Revista Brasileira de Enfermagem
REBEn

RESEARCH

Nursing practice environment and work satisfaction in critical units

Ambiente das práticas de enfermagem e satisfação profissional em unidades críticas

El ambiente de la práctica de enfermería y la satisfacción profesional en unidades críticas

Elaine Machado de Oliveira[I], Ricardo Luis Barbosa[II], Rafaela Andolhe[III], Flavia Regina Cocuzza das Eiras[IV], Katia Grillo Padilha[I]

[I] *Universidade de São Paulo, School of Nursing, Postgraduate Program in Nursing in Adult Health. São Paulo, Brazil.*
[II] *Universidade Federal de Uberlândia, Institute of Geography, Course in Surveying and Cartographic Engineering. Uberlândia, Minas Gerais, Brazil.*
[III] *Universidade Federal de Santa Maria, Department of Nursing. Santa Maria, Rio Grande do Sul, Brazil.*
[IV] *Universidade de São Paulo, Medical School, Clinical Hospital. São Paulo, Brazil.*

How to mention this article:
Oliveira EM, Barbosa RL, Andolhe R, Eiras FRC, Padilha KG. Nursing practice environment and work satisfaction in critical units. Rev Bras Enferm [Internet]. 2017;70(1):73-80. DOI: http://dx.doi.org/10.1590/0034-7167-2016-0211

Submission: 05-18-2016 **Approval:** 09-01-2016

ABSTRACT

Objective: to analyze the association between the environment of nursing practices and work satisfaction in Intensive Care Units (ICU). **Method**: a cross-sectional study was performed in eight adult ICUs of a public university hospital between 2012 and 2015. The Nursing Work Index-Revised (NWI-R), in their short forms, and the Index of Work Satisfaction (IWS) were applied to investigate the environment of nursing practices and work satisfaction, respectively. **Results**: a total of 100 (34.84%) nurses and 187 (65.15%) nursing assistants/technicians participated in this study. The environment was favorable for autonomy and relationships and it showed vulnerability for control of practices and organizational support. The IWS score indicated low work satisfaction. "Environment of practices", "length of work in the ICU" and "willingness to work" were associated with work satisfaction. **Conclusion**: to invest in the environment of practices, in factors that promote willingness to work and length of experience in the ICU increases nursing work satisfaction.
Descriptors: Nursing; Intensive Care Units; Workplace; Environment of Health Institutions; Work Satisfaction.

RESUMO

Objetivo: analisar a associação entre ambiente das práticas de enfermagem e satisfação profissional em Unidades de Terapia Intensiva (UTI). **Método**: estudo transversal, realizado em 8 UTIs adulto de um hospital público universitário, no período entre 2012 e 2015. Para investigar o ambiente das práticas de enfermagem e satisfação profissional, foram aplicados, respectivamente, os instrumentos Nursing Work Index-Revised (NWI-R), nas versões resumidas, e Índice de Satisfação Profissional (ISP). **Resultados**: participaram do estudo 100 (34,84%) enfermeiros e 187 (65,15%) técnicos/auxiliares de enfermagem. O ambiente foi favorável para autonomia e relações e apresentou fragilidade para controle das práticas e suporte organizacional. O escore ISP indicou baixa satisfação profissional. As variáveis "ambiente das práticas", "tempo de trabalho em UTI" e "disposição para o trabalho" foram associadas à satisfação profissional. **Conclusão**: investir no ambiente das práticas, nos fatores que promovem a disposição e o tempo de experiência na UTI aumenta a satisfação profissional de enfermagem.
Descritores: Enfermagem; Unidades de Terapia Intensiva; Local de Trabalho; Ambiente de Instituições de Saúde; Satisfação no Emprego.

RESUMEN

Objetivo: analizar la asociación entre el ambiente de la práctica de enfermería y la satisfacción profesional en Unidades de Cuidados Intensivos (UCI). **Método**: estudio transversal realizado en ocho unidades de cuidados intensivos de adultos de un hospital universitario público entre 2012 y 2015. Para investigar el ambiente de la práctica de enfermería y la satisfacción profesional, se aplicaron respectivamente a los instrumentos Nursing Work Index-Revised (NWI-R) en la versión resumida, y el Índice de Satisfacción Profesional

(ISP). **Resultados**: en el estudio, participaron 100 enfermeros (34.84%) y 187 asistentes/técnicos de enfermería (65.15%). El ambiente era favorable a la autonomía y las relaciones y mostró debilidad por las prácticas de control y apoyo organizativo. La puntuación ISP ha indicado baja satisfacción profesional. Las variables "ambiente de las prácticas", "tiempo de trabajo en la UCI" y "disposición para el trabajo" se asociaron con la satisfacción profesional. **Conclusión**: al investir en el ambiente de la práctica, en los factores que promueven la disposición y la duración de la experiencia en la UCI, se aumenta la satisfacción profesional de la enfermería.
Descriptores: Enfermería; Unidades de Cuidados Intensivos; Lugar de trabajo; Ambiente de las Instituciones de Salud; Satisfacción en el Empleo.

