

The work environment in public and private intensive care units

O ambiente de trabalho em unidades de terapia intensiva privadas e públicas

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Keywords

Working environment; Research nursing administration; Health facility environment; Intensive care units; Hospitals, public; Hospital, private

Descritores

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Abstract

Objective: To analyze the work environment in intensive care units from public and private hospitals.

Methods: This was a cross-sectional study conducted with 66 nurses in four intensive care units. Two questionnaires were used for data collection, one for the socioeconomic profile and the other composed by the subscales of the validated Brazilian version of the *Nursing Work Index-Revised* (B-NWI-R).

Results: The nurses reported a favorable work environment for the exercise of professional nursing practices in the intensive care units (overall mean = 1.95 and SD = 0.40). By comparing private and public hospitals it was observed that the overall score of the B-NWI-R reached values of 1.91 (SD = 0.39) and 1.99 (SD = 0.42), respectively, with a p-value of 0.459.

Conclusion: The four intensive care units analyzed in this study presented favorable work environments for nursing practices. The fact of belonging to private or public hospitals was not significant in the analysis.

Resumo

Objetivo: Analisar o ambiente de trabalho em Unidades de Terapia Intensiva em hospitais privados e públicos.

Métodos: Estudo transversal realizado em quatro unidades de terapia intensiva do qual participaram 66 enfermeiros. Utilizou-se dois instrumentos de pesquisa, um para caracterização socioeconômica e as subescalas do *Nursing Work Index Revised* versão brasileira validadas (B-NWI-R).

Resultados: Os enfermeiros consideraram que as unidades de terapia intensiva possuem ambientes de trabalho favoráveis ao exercício da prática profissional em enfermagem (média geral = 1,95 e dp = 0,40). Ao comparar as UTI dos hospitais privados e públicos observa-se que o escore geral do B-NWI-R alcançou os valores de 1,91 (dp = 0,39) e 1,99 (dp = 0,42) respectivamente com p = 0,459.

Conclusão: As quatro UTI analisadas apresentaram ambientes favoráveis à prática profissional em enfermagem. O fato de pertencer a hospitais privados e públicos não foi significativo na análise.

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Introduction

Health institutions are currently facing a double challenge. They need to provide conditions to attract and maintain external customers, i.e., physicians and patients; as well as internal customers, who represent the driving force and the sustainable core of this organization.

To perform this task, the assessment of the quality of the work environment becomes an essential indicator to support nursing practice related to management. As a team leader, the professional needs to know the basis that supports an adequate practice to ensure quality of the care provided.

Intensive Care Units (ICU) are not far from this reality. They are part of the hospital complex and are considered as specific sectors that assist critically ill patients. The ICU requires many competencies from the interdisciplinary health team, and those competencies demand adequate conditions in order for them to be performed.

In this context, the analysis of Nursing Professional Practice⁽¹⁾ supports the leader's task of providing the foundations for the development of a strategic plan for his/her business unit.

This model is defined as a system composed by structure, processes and values that allow nurses to take control of the care provided to patients, and of the environment in which this care is offered. It has five subsystems: professional values, professional relationships, management approach, compensation and rewards system, and patient care delivery model.⁽¹⁾

The presence of these characteristics in the nurses' work environment contributes to better results for professionals (such as a lower level of *burnout* and higher levels of job satisfaction), patients (expressed in lower mortality rates and higher level of satisfaction with the care received), and institutions (with lower absenteeism and turnovers).^(2,3) By following this, institutions are characterized as *Magnet Hospitals*, i.e., those which are able to attract and retain professionals and patients.

So, we raised the following question: how is the work environment in intensive care units? Is there a difference between units in private and public hos-

pitals? The answers to these questions will permit the ICUs to be mapped, and may provide managerial information for leaders, as well as contribute to the studies in this area.

The objectives of this study were to analyze the working environment of intensive care units and identify differences between private and public hospital environments.

Methods

This was a cross-sectional study conducted in four intensive care units in the city of São Paulo, in southeastern Brazil. The ICUs from tertiary level hospitals selected for the study were classified as providing general care of adult patients with clinical and surgical disorders. The units had, respectively, 42, 26, 32 and 30 beds. Two units were from private institutions and the other two were from public hospitals. The study sample consisted of nurses from these selected ICUs that were present at the time of data collection, and who had at least six months of professional activity in these settings.

