 262               | 50,29 | 230 | 44,15 | 29  | 5,57  | 251                      | 48,18 | 218 | 41,84 | 52    | 9,98  |
| Position                 | Administrative                    | 45   | 8                    | 17,78 | 28  | 62,22 | 9   | 20,00 | 4                 | 8,89  | 33  | 73,33 | 8   | 17,78 | 42                       | 93,33 | 3   | 6,67  | 0     | 0,00  |
|                          | Assistance                        | 1401 | 412                  | 29,41 | 740 | 52,82 | 249 | 17,77 | 358               | 25,55 | 788 | 56,25 | 255 | 18,20 | 974                      | 69,52 | 346 | 24,70 | 81    | 5,78  |
|                          | Management                        | 38   | 13                   | 34,21 | 18  | 47,37 | 7   | 18,42 | 14                | 36,84 | 21  | 55,26 | 3   | 7,89  | 10                       | 26,32 | 22  | 57,89 | 6     | 15,79 |
| Work Area                | Diagnostic support                | 23   | 11                   | 47,83 | 10  | 43,48 | 2   | 8,70  | 13                | 56,52 | 10  | 43,48 | 0   | 0,00  | 5                        | 21,74 | 14  | 60,87 | 4     | 17,39 |
|                          | Clinical/Surgical Hospitalization | 463  | 145                  | 31,32 | 242 | 52,27 | 76  | 16,41 | 135               | 29,16 | 256 | 55,29 | 72  | 15,55 | 317                      | 68,47 | 110 | 23,76 | 36    | 7,78  |
|                          | Adult Intensive Care              | 187  | 97                   | 51,87 | 70  | 37,43 | 20  | 10,70 | 88                | 47,06 | 88  | 47,06 | 11  | 5,88  | 76                       | 40,64 | 90  | 48,13 | 21    | 11,23 |
|                          | Administrative                    | 75   | 13                   | 17,33 | 45  | 60,00 | 17  | 22,67 | 9                 | 12,00 | 55  | 73,33 | 11  | 14,67 | 64                       | 85,33 | 10  | 13,33 | 1     | 1,33  |
|                          | Urgent and Emergency Care         | 431  | 79                   | 18,33 | 245 | 56,84 | 107 | 24,83 | 49                | 11,37 | 252 | 58,47 | 130 | 30,16 | 351                      | 81,44 | 69  | 16,01 | 11    | 2,55  |
|                          | Surgical ward                     | 225  | 67                   | 29,78 | 123 | 54,67 | 35  | 15,56 | 62                | 27,56 | 131 | 58,22 | 32  | 14,22 | 155                      | 68,89 | 59  | 26,22 | 11    | 4,89  |
|                          | Outpatient care                   | 50   | 19                   | 38,00 | 27  | 54,00 | 4   | 8,00  | 20                | 40,00 | 25  | 50,00 | 5   | 10,00 | 31                       | 62,00 | 17  | 34,00 | 2     | 4,00  |
|                          | Pediatric/Neonatal Intensive Care | 30   | 2                    | 6,67  | 24  | 80,00 | 4   | 13,33 | 0                 | 0,00  | 25  | 83,33 | 5   | 16,67 | 27                       | 90,00 | 2   | 6,67  | 1     | 3,33  |
| Work shift               | Administrative                    | 63   | 15                   | 23,81 | 35  | 55,56 | 13  | 20,63 | 20                | 31,75 | 36  | 57,14 | 7   | 11,11 | 36                       | 57,14 | 22  | 34,92 | 5     | 7,9   |
|                          | Morning                           | 645  | 182                  | 28,22 | 338 | 52,40 | 125 | 19,38 | 162               | 25,12 | 371 | 57,52 | 112 | 17,36 | 469                      | 72,71 | 147 | 22,79 | 29    | 4,50  |
|                          | Night                             | 676  | 193                  | 28,55 | 367 | 54,29 | 116 | 17,16 | 154               | 22,78 | 385 | 56,95 | 137 | 20,27 | 474                      | 70,12 | 159 | 23,52 | 43    | 6,36  |
|                          | Afternoon                         | 100  | 43                   | 43,00 | 46  | 46,00 | 11  | 11,00 | 40                | 40,00 | 50  | 50,00 | 10  | 10,00 | 47                       | 47,00 | 43  | 43,00 | 10    | 10,00 |
| Another job              | No                                | 987  | 284                  | 28,77 | 532 | 53,90 | 171 | 17,33 | 266               | 26,95 | 562 | 56,94 | 159 | 16,11 | 682                      | 69,10 | 244 | 24,72 | 61    | 6,18  |
|                          | Yes                               | 497  | 149                  | 29,98 | 254 | 51,11 | 94  | 18,91 | 110               | 22,13 | 280 | 56,34 | 107 | 21,53 | 344                      | 69,22 | 127 | 25,55 | 26    | 5,23  |
| Total                    |                                   | 1484 | 433                  | 29,18 | 786 | 52,96 | 265 | 17,86 | 376               | 25,34 | 842 | 56,74 | 266 | 17,92 | 1026                     | 69,14 | 371 | 25,00 | 87,00 | 5,86  |