CORRESPONDING AUTHOR **Elaine Machado de Oliveira** E-mail: elainemachado@usp.br

INTRODUCTION

Environmental aspects in nursing practices began to be studied in the early 1980s in the American Academy of Nursing, which investigated the high index of attraction and retention of nursing professionals in certain hospitals in the United States, whereas the reality involved a turnover of nurses in the majority of institutions[1].

These hospitals were named "Magnet", as they attracted professionals who remained in such institutions and achieved work satisfaction because they promoted the development of positive factors in the environment of practices, such as nurse participation in decision-making, increase in autonomy over health care practices, collaboration among professionals, a qualified team, and time flexibility[2].

This phenomenon can be justified by the interaction of factors that are common between the environment of nursing practices and work satisfaction, such as communication, relationships, participative management and organizational support which, apart from playing a role in the performance of nursing professionals and the results of patient care, has an effect on work satisfaction[1-2].

Thus, the investigation of these factors is the key for both the improvement of nursing practices and, consequently, patient care, and the satisfaction of nursing professionals.

However, the reality shows that the daily routine in ICUs poses a challenge due to the many difficulties associated with the specific complexities of the environment. This involves aspects of inadequacy of nursing professionals given the heavy workload, the difficulty in the organization of tasks, lack of preparation and autonomy for decision-making, all of which can have a great impact on work satisfaction and patient safety[3].

This is corroborated by a study performed in China, which investigated the association between nursing and environmental resources and the results of patient care, including in ICUs, and found that 61% of nurses described the environment of practices as vulnerable, so that 36% of them showed low work satisfaction and reported flawed patient safety. The vulnerability of the environment of nursing practices can be justified by the increase in workload and the number of patients per nurse, revealing an increase in their chance of burnout of 1.04 times[1].

Thus, these results justify the present study, due to the importance of investigating the intricate relationship between the environment of nursing practices and work satisfaction in the Brazilian context, aiming to increase knowledge about the theme, in addition to comparing them to the results found in other countries.

OBJECTIVE

To analyze the association between the environment of nursing practices and work satisfaction in ICUs.

METHODS

Ethical aspects

The present study was approved by the institution's Ethics Committee for the Analysis of Research Projects (CAPPesq). The study objectives, guarantee of anonymity and study benefits were clarified and two copies of the Informed Consent Form were completed, one of which was handed in to the researcher, all in accordance with the legislation on human research.

Study design, setting and period

An analytical cross-sectional study with a quantitative approach was conducted. This study originated from the Universal Project and doctoral thesis[4], conducted with the nursing team of eight ICUs of a public university hospital with capacity for approximately 900 beds, 100 of which were distributed among Intensive Care Units of the following specialties: Emergency Room of Clinical Emergencies, Emergency Room of Surgical Emergencies, Internal Medicine/Pulmonology, Infectious Diseases, General Surgery, Neurology, Nephrology and Burned Victims.

The present study was conducted between 2012 and 2015.

Study sample, inclusion and exclusion criteria

ICU professionals comprise a multiprofessional team formed by physicians, a nursing team, nutritionists, psychologists, speech therapists, social workers and physiotherapists. Only nursing team members participated in this study.

The non-probabilistic sample of nursing professionals was comprised of all nurses and nursing technicians/assistants who provided care in the eight ICUs during the study period. All nursing professionals who accepted to participate in this study were included, regardless of the length of work in the unit. All those who were on a leave of absence for any reason were excluded from this study.

Study protocol

Data were collected by researchers in a reserved location of the unit itself. Different instruments were applied to nursing professionals who accepted to participate in the study.

General clarifications about how to complete the forms were given and the following four research instruments were subsequently applied:

- Biosocial and nursing team work characteristics: an instrument comprised of questions about gender, age, marital status, children, undergraduate course, length of work in the institution's ICUs, work satisfaction in the ICU, adequacy of human and material/technological resources in the ICU.
- Brazilian version of the Nursing Work Index – Revised (B-NWI-R): an instrument created by Aiken and Patrician (2000)[5], translated and validated to the Brazilian culture by Gasparino (2009)[6] to be applied to nurses.
- Nursing Work Index-Revised for nursing technicians/assistants (NWI-R): the short Brazilian version of the Nursing Work Index – Revised[6], adapted by Panunto (2013) [3] to be applied to nursing technicians/assistants.