A questionnaire was developed based on socioeconomic and labor characteristics (age, sex, education, time since graduation, time of professional activity and ICU identification). We used the subscales of the validated Portuguese version of the *Nursing Work Index-Revised* (B-NWI-R).⁽⁴⁾

The B-NWI-R was derived from the Nursing Work Index (NWI), developed in 1989 to measure job satisfaction and perceptions regarding quality of nursing care. The original version consisted of 65 items. Therefore, aiming to summarize it and also to measure the presence of specific characteristics of the work environment that favored nursing practice, the Nursing Work Index-Revised (NWI-R) was developed.⁽⁵⁾

A total of 57 items compose the NWI-R, of which 15 were conceptually distributed into three subscales: nurse autonomy; control over practice; and, nurse-physician relationship. Among these 15 items, ten were grouped to derive the fourth subscale entitled organizational support.⁽⁵⁾

Conceptually the definitions of the subscales are:⁽⁵⁾

- autonomy (five items) and control (seven items) represent the freedom that nurses have in solving problems that affect the quality of nursing care;

- nurse-physician relationship (three items) involves professional respect for the development of effective communication to achieve a common goal when it comes to patient care;

- organizational support (ten items derived from the three subscales mentioned above) is related to situations in which the organization provides support for nurses to develop their professional practice.

We used a Likert scale ranging from one to four points, in which the lower scores meant greater presence of attributes favorable to professional nursing practice. The scores for the subscales were obtained by calculating the mean score of the subjects' responses, which may vary from one to four points.⁽⁵⁾

The NWI -R was translated and adapted to Brazilian culture and the described subscales were validated (B-NWI -R).^(4,6)

The questionnaire was administered to the 121 nurses who agreed to participate in the study. The rate of return was of 54.5%, i.e., 66 nurses composed the sample.

The data related to the profile of the subjects were analyzed using descriptive statistics. Cronbach's alpha was calculated to evaluate the internal consistency of the B-NWI-R. The Student t-test, considering a p-value of <0.05, was used to identify differences between the work environment of ICUs in public and private hospitals.

The performance of the study followed national and international standards of ethics in research involving human subjects.

Results

Of the 66 interviewed nurses, 48 (72.7%) were female and worked on the following shifts: morning (22.7%), morning and afternoon (7.6%), afternoon (16.7%), and night shift (53%). Continuous variables such as age, time of graduation, time of professional activity in the institution and in the ICU, are described in table 1:

The findings suggested there was a majority of young nurses with little training time and similarities regarding time of professional activity in the institution and in the ICU. More favorable B-NWI-R domains may explain that the observed characteristics of the ICU influence employees to remain in these sectors since their initial hiring by the institution.

Among the study sample, 60 (90.9%) reported some specialty training. Most of this was related to intensive care (28.46%), and of these, ten also had some other specialty course.

In this study, the internal consistency assessed by the Cronbach's alpha test for B-NWI-R domains reached the following values: B-NWI-R General = 0.819, B-NWI-R Autonomy = 0.645, B-NWI-R Control over practice = 0.732, B-NWI-R Nurse-physician relationship = 0.702, B-NWI-R Organizational support = 0.748.

Table 1. Description of continuous variables

| Variable | Minimum | Maximum | Mean | Standard deviation | CI for the mean | | Median | 1 st quartile | 3 rd quartile |
|--|---------|---------|------|--------------------|-----------------|----------|--------|--------------------------|--------------------------|
| | | | | | Inferior | Superior | | | |
| Age | 23 | 53 | 32.9 | 7.1 | 31.2 | 34.7 | 32 | 28 | 37 |
| Time of graduation | 0.9 | 26 | 7.9 | 6.1 | 6.4 | 9.4 | 5.8 | 2.8 | 10.8 |
| Time of professional activity | 0.5 | 19 | 6 | 4.2 | 4.9 | 7 | 5 | 2.3 | 8.6 |
| Time of professional activity in the ICU | 0.3 | 19 | 5.2 | 4.1 | 4.1 | 6.2 | 4.5 | 1.8 | 7.7 |

In general, the B-NWI-R subscales presented satisfactory results regarding the internal consistency of nurses' responses.⁽⁷⁾

The results regarding the B-NWI-R by each one of the ICUs selected to the study are shown in table 2.