B: low, M: medium. A: high

**Table-5: Analysis of the dimensions of Burnout (MBI) according to the dimensions of the environment research (PES-NWI)**

|                                                                 | Emotional exhaustion |       |         | Depersonalization |       |         | Professional fulfillment |       |         |
|-----------------------------------------------------------------|----------------------|-------|---------|-------------------|-------|---------|--------------------------|-------|---------|
|                                                                 | β                    | ΔR²   | p value | β                 | ΔR²   | p value | β                        | ΔR²   | p value |
| Nursing participation in hospital affairs                       | -0,195               | 0,015 | <0,001  | 0,026             | 0,015 | 0,08    | 0,1088                   | 0,012 | <0,001  |
| Nursing foundations for quality of care                         | -0,154               | 0,013 | <0,001  | 0,012             | 0,013 | 0,369   | 0,096                    | 0,011 | <0,001  |
| Capacity of the nurse manager, leadership and support of nurses | -0,165               | 0,017 | <0,001  | 0,031             | 0,017 | 0,076   | 0,163                    | 0,015 | <0,001  |
| Adequacy of personnel and resources                             | -0,223               | 0,018 | <0,001  | -0,043            | 0,018 | 0,018   | 0,200                    | 0,015 | <0,001  |
| Positive working relationships between nurses and doctors       | -0,202               | 0,016 | <0,001  | 0,007             | 0,017 | 0,666   | 0,048                    | 0,014 | 0,001   |

β - Standardized coefficient



## Discussion

In this study, there was a large participation of nurses in institutions in different contexts or levels of complexity. In addition to the large number of participants, some characteristics of this research are observed: night shift with great involvement and the participation of a high number of nurses with complementary education.

However, the high frequency of specialist nurses does not determine the proper use of the resource, discussing the presence of specialist nurses not only as part of the composition of organizations, but also active in their area of education. In this regard, it is important to explore the ability of nurses to recognize factors that directly interfere in the failure or lack of nursing care, as well as the ability of this professional to solve problems. It is reported that joint work with high group motivation and identity among professionals can lead to greater professional accountability aiming at collective effectiveness, minimizing lost or omitted care in clinical practice [15].

Qualitative research has documented the association of shared expectations of the workgroup with the way nurses perceive the prioritization of necessary care [16,17]. However, no quantitative studies have explored how the nurse's work environment and collective effectiveness are associated with a lack of nursing care. Thus, it is up to the nurse the orientation for the best use of the resource, demanding from this professional a high capacity for problem solving and work organization.

Overall, this study observed a moderate risk for burnout, which is frequent mainly in nurses. Compared with international studies, higher risk indexes are observed in the current study, leaving us to reflect on the context in which the studies were applied, before the pandemic period [2,9,10,12,18-20].

Despite the frequent risk for *burnout*, the practice environment was perceived as positive for most participants, through the use of the PES-NWI questionnaire. This questionnaire has been validly used and considered easy to use by researchers and managers to describe or compare models of care

practice, guiding and evaluating interventions on the environment of professional practice. However, there is a need for additional assessment on the autonomy and empowerment of nurses regarding the practices of their domain of action, professional development, peer support relationships, as well as their expertise for action. These issues directly interfere in the operational effectiveness of organizations, as well as in the clinical outcomes of patients [1,21].

Previous researches [4-6,8,21,22] have shown that improving the environment of professional nursing practice is one of the strategies for promoting job satisfaction, which is a stronger relationship than comparing it with personal characteristics, such as age, experience and length of time working in the institution [22,23].

In this regard, the communication process is a long-recognized strategy for improving job satisfaction [24]. Communication between the nursing team and other professionals is highlighted as a point widely studied as a factor of great interference in the environment of professional practice [22,25].

Thus, we emphasize the findings in this study regarding communication between physicians and the nursing team, perceived differently for nurses and nursing technicians or assistants, with negative impacts for the first group. Not only is communication portrayed as significant in the relationship with professional practice, but the communication model used, especially with regard to its assertiveness or dominance, or professional respect [26].