These two instruments, applied in their short form, aim to assess the presence of certain characteristics of the environment of nursing practices[3,5-6] through the following four domains: "autonomy – 5 items", "relationship between physicians and nurses – 3 items", "control of the environment – 7 items" and "organizational support – 10 items". "Organizational support" results from the grouping of ten out of the 15 items of the instrument to generate the fourth domain of assessment of organizational support.

Likert scale scores vary from one to four points and include the following options: completely agree (1), partially agree (2), partially disagree (3), and (4) completely disagree. The analysis of scores of the overall mean and mean of responses for each domain in the sample indicates that the lower the score, the greater the presence of positive attributes for the environment of nursing practices[3]. Data from both instruments were analyzed concomitantly as they included the same information and NWI-R was the only acronym used.

- Index of Work Satisfaction (IWS): an instrument developed by Stamps (1997)[7], translated and validated for the Brazilian culture by Lino (1999)[8]. It includes the following six domains for the analysis of work satisfaction: autonomy, interaction, professional status, work requirements, organizational norms and income. In this study, "interaction" was applied in its totality, including the physician-nurse and nurse-nurse interaction. This instrument has two complementary parts: Paired Comparison (Part A) with 15 comparisons paired between domains, corresponding to the importance attributed to each domain by the nursing team; and Scale of Attitudes (Part B) with 44 items, which assesses the actual satisfaction of nursing professionals[8]. The Likert scale was used in this case, including a score that varies from one to seven points with the following options: completely agree (1), agree (2), partly agree (3),neutral (4), partly disagree (5), disagree (6), and completely disagree (7). Score values of Paired Comparison must have three tenths for IWS score weighing.

The multiplication between both parts of the instrument (A and B) enables the identification of weighed scores. The weighed IWS score represents work satisfaction and corresponds to the mean of weighed domains. The analysis of weighed scores can be performed through percentile intervals, where scores below the 25th percentile are considered to be an extremely low level of work satisfaction; below the 50th percentile, low work satisfaction; above the 50th percentile, moderate work satisfaction; and above the 75th percentile, high work satisfaction[7].

Analysis of results and statistics

Data were typed into Excel, subsequently checked, and finally imported and processed with the Statistical Package for the Social Sciences (SPSS), version 18.0. Descriptive statistics were performed for qualitative variables through absolute and relative frequencies. The mean, standard deviation, median, minimum and maximum values were calculated for the continuous and discrete quantitative variables.

The correlation between the NWI-R and IWS domains was performed with Pearson's chi-square test; the comparison between means for biosocial and work variables was performed with Student's t-test; and the association between biosocial and nursing team work variables, NWI-R and IWS, was performed through multiple linear regression with the backward strategy to select variables.

Normality of variables was verified with the Kolmogorov-Smirnov test for correlations and comparisons between means. The Spearman and Mann-Whitney tests were applied for variables that did not show normality.

The internal consistency of instruments was analyzed through Cronbach's alpha coefficient, which indicates how these items are measuring the same characteristic in each domain. This measure is considered to be consistent when the result is higher than 0.6[9].

All tests were performed considering a significance level of 5%.

RESULTS

The institution's team of ICU nursing professionals included 344 individuals, of which 120 were nurses and 224 were nursing technicians/assistants. However, a total of 287 (83.43%) professionals participated in this study, of which 100 were nurses (34.84%) and 187 (65.15%), nursing technicians/assistants, distributed in different units.

The sample was predominantly female (83.97%), with a mean age of 38.79 years and 8.21 years of experience in the institution's ICU. This proportion was similar between "with a partner" (50.53%) and "without a partner" (49.47%) and the majority of professionals had children (63.07%). Regarding qualification, 52.96% of professionals did not have an undergraduate course. For the majority of nursing team professionals (58.16%), the unit's material resources were not sufficient, nor were the human resources (78.36%). Despite these results, 53.38% reported willingness to work and 90.08%, work satisfaction.