In general, findings suggested that the ICUs presented favorable work environments for the exercise of professional nursing practices. The ICU B showed the highest levels in all areas of the B-NWI-R, and was evaluated as having the worst work environment. The ICU C results regarding

autonomy, nurse-physician relationship and organizational support were notable. In turn, the ICU A presented satisfactory results in the "control over practice" domain. However, the observed values were very close to each other, denoting homogeneity between these ICUs.

The B-NWI-R domains scored in ascending order were the following: nurse-physician relationship, autonomy, organizational support and control over practice. This corroborates the daily practice of intensive care nurses, with interdisciplinary interac-

Table 2. Descriptive results of B-NWI-R scores according to ICUs

| Score | Institution | n | Minimum | Maximum | Mean | Standard deviation | CI for the mean 95% | |
|--|-------------|----|---------|---------|------|--------------------|---------------------|----------|
| | | | | | | | Inferior | Superior |
| B-NWI-R | All | 66 | 1.00 | 3.00 | 1.95 | 0.40 | 1.85 | 2.05 |
| | ICU A | 34 | 1.20 | 3.00 | 1.88 | 0.39 | 1.74 | 2.02 |
| | ICU D | 13 | 1.00 | 2.73 | 2.10 | 0.45 | 1.83 | 2.37 |
| | ICU B | 3 | 2.13 | 2.47 | 2.29 | 0.17 | 1.87 | 2.71 |
| | ICU C | 16 | 1.33 | 2.67 | 1.90 | 0.38 | 1.69 | 2.10 |
| B-NWI –R Autonomy | All | 66 | 1.00 | 3.40 | 1.92 | 0.49 | 1.79 | 2.04 |
| | ICUA | 34 | 1.00 | 3.40 | 1.90 | 0.49 | 1.73 | 2.07 |
| | ICU D | 13 | 1.00 | 3.20 | 1.89 | 0.58 | 1.54 | 2.24 |
| | ICU B | 3 | 2.20 | 2.40 | 2.33 | 0.12 | 2.05 | 2.62 |
| | ICU C | 16 | 1.00 | 3.00 | 1.89 | 0.46 | 1.64 | 2.13 |
| B-NWI –R Control over practice | All | 66 | 1.00 | 3.57 | 2.01 | 0.51 | 1.88 | 2.13 |
| | ICU A | 34 | 1.14 | 2.86 | 1.88 | 0.43 | 1.73 | 2.03 |
| | ICU D | 13 | 1.00 | 3.57 | 2.30 | 0.61 | 1.93 | 2.67 |
| | ICU B | 3 | 2.00 | 2.71 | 2.33 | 0.36 | 1.44 | 3.23 |
| | ICU C | 16 | 1.14 | 2.86 | 1.98 | 0.51 | 1.71 | 2.25 |
| B-NWI-R Nurse-physician relationship | All | 66 | 1.00 | 3.00 | 1.85 | 0.47 | 1.74 | 1.97 |
| | ICU A | 34 | 1.00 | 2.67 | 1.84 | 0.45 | 1.69 | 2.00 |
| | ICU D | 13 | 1.00 | 3.00 | 2.00 | 0.56 | 1.66 | 2.34 |
| | ICU B | 3 | 2.00 | 2.33 | 2.11 | 0.19 | 1.63 | 2.59 |
| | ICU C | 16 | 1.00 | 2.67 | 1.71 | 0.44 | 1.48 | 1.94 |
| B-NWI-R Organizational support | All | 66 | 1.00 | 3.10 | 1.96 | 0.43 | 1.86 | 2.07 |
| | ICU A | 34 | 1.20 | 3.10 | 1.93 | 0.42 | 1.79 | 2.08 |
| | ICU D | 13 | 1.00 | 2.70 | 2.12 | 0.47 | 1.83 | 2.40 |
| | ICU B | 3 | 2.00 | 2.30 | 2.17 | 0.15 | 1.79 | 2.55 |
| | ICU C | 16 | 1.20 | 2.60 | 1.87 | 0.43 | 1.64 | 2.10 |