The perception of the work environment also reflected different perceptions between the professional categories of nursing assistants or technicians compared to the group of nurses regarding the availability of resources. These findings demonstrate the increasing importance of the role of managers in reducing possible stressors, providing nurses with opportunities to participate in discussions related to the availability of sufficient human and material resources for nursing work [19], building an effective management system, through early recognition and active action taken by nursing leadership.

## Conclusion

The work environment has important impacts on the professional's well-being and when it is unfavorable it can trigger important stress processes that, if not properly managed, will result in burnout. According to the results found, and extensive research in the area, there are challenges in researches that address what are the factors that support the environment of professional practice to achieve more favorable results. Thus, we point out the need for studies aimed at nursing leaderships, in order to strengthen the diagnosis and understanding of the factors that can contribute to the work of nursing, as well as support the quality and safety of the patient. It is appropriate to explore how nurses' ability to solve problems influences the lack of nursing care.

The research was carried out at a time with social and psychological impacts and a marked change in daily practice due to the covid-19 pandemic, which reflects the need to discuss more broadly the impacts on the work environment and its consequences for nursing professionals.

It is therefore essential to understand, in the face of an epidemiological crisis, the importance of the role of nursing, not only for greater recognition of the category, but to place its importance at the heart of the management of health services. The strategic sustainability of the institutions directly permeates the look at this group, which is at the forefront of 24-hour patient care and represents a large part of the professionals of Brazilian health institutions.

The construction of a model of nursing practice based on the coordination of the interdisciplinary team, on value-based medicine, on care centred on the patient's needs and on quality improvement (and not on the task) will support a work environment favorable to professional practice.

Although it is a challenge, the redesign of the care model and the repositioning of the nursing service require considerations regarding the construction of a work environment favorable to the implementation of nursing practices, as an allied factor for the transformation of a care that adds value to the patient.

There are many characteristics of the work environment that negatively interfere in the current scenario of nursing work in Brazil, such as: deficits in the staff due to high turnover and absenteeism rates; dual employment; high workload; presence of occupational hazards; high mental burden and suffering due to the death of patients with the constant increase in the complexity of tasks and the environment; shift work schedule; occupational violence; long working hours; and, still, lack of professional recognition. In addition, there is a shortage of personal protective equipment and a lack of professionals in the market.

All this level of emotional exhaustion of nursing professionals brings an increasing concern with the mental illness of workers, with the frequent appearance of fear, insecurity, anxiety, fear of contamination and new ways of working, leading to an increase in the probability of errors in assistance.

The current scenario reiterates the need to share with professionals the definitions about the availability of resources and to have assertiveness of the leaders in the definition of team deliveries focused on quality and safety in care. Recognition and professional development are essential measures to involve professionals in these deliveries.

After carrying out the research, actions aimed at improving the work environment are proposed, in addition to understanding the scope of the measures implemented to minimize the risks of professional exhaustion in the work environment and, consequently, in favor of the professional valorization of nursing and of greater physical, psychological and social well-being for the health team.

## Conflicts of Interest

The authors have read and approved the final version of the manuscript. The authors have no conflicts of interest to declare.

## References

- [1] Lake ET. Development of the practice environment scale of the Nursing Work Index. *Res Nurs Health.* 2002 Jun;25(3):176-88. [PMID: [12015780](#)]