Table 1 – Descriptive measures of the NWI-R by domain and total score, São Paulo, São Paulo, Brazil, 2012

NWI-R instrument	Mean	Standard deviation	Median	Minimum	Maximum	n
Autonomy	2.31	0.59	2.40	1.00	4.00	282
Relationships between physicians and nurses	2.29	0.66	2.33	1.00	4.00	282
Control of the environment	2.52	0.60	2.57	1.00	4.00	282
Organizational support	2.37	0.50	2.40	1.10	4.00	282
Total	2.40	0.51	2.36	1.07	3.80	282

Note: NWI-R = Nursing Work Index-Revised

Prior to the analysis of the results of the environment and work satisfaction, it should be noted that the internal consistency of the NWI-R instrument in this study was 0.83, similar to what was found by another study that translated and validated this instrument for the Brazilian culture (0.84)[6]. With regard to the IWS, the internal consistency corresponded to 0.74, the same result found by the study that translated and validated this scale for the Brazilian culture[8]. These results show that the instruments were consistent to assess the environment of nursing practices in the ICUs and the work satisfaction of participants in this study[9].

Aiming to assess the environment of nursing practices, the sample was comprised of 282 (98.25%) professionals, who fully completed the NWI-R instrument. The results were shown in Table 1.

The score of the total mean of the sample for the environment of nursing practices was 2.40. The environment was more favorable for the "relationships between physicians and nurses" (2.29) and "autonomy" domains (2.31), with scores below the average of the sample, and less favorable for the "organizational support" (2.37) and "control of the environment" domains (2.52), with scores very close to or above the mean of the sample.

Work satisfaction was assessed by 272 (94.77%) nursing professionals who fully completed the two parts of the instrument, a requirement recommended by the author[7]. Paired Comparison (Part A), which assesses the importance attributed to each domain, revealed "income" as the most important domain for the work satisfaction of the nursing team, followed by "interaction", "autonomy", "work requirements", "organizational norms" and "professional status" in a decreasing order. The Scale of Attitudes (Part B), which measures the actual work satisfaction with non-weighed scores, showed the following domains in a decreasing order: professional status, interaction, autonomy, work requirements, organizational norms and income. The weighed results between the two parts of this instrument, which represents the weighed work satisfaction by domain, also identified the same order of classification of domains. The IWS calculation, obtained by the sum of all weighed domains divided by six (number of domains), represented the score of work satisfaction of the nursing team, according to data shown in Table 2.

The Index of Work Satisfaction of the nursing team in this study corresponded to 10.95 points, with a variation between 5.98 and 17.91 points, obtained by the mean of the sample. All Scores of Weighed Domains and weighed IWS showed mean values at the threshold of the 50th percentile, indicating low work satisfaction of the nursing team in this sample.

The results of the correlation test between the NWI-R domains and IWS are shown in Table 3.

Table 2 – Distribution of non-weighed and weighed means by domain of the Index of Work satisfaction, São Paulo, São Paulo, Brazil, 2012

Domain	Paired comparisons (Part A)	Mean non-weighed score of the domain of the scale	Weighed score of the domain
Income	3.562	2.15	7.67
Autonomy	3.070	3.90	11.99
Work requirements	3.017	3.39	10.24
Professional status	2.662	5.16	13.75
Organizational norms	2.910	2.98	8.68
Interaction	3.377	3.96	13.39
		Mean score of the scale 3.66 (from 1 to 7)	IWS 10.95 (from 5.98 to 17.91)

Note: IWS = Index of Work Satisfaction

Table 3 – Correlation between the NWI-R domains and Index of Work Satisfaction of the nursing team, São Paulo, Brazil, 2012

NWI-R domains	IWS r (p)
Organizational support	-0.48$^{\beta}$ (0.00)
Autonomy	-0.40^{+} (0.00)
Control of the environment	-0.44$^{\beta}$ (0.00)
Relationships between physicians and nurses	-0.42$^{\beta}$ (0.00)
Total	-0.50$^{\beta}$ (0.00)

Note: IWS = Index of Work Satisfaction; $^{\beta}$Pearson's correlation test; $^{+}$Spearman's correlation test; NWI-R = Nursing Work Index-Revised

Considering the fact that low NWI-R means represent favorable assessments for the environment of nursing practices and that higher IWS means indicate greater work satisfaction, the negative results of the correlations between the NWI-R domains and the total IWSWSI score, as shown in Table 3, reveal that both the increase in score of domains and total NWI-R decreased the IWS score. In other words, the increase in NWI-R score, which indicates an environment not favorable for nursing practices, reduces work satisfaction.

The comparisons between means of the NWI-R and IWS in relation to the characteristics of nursing professionals and work are shown in Table 4.

Data on Table 4 show that professionals living with a partner (p = 0.04), those who considered the material/technological and human resources of the units to be sufficient (p = 0.00), those who were satisfied working in the ICU (p = 0.03) and those who were willing to work (p = 0.00) also assessed the environment of nursing practices more positively.