Table 3. Descriptive results of B-NWI-R scores

| Score | Institution | n | Minimum | Maximum | Mean | Standard deviation | CI for the mean 95% | | p-value |
|---------------------------------------|-------------|----|---------|---------|------|--------------------|---------------------|----------|---------|
| | | | | | | | Inferior | Superior | |
| B-NWI-R | All | 66 | 1 | 3 | 1.95 | 0.4 | 1.85 | 2.05 | 0.459 |
| | Private | 37 | 1.2 | 3 | 1.91 | 0.39 | 1.78 | 2.05 | |
| | Public | 29 | 1 | 2.73 | 1.99 | 0.42 | 1.83 | 2.15 | |
| B-NWI -R Autonomy | All | 66 | 1 | 3.4 | 1.92 | 0.49 | 1.79 | 2.04 | 0.712 |
| | Private | 37 | 1 | 3.4 | 1.94 | 0.49 | 1.77 | 2.1 | |
| | Public | 29 | 1 | 3.2 | 1.89 | 0.51 | 1.7 | 2.08 | |
| B-NWI -R Control over practice | All | 66 | 1 | 3.57 | 2.01 | 0.51 | 1.88 | 2.13 | 0.105 |
| | Private | 37 | 1.14 | 2.86 | 1.92 | 0.44 | 1.77 | 2.07 | |
| | Public | 29 | 1 | 3.57 | 2.12 | 0.57 | 1.91 | 2.34 | |
| B-NWI -R Nurse-physician relationship | All | 66 | 1 | 3 | 1.85 | 0.47 | 1.74 | 1.97 | 0.862 |
| | Private | 37 | 1 | 2.67 | 1.87 | 0.44 | 1.72 | 2.01 | |
| | Public | 29 | 1 | 3 | 1.84 | 0.51 | 1.65 | 2.03 | |
| B-NWI - R Organizational support | All | 66 | 1 | 3.1 | 1.96 | 0.43 | 1.86 | 2.07 | 0.794 |
| | Private | 37 | 1.2 | 3.1 | 1.95 | 0.41 | 1.81 | 2.09 | |
| | Public | 29 | 1 | 2.7 | 1.98 | 0.46 | 1.81 | 2.15 | |

tion as a necessary tool for assertive decision-making in patient care delivery. As a result, autonomy is solidified. Despite this fact, organizational support and control over practice are not always appropriately performed.

By considering that the number of nurses among ICUs was heterogeneous, and aiming to identify differences of B-NWI-R scores between public (ICU A and B) and private institutions (ICU C and D), these units were grouped for comparison as shown in table 3.

The influence of the hospital category (public or private) in the B-NWI-R mean scores was not evident. The greatest difference between the means was observed in the control over practice domain (p-value = 0.105), but even in this case, we do not have enough information to suggest that public hospitals present a higher average score.

Discussion

The limits of this study results are related to the use of the Portuguese language validated version for the NWI-R, whereas in other countries this instrument is used in its complete version along with the Practice Environment Scale. These instruments

were not validated for the Brazilian context. This fact hindered the comparison of results. The sample profile did not differ from other surveys conducted.^(4,8-10) With regard to gender, the prevalence was feminine, and when it came to age, the majority were young nurses. A discrepancy was only found in one study that observed an average age of 39.6 years and professional activity time in intensive care units of eight years.⁽¹⁰⁾

Time of professional activity in the institutions and ICUs are similar (median of 5 and 4.5, respectively). It appears that these units shared characteristics making them capable of retaining professionals.

The search for a postgraduate course had its evidence, i.e., 90.9% reported specialization training, with 46% of them in the area of intensive care.

The concern for updating knowledge was part of a nurse profile. However, to contribute to the entrenchment of science through research is still a challenge to be addressed in the environment of professional practice, which means that professionals who are at the bedside should develop studies on patient-care issues that can be answered by means of master's or doctoral research.

The internal consistency of the overall score (0.819) and for each of the B-NWI-R subscales, assessed by the Cronbach's alpha test (autonomy:

0.645, control over practice: 0.732, nurse-physician relationship: 0.702, and organizational support: 0.748) were similar to the results observed in the validation study of this instrument and also with another study using this scale.^(4,8) Therefore, the B-NWI-R actually measured what it proposed to assess, demonstrating its reliability as an instrument.

The total values of the B-NWI-R for each of the four ICUs were similar (overall mean = 1.95, SD = .40). The ICU A scored 1.88, followed by the ICU C with 1.90, D with 2.10, and ICU B with 2.29. It is suggested that these units, even though they belonged to different hospitals, had work environments that provided adequate professional practice for nurses.