- [2] Aiken LH, Clarke SP, Sloane DM, Sochalski J, Silber JH. Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *JAMA.* 2002 Oct 23-30;288(16):1987-93. [PMID: 12387650]
- [3] Kane RL, Shamliyan TA, Mueller C, Duval S, Wilt TJ. The association of registered nurse staffing levels and patient outcomes: systematic review and meta-analysis. *Med Care.* 2007 Dec;45(12):1195-204. [PMID: 18007170]
- [4] Kirwan M, Matthews A, Scott PA. The impact of the work environment of nurses on patient safety outcomes: a multi-level modelling approach. *Int J Nurs Stud.* 2013 Feb;50(2):253-63. [PMID: 23116681]
- [5] Mathias JM. Nursing work environment linked to better surgical value. *OR Manager.* 2016 Mar;32(3):5. [PMID: 27012140]
- [6] Wei H, Sewell KA, Woody G, Rose MA. The state of the science of nurse work environments in the United States: A systematic review. *Int J Nurs Sci.* 2018 Apr 16;5(3):287-300. [PMID: 31406839]
- [7] Zangaro GA, Jones K. Practice Environment Scale of the Nursing Work Index: A Reliability Generalization Meta-Analysis. *West J Nurs Res.* 2019 Nov;41(11):1658-84. [PMID: 30667349]
- [8] Van Bogaert P, van Heusden D, Timmermans O, Franck E. Nurse work engagement impacts job outcome and nurse-assessed quality of care: model testing with nurse practice environment and nurse work characteristics as predictors. *Front Psychol.* 2014 Nov 13;5:1261. [PMID: 25431563]
- [9] Ruviaro M, Bardagi M. Síndrome de burnout e satisfação no trabalho em profissionais de área de enfermagem do interior do RS [Burnout syndrome and job satisfaction in nursing professionals in the countryside of RS]. *Barbarói.* 2010 Dec;33:194-16. Portuguese
- [10] Carvalho CG, Magalhães SR. Síndrome de burnout e suas consequências nos profissionais de enfermagem [Burnout Syndrome and Its Consequences in Professional Nursing]. *Revista da Universidade Vale do Rio Verde.* 2011 Jul 21;9(1):200-10. Portuguese
- [11] Carlotto MS. Fatores de risco da síndrome de burnout em técnicos de enfermagem [Risk factors of burnout syndrome in nursing staff]. *Revista da SBPH.* 2011 Dec;14(2):07-26. Portuguese
- [12] da Silva JL, Dias AC, Teixeira LR. Discussão sobre as causas da Síndrome de Burnout e suas implicações à saúde do profissional de enfermagem [Discussion about the causes of Burnout Syndrome and its implications for the health of nursing professionals]. *Aquichán.* 2012 Aug;12(2):144-59. Portuguese
- [13] Roch G, Dubois CA, Clarke SP. Organizational climate and hospital nurses' caring practices: a mixed-methods study. *Res Nurs Health.* 2014 Jun;37(3):229-40. [PMID: 24729389]
- [14] Hanrahan NP, Aiken LH, McClaine L, Hanlon AL. Relationship between psychiatric nurse work environments and nurse burnout in acute care general hospitals. *Issues Ment Health Nurs.* 2010 Mar;31(3):198-207. [PMID: 20144031]
- [15] Kramer M, Schmalenberg C. Confirmation of a healthy work environment. *Crit Care Nurse.* 2008 Apr;28(2):56-63; quiz 64. [PMID: 18378728]
- [16] Silva RPL. *Ambiente de prática profissional, carga de trabalho e omissão de cuidados de enfermagem em Unidades de Terapia Intensiva* (dissertação) [Professional practice environment, workload and omission of nursing care in Intensive Care Units (dissertation)]. Ribeirão Preto: Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto; 2018 [cited 2021 Oct 01]. Available from: <https://www.teses.usp.br/teses/disponiveis/22/22132/tde-18032019-191531/pt-br.php>
- [17] Campos JA, Jordani PC, Zucoloto ML, Bonafé FS, Maroco J. Burnout syndrome among dental students. *Rev Bras Epidemiol.* 2012 Mar;15(1):155-65. English, Portuguese. [PMID: 22450501]
- [18] Smith JG, Morin KH, Lake ET. Association of the nurse work environment with nurse incivility in hospitals. *J Nurs Manag.* 2018 Mar;26(2):219-26. [PMID: 28990326]
- [19] Chan EA, Jones A, Wong K. The relationships between communication, care and time are intertwined: a narrative inquiry exploring the impact of time on registered nurses' work. *J Adv Nurs.* 2013 Sep;69(9):2020-29. [PMID: 2331948]
- [20] Wang S, Liu Y, Wang L. Nurse burnout: personal and environmental factors as predictors. *Int J Nurs Pract.* 2015 Feb;21(1):78-86. [PMID: 24237882]
- [21] Lake ET. The nursing practice environment: measurement and evidence. *Med Care Res Rev.* 2007 Apr;64(2 Suppl):104S-22S. [PMID: 17406014]
- [22] Manojlovich M. Linking the practice environment to nurses' job satisfaction through nurse-physician communication. *J Nurs Scholarsh.* 2005;37(4):367-73. [PMID: 16396411]

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- [23] Irvine DM, Evans MG. Job satisfaction and turnover among nurses: integrating research findings across studies. Nurs Res. 1995 Jul-Aug;44(4):246-53. [PMID: [7624236](#)]
- [24] Blegen MA. Nurses' job satisfaction: a meta-analysis of related variables. Nurs Res. 1993 Jan-Feb;42(1):36-41. [PMID: [8424066](#)]
- [25] Sengin KK. Work-related attributes of RN job satisfaction in acute care hospitals. J Nurs Adm. 2003 Jun;33(6):317-20. [PMID: [12796627](#)]
- [26] Van Ess Coeling H, Cukr PL. Communication styles that promote perceptions of collaboration, quality, and nurse satisfaction. J Nurs Care Qual. 2000 Jan;14(2):63-74. [PMID: [10646302](#)]