Table 4 – Comparison of means of the NWI-R and Index of Work Satisfaction according to the biosocial and nursing team work variables, São Paulo, Brazil, 2012

Variables	NWI-R		IWS	
	Mean (sd)	*p* value	Mean (sd)	*p* value
Gender				
Male	2.36 (0.47)	0.57β	11.35 (1.55)	0.11β
Female	2.41 (0.52)		10.88 (1.86)	
Total	2.40 (0.51)		10.95 (1.82)	
Marital status				
With a partner	2.34 (0.51)	0.04β	10.92 (1.94)	0.81β
Without a partner	2.46 (0.51)		10.97 (1.71)	
Total	2.40 (0.51)		10.94 (1.82)	
Children				
No	2.36 (0.46)	0.29β	10.99 (1.72)	0.79β
Yes	2.43 (0.54)		10.93 (1.88)	
Total	2.40 (0.51)		10.95 (1.82)	
Undergraduate course				
No	2.44 (0.52)	0.24β	10.88 (1.73)	0.50β
Yes	2.37 (0.50)		11.03 (1.92)	
Total	2.40 (0.51)		10.95 (1.82)	
Sufficient technological and material resources				
No	2.51 (0.49)	0.00β	10.56 (1.80)	0.00†
Yes	2.24 (0.49)		11.50 (1.58)	
Total	2.40 (0.51)		10.95 (1.77)	
Sufficient nursing human resources				
No	2.47 (0.48)	0.00β	10.70 (1.69)	0.00β
Yes	2.13 (0.53)		11.76 (1.82)	
Total	2.40 (0.51)		10.94 (1.77)	
Feels satisfied working in the ICU				
No	2.60 (0.53)	0.03β	10.56 (2.07)	0.22β
Yes	2.35 (0.51)		11.01 (1.79)	
Total	2.40 (0.51)		10.96 (1.82)	
Is willing to work				
No	2.52 (0.53)	0.00β	10.36 (1.80)	0.00β
Yes	2.29 (0.48)		11.52 (1.68)	
Total	2.40 (0.51)		10.96 (1.83)	

Note: IWS = Index of Work Satisfaction; βStudent's t-test; †Mann Whitney's test; SD = Standard deviation; NWI-R = Nursing Work Index-Revised

When the IWS was evaluated, the results showed differences between groups regarding "sufficient material/technological resources" and "willingness to work". Professionals who mentioned sufficient material/technological (p = 0.00) and human resources (p = 0.00), and those who stated they were willing to work (p = 0.00) showed greater work satisfaction.

Additionally, the present study shows the analysis of the association of the environment of practices, through the NWI-R and work and nursing team variables, with work satisfaction, through the IWS. The results are shown in Table 5.

The multiple linear regression model indicated that the yearly increase in length of work in the ICU and the increase in one point in willingness to work caused the IWS score to rise by 0.03 points (p = 0.04) and 0.78 points (p = 0.00), respectively. The association between the NWI-R and IWS revealed a negative beta coefficient (-1.67) (p = 0.00), indicating that each point added to the NWI-R score caused it to be less favorable, reducing the IWS by 1.67 points, i.e. the unfavorable environment for nursing practices decreased work satisfaction.

Table 5 – Multiple linear regression model of the association of the factors of the nursing team and environment of nursing practices with the Index of Work Satisfaction, São Paulo, Brazil, 2012

IWS	Coefficient B	95%CI		*p* value*
Length of work in the institution's ICU	0.03	0.00	0.06	0.04
NWI-R	-1.67	-2.02	-1.32	0.00
Willingness to work	0.78	0.41	1.14	0.00

*Note: IWS = Index of Work Satisfaction; *Multiple linear regression model; ICU = Intensive Care Unit; NWI-R = Nursing Work Index-Revised*

DISCUSSION

The association between the environment of nursing practices and work satisfaction has been investigated in recent years, showing that the characteristics of the environment influence the results of work satisfaction and nursing care practices in the ICU[1-6,10].

The results of the present study showed that the nursing team is predominantly female (83.97%), a characteristic of this profession, which has also been observed in other studies[2,6,10-12]. In addition, the majority of professionals had children (63.07%). The similar proportions between "with a partner" (50.53%) and "without a partner" (49.47%) have also been found by other studies in the literature, 51.60%[13] and 48.20%[6], respectively. In the present study, professionals with a partner had a more positive perception of the environment of practices, indicating that their partner can offer social and family support for their mental and emotional basis in the environment of practices, a result which has also been described in the literature[13].

With regard to professional qualification, the majority did not have an undergraduate degree (52.83%), thus being on the technical level of nursing. Although "professional qualification" did not show differences in either the NWI-R or IWS between the technical and higher education levels in the present study, other studies have identified an association between work satisfaction, level of education and environment of practices[2,10,14-15].