The ICU environment has special characteristics. A study conducted in South Korea analyzed the variation in nurses' perceptions of work environment of hospitals and ICUs, simultaneously, by using the subscales of the NWI-R. A total of 817 nurses from 39 ICUs in 15 hospitals participated. The multiple regression analysis assessed work environments as good, moderate and bad.⁽⁹⁾

Discrepancies among findings were identified, with better evaluations for the ICU work environment when compared to the hospital. This may indicate that intensive care nurses have a certain appreciation for their work place and that this is different in some way from the general context of the organization.

The subscales of the B-NWI-R in this study had the following means: autonomy 1.92 (SD = 0.49), control over practice 2.01 (SD = 0.51); nurse-physician relationship 1.85 (SD = 0.47) and organizational support 1.96 (SD = .43).

An evaluation of 17 intensive care units in different cities of the state of São Paulo obtained the following scores: autonomy 2.2 (SD = 0.62), control over practice 2.04 (SD = 0.60), nurse-physician relationship 2.1 (SD = 0.66) and organizational support 2.2 (SD = 0.52).⁽⁸⁾

Despite their similar scores, when these two surveys were confronted, different scenarios came into place. The ascending order of the subscales in

this investigation is presented as follows: nurse-physician relationship, autonomy, organizational support, and control over practice. However, in the ICUs in the outlying areas of São Paulo, the order is: control over practice, nurse-physician relationship, and with equal value, autonomy and organizational support.⁽⁸⁾

To map these units enables one to verify that the work process happens between the lines, based on the subsystems of the PPN.⁽¹⁾ The professional relationships lead nurses and physicians to establish a dialogue focused on the patient. A well-defined patient care delivery model ensures autonomy and control over practice. Organizational support arises from a management model that enables human resources development.

In this way, the mean score of the B-NWI-R subscales observed in the four intensive care units studied illustrated the importance of implementing patient care and management models to improve outcomes and results.

By comparing the intensive care units of private and public hospitals, the overall score observed of the B-NWI-R reached values of 1.91 (SD = 0.39) and 1.99 (SD = 0.42) respectively, with a p-value of 0.459. The findings present workplaces with approximate values and with differences that were not statistically significant. The Professional Practice Nursing Model is found regardless of the organizational structure in which these units are located.

From this perspective, studies in intensive care units do not compare organizations according to their sponsors. Magnet and non-magnet hospital data were confronted, in which a p-value <0.05 was identified only in the organizational support domain, with favorable results in the magnet institutions.⁽¹⁰⁻¹³⁾

In this research only the control over practice, with a p-value of 0.105, seemed to be more supportive in private hospitals than in public institutions, but no statistical significance was found.

Organizational support and control over practice are the result of a management model that allows nurses to perform their work process under well-defined criteria. When the organiza-

tion is prepared to encourage these areas for their employees, the work environment becomes appropriate to the development of skills.⁽¹⁾

In another study, all subscales were notable: autonomy, control over practice and nurse-physician relationship and nurses in the magnet hospitals, followed by ones that were not magnet, but specialized in PLWA care, and subsequently by those non-magnet hospitals providing general care.⁽⁵⁾

We emphasize, based on this analysis, the importance of raising a structure that favors a healthy work environment and provides appropriate results for internal and external customers.

Other studies conducted in ICUs used the Practice Environment Scale, an instrument derived from the NWI, to assess work environment and associate it with other variables.⁽¹¹⁻¹⁴⁾

Among these findings we observed: 1-) there was a positive relationship between work environment and patient satisfaction in the ICU setting; 2-) Intensive care nurses in magnet hospitals had a positive view of nursing skills in their workplace; 3-) The communication between doctors and nurses was a predictor for the occurrence of medication errors in the ICU, ventilator-associated pneumonia, and pressure ulcers; 4-) the intention to leave the job was related to working conditions.⁽¹¹⁻¹⁵⁾

By using the B-NWI-R in this study, ICU nurses in both private and public hospitals in this study sample believed they had autonomy, control over practice, good nurse-physician relationships, and adequate organizational support, regardless of the institution to which they belonged.

To contribute to this theme, further studies need to be developed considering the Brazilian context and that are focused on the evaluation of the ICU work environment and its association with health outcomes and results of management.

Conclusion

The four intensive care units analyzed in this study presented favorable work environments for nursing

practice. The fact of one's work for a private or public hospital was not significant in the analysis.

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Collaborations

Balsanelli AP and Cunha ICKO contributed to the study development and design, data analysis and interpretation of findings; participated in drafting the article and critically revising it for important intellectual content; and gave the final approval of the version to be published.

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