A Brazilian study performed in several units of a university hospital, which also included the ICU, aiming to investigate work satisfaction, indicated that such satisfaction was associated with the technical level of qualification and workplace. Professionals with a technical level working in ICUs showed greater work satisfaction due to the management of nursing activities in these units. Moreover, the similar distribution of activities between technical professionals and higher education professionals allowed a greater level of satisfaction among the former as they perceived themselves as equals, compared to the latter. The work dynamics also caused the expectations of higher education professionals not to be met and their level of satisfaction to be low[10].

Thus, the development of one's level of professional qualification allows one to achieve higher hierarchical positions, and promotes work satisfaction through the encouragement of autonomy and capacity-building for decision-making, especially when reflecting better results achieved and patient safety[2,14-15].

Regarding "material/technological resources" and "human resources", the proportion of professionals for each of these variables, 41.84% and 21.64% respectively, who considered them to be sufficient, assessed the environment more positively and showed greater work satisfaction.

These results can indicate an adaptation to the work environment in the ICU by professionals who develop abilities to construct a better environment of practices and achieve satisfaction with the resources available for care[13]. The characteristics of professionals themselves, who are aged 40 years on average and have a length of work in the ICU of approximately eight years, thus being more experienced, can explain the better performance in the organization and management of ICU resources and, consequently, the better perception of the environment and greater work satisfaction[6,13-14].

Despite the vulnerabilities of material/technological and human resources identified by the majority of nursing professionals and low work satisfaction identified with the IWS score measure, 90.08% of these professionals reported being satisfied working in the ICU and they also assessed the environment positively. These results suggest that more satisfied professionals also perceive the environment of practices positively[1-2].

However, the difference found in this study between the subjective assessment and the objective assessment of work satisfaction made by the nursing team confirms that the application of an instrument of measurement enables, as expected, a more accurate identification of the factors that require an intervention to achieve work satisfaction.

Regarding willingness to work, those who were more willing perceived the environment of nursing practices as more favorable and showed greater work satisfaction. This can be justified by the sample characteristics, which include social and family support and work experience in ICUs and, consequently, a positive perception of the environment of practices and work satisfaction[1,3,5-6,10].

The results of the environment of nursing practices were more favorable for the "relationships between physicians/nurses" and "autonomy" domains, while "organizational support" and "control of the environment" were more vulnerable in the perception of professionals, comparable to other studies in the literature[3,6]. These results can be justified by the characteristics of the teaching institution, with a multiprofessional team in the ICUs developing the abilities of collaborative work and promoting a favorable environment for autonomy and relationships.

Contrary to the "autonomy" and "relationships" domains, from the perspective of nursing professionals in this study, the environment was vulnerable in the "control" and "support" structural domains. This could be a reflection of the difficulties of the nursing team to receive support from their superiors to develop the complex management of different processes that occur in the ICU.

The organizational support and control of practices are environmental factors that include the work organization and tools to achieve better results with patients. Thus, these characteristics are key for work satisfaction, as the development of management for good care practices[10] allows the better results for quality of care and patient safety[16] to improve the satisfaction as well.

In this sense, the complex environment of the ICU, characterized by advanced technology to care for severely ill patients and requiring the team to have a high capacity of organization and clinical competence to provide services that meet the several demands of the unit and patients, shows the need to develop organizational support and control to improve the environment and work satisfaction. The characteristics of a positive environment can be developed through participative management, which includes the nursing team in the context of the ICU and qualifies them to participate in decision-making[11].

In the analysis of work satisfaction, considering the importance attributed and the scale of attitudes, "income" was considered to be the most important domain with the lowest actual level of satisfaction, whereas "professional status" was the least important with the highest actual level of satisfaction. This result indicates that, although the stability of professionals in a public institution and low income represent a relevant factor for them in the present study, this domain does not determine the decision of such professionals to remain in this occupation or job. Therefore, even if this is important for professionals, it does not determine their satisfaction at work. This is a relevant result for nursing managers, who must consider different strategies, in addition to income, to promote work satisfaction[11] and consequently maintain their staff.

Professional status, although not regarded as important by nursing professionals, was found to be a variable that promotes their satisfaction. This status showed that, although not having a direct influence on work dynamics, it represents the level of influence and respect achieved by individuals as a result of their work and length of experience. In this sense, their social hierarchical position and occupation, reputation, prestige, benefits and recognition by the team as a consequence of their work also provide work satisfaction[10,17].

However, in terms of the discussion of work satisfaction, it is important to analyze the weighed IWS score, which includes the importance that nursing professionals attribute to the domains and current actual satisfaction. The weighed IWS score found in this study (10.95 points) is in the 2nd quartile and close to the 50th percentile, indicating low work satisfaction. Other Brazilian studies performed in ICUs and emergency units found even lower IWSs – 9.6[8] and 8.29[18], respectively – also showing low work satisfaction in the samples investigated.

It is possible to infer that the low work satisfaction in this study can be justified by the vulnerability of the "organizational support" and "control of the environment" structural domains, as the association identified by the multiple linear regression model between the environment of nursing practices and work satisfaction indicate that the vulnerability of the domains influence the results of the association and may have led to low work satisfaction.

Additionally, the multiple linear regression model enabled us to observe that willingness to work and length of work in the ICU are factors that promoted work satisfaction in the nursing team in this study. The results showed that the increase in NWI-R score, which indicates an unfavorable environment, reduces the IWS score. Moreover, the increase in length of experience and willingness to work also enables the IWS score and work satisfaction to rise. Thus, a favorable environment for nursing practices, length of experience in the ICU and willingness to work promoted work satisfaction in this group.

A study performed in the ICU of Israeli hospitals, which analyzed the association between the environment of nursing practices and work satisfaction, length of experience and intention of quitting one's job, found similar results. This study found a significant statistical correlation between a positive environment and work satisfaction and a negative correlation between a positive environment and intention of quitting one's job, indicating that a positive environment encourages professionals to stay in the ICU and improves work satisfaction[12].

Regarding length of experience, the Israeli study did not find an association between this variable and the environment and such results is justified by the pay equity among institutions, resulting in a low turnover. Consequently, the permanence of professionals in the institution also increases length of experience and work satisfaction[12].

Other studies in the literature also showed the relationship between the environment of nursing practices and work satisfaction and they found that such environment improved quality of care, decreased turnover and increased length of experience, having an impact on work satisfaction[1,5-6,10,12].

Contributions to nursing and healthcare

The present study showed relevant results of the factors of the environment of nursing practices in the ICU associated with work satisfaction. Nursing managers must consider key aspects such as the investment in the management of materials, technology and human resources; autonomy to participate in decisions that increase length of experience and willingness to work; and work satisfaction as well. It is believed that these results will contribute to future researches that can investigate different factors as a strategy to strengthen characteristics of support and control of the environment of nursing practices to invest in better results of patient care and work satisfaction.

Study limitations

When taking the results obtained into consideration, despite the inclusion of eight ICUs in this sample, one of the limitations of this study was the fact that it was performed in one institution exclusively. Furthermore, this study used a non-probabilistic sample, which does not enable the generalization of its findings.

CONCLUSION

The present study revealed important results of the association between the environment of nursing practices in the ICU and work satisfaction, meeting the objective of this investigation and contributing to the advance of research and clinical practice in critical units.

These results indicate that a favorable environment for nursing practices, willingness to work and length of work in the ICU are aspects that increase work satisfaction. Therefore, investing in factors that improve the environment, considering the relationship and autonomy aspects and, especially, the structural aspects of nursing participation in the control of practices, decision-making, management and organizational support for work, apart from length of work in the ICU and willingness to work, increase work satisfaction.

FUNDING

Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES – Coordination for the Improvement of Higher Education Personnel – doctoral scholarship). *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq – National Council for Scientific and Technological Development – Universal Project – protocol number 477860/2010-9). *Fundação de Amparo à Pesquisa do Estado de São Paulo* (FAPESP – State of São Paulo Research Support Foundation – Protocol numbers 11/51874-5 and 13/22671-4).

REFERENCES

1. You LM, Aiken LH, Sloane DM, Liu K, He GP, Hu Y, et al. Hospital nursing, care quality, and patient satisfaction: Cross-sectional surveys of nurses and patients in hospitals in China and Europe. Int J Nurs Stud [Internet]. 2013[cited 2016 May 02];50(2):154-61. Available from: http://www.journalofnursingstudies.com/article/S0020-7489(12)00156-3/abstract

2. McHugh MD, Kelly LA, Smith HL, Wu ES, Vanak JM, Aiken LH. Lower mortality in magnet hospitals. Med Care [Internet]. 2013[cited 2016 May 02];51(5):382-8. Available from:

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3568449/pdf/nihms-412598.pdf

3. Panunto MR, Guirardello EB. Professional nursing practice: environment and emotional exhaustion among intensive care nurses. Rev Latino-Am Enfermagem [Internet]. 2013[cited 2016 May 02];21(3):765-72. Available from: http://www.scielo.br/pdf/rlae/v21n3/0104-1169-rlae-21-03-0765.pdf

4. Padilha KG, Barbosa RL, Oliveira EM, Andolhe R, Ducci AJ, Secoli SR. Segurança do paciente em Unidades de Terapia Intensiva: desenvolvimento de um projeto de pesquisa. Rev Esc Enferm USP [Internet]. 2015[cited 2016 Apr 16];49(Esp):157-63. Available from: http://www.scielo.br/pdf/reeusp/v49nspe/1980-220X-reeusp-49-spe-0157.pdf

5. Aiken LH, Patrician PA. Measuring organizational Traits of Hospitals: the Revised Nursing Work Index. Nurs Res. 2000;49(3):146-53.

6. Gasparino RC, Guirardello EB, Aiken LH. Validation of the Brazilian version of the Nursing Work Index-Revised (B-NWI-R). J Clin Nurs [Internet]. 2011[cited 2016 Apr 16];20(23-24):3494-501. Available from: http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2702.2011.03776.x/epdf

7. Stamps PL. Nurses and work satisfaction: an index for measurement. 2ª ed. Chicago, Health Administration Press; 1997a.

8. Lino MM. Satisfação profissional entre enfermeiras de UTI adaptação transcultural do Index of Work Satisfaction (IWS). [dissertação]. São Paulo: Escola de Enfermagem da USP; 1999.

9. Hair JF, Tatahm RL, Anderson RE, Black W. Análise multivariada de dados. 5ª ed. Porto Alegre (RS): Bookman; 2005. 593p.

10. Bacha AM, Grassiotto OR, Gonçalves SP, Higa R, Fonsechi-Carvasan GA, Machado HC, Cacique DB. Job satisfaction of nursing staff in a university hospital. Rev Bras Enferm [Internet]. 2015[cited 2016 May 02];68(6):819-26. Available from: http://www.scielo.br/pdf/reben/v68n6/en_0034-7167-reben-68-06-1130.pdf

11. Aiken LH, Sloane DM, Bruyneel L, Van den Heede K, Griffi ths P, Busse R, et al. Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study. Lancet [Internet]. 2014[cited 2016 Apr 16];383(9931):1824-30. Available from: http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(13)62631-8.pdf

12. Ganz FD, Toren O. Israeli nurse practice environment characteristics, retention, and job satisfaction. Isr J Health Policy Res. 2014;3(7):1-8. Available from: https://ijhpr.biomedcentral.com/articles/10.1186/2045-4015-3-7

13. Li J, Lambert VA. Workplace stressors, coping, demographics and job satisfaction in Chinese intensive care nurses. Nurs Crit Care. 2008[cited 2016 Apr 16];13(1):12-24. Available from: http://onlinelibrary.wiley.com/doi/10.1111/j.1478-5153.2007.00252.x/abstract

14. Basuni EM, Bayoumi MM. Improvement critical care patient safety: using nursing staff development strategies, at Saudi Arabia. Glob J Health Sci[Internet]. 2015[cited 2016 Apr 16];7(2):335-43. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4796447/.

15. Ramoo V, Abdullah KL, Piaw CY. The relationship between job satisfaction and intention to leave current employment among registered nurses in a teaching hospital. J Clin Nurs [Internet]. 2013[cited 2016 Apr 16];22(21-22):3141-52. Available from: http://onlinelibrary.wiley.com/doi/10.1111/jocn.12260/epdf

16. Oliveira RM, Leitão IMTA, Silva LMS, Figueiredo SV, Sampaio RL, Gondim MM. Strategies for promoting patient safety: from the identification of the risks to the evidence-based practices. Esc Anna Nery Rev Enferm [Internet]. 2014[cited 2016 May 02];18(1):122-9. Available from: http://www.scielo.br/pdf/ean/v18n1/1414-8145-ean-18-01-0122.pdf

17. Siqueira VTA, Kurcgant P. Job Satisfaction: a quality indicator in nursing human resource management. Rev Esc Enferm USP [Internet]. 2012[cited 2016 May 02];46(1):146-52. Available from: http://www.scielo.br/pdf/reeusp/v46n1/en_v46n1a21.pdf

18. Pinto IC, Panobianco CSMM, Zacharias FCM, Bulgarelli AF, Carneiro TSG, Gomide MFS, et al. Analysis of job satisfaction of the nursing staff of a primary health care unit. Rev Gaúcha Enferm [Internet]. 2014[cited 2016 May 02];35(4):20-7. Available from: http://www.scielo.br/pdf/rgenf/v35n4/1983-1447-rgenf-35-04-00020.pdf