

# Ciências Biológicas e da Saúde:

Investigação  
e Prática

Juan Carlos Cancino-Diaz  
(organizador)



EDITORA  
ARTEMIS

2022

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#### Dados Internacionais de Catalogação na Publicação (CIP)

C569 Ciências biológicas e da saúde: investigação e prática /  
Organizador Juan Carlos Cancino-Díaz. – Curitiba-  
PR: Artemis, 2022.

Formato: PDF

Requisitos de sistema: Adobe Acrobat Reader

Modo de acesso: World Wide Web

Inclui bibliografia

ISBN 978-65-87396-60-6

DOI 10.37572/EdArt\_280822606

1. Ciências biológicas. 2. Saúde. 3. Imunomicrobiología.  
4. Pesquisa. I. Cancino-Díaz, Juan Carlos (Organizador).  
II. Título.

CDD 570

Elaborado por Bibliotecária Janaina Ramos – CRB-8/9166



## PRÓLOGO

El estudio de las ciencias biológicas es tan amplio que abarca diferentes disciplinas, entre ellas la medicina, la inmunología, la microbiología y hasta el medio ambiente. La investigación en las ciencias biológicas aporta las bases científicas para el mejoramiento de las diferentes disciplinas. En la actualidad hay un gran interés sobre nuevas investigaciones en ciencias biológicas que ayudan a contestar diferentes inquietudes ocurridas en la vida cotidiana. En este libro constituido por 12 capítulos se enfoca en dos disciplinas de las ciencias biológicas, la disciplina médica y la disciplina inmunomicrobiología.

La disciplina médica está estructurada sobre aspectos comunes acontecidos en el área de la salud, como es el caso de las prácticas y experiencias de los enfermeros, investigación soportada con relevancia estadística sobre el impacto y los factores que influyen sobre los enfermeros al aplicar sus prácticas de salud hacia a los pacientes y a su vida personal. Estos trabajos son importantes porque demuestran que el bienestar del enfermo contribuye al mejoramiento del paciente y del entorno ambiental. Por otro lado, capítulos que abordan sobre el tópico neuromuscular están incluidos en esta área de salud. Esta investigación neuromuscular se inserta desde estudios sobre la relación y las necesidades de la familia con un miembro con enfermedad patológica neuromuscular, hasta investigación relacionada con aspectos de la asociación del tono muscular con la vista o la relación con el tipo de ejercicio o rutina ejercida por un individuo. Por último, en esta área de salud se adiciona un capítulo sobre COVID-19, un estudio interesante que establece el comportamiento y la experiencia de la población brasileña sobre la enfermedad del COVID-19, el estudio muestra como las diferentes poblaciones etarias presentaron su sentir de miedo de contraer COVID-19 en los diferentes períodos de la pandemia.

El libro tiene una sección de ciencias biológicas en la disciplina inmunomicrobiología. En esta parte es más diversa que incluye un capítulo que se enfoca sobre la utilización de la inmunología sobre el tratamiento del cáncer, la utilización de diferentes anticuerpos monoclonales dirigidos para reducir o inhibir el desarrollo del cáncer. Tres capítulos hablan sobre bacterias, uno de ellos sobre el efecto de la biopelícula de *Staphylococcus epidermidis* para evadir la respuesta inmune del neutrófilo, otro sobre la fermentación de *Bacillus subtilis* ANT01 sobre la actividad antifúngica y por último, la producción de ácidos orgánicos de origen fúngico para la aplicación en la lixiviación de metales.

El libro está dirigido a la comunidad médica y científica que aporta información relevante en el área de ciencias biológica; el lector puede tener una visión general de la investigación de esta área biológica y comprender la complejidad y diversidad de tópicos relacionados con esta área.

Dr. Juan Carlos Cancino Diaz

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# CAPÍTULO 1

## THE NURSING PRACTICE ENVIRONMENT AND THE NURSES AND PATIENTS OUTCOMES - MAGNET HOSPITALS TO PRIMARY HEALTH CARE

Data de submissão: 10/05/2022

Data de aceite: 03/06/2022

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**ABSTRACT:** Studies carried out in recent years demonstrate the association between factors related to the context of clinical practice and the results for nurses and customers. Favorable nursing practice environments are essential for professional satisfaction for burnout and nurses turnover, patient safety and nursing care, while taking a key role in the financial viability of health organizations. The work environment can significantly influence

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nurses' attitudes, his career choices, and the results obtained by patients and by them. In this review, we propose to analyze the influence of the nursing practice environment for nurses and customers outcomes, and analyzing the importance of the nursing practice environment in the context of primary health care.

**KEYWORDS:** Nursing Practice Environment. Turnover. Burnout. Quality of Nursing Care. Nurse Management. Primary Health Care.

### 1 INTRODUCTION

The nursing practice environment is defined as a set of characteristics that favor or constrain the professional practice of nurses (1, 2).

This concept gained importance in the 70s, in hospitals of United States of America where there was a high scarcity of nurses and increased turnover of nursing professionals. Given the consequences of the lack of these professionals American Nurses Association carried out studies in the organizations that were able to attract and retain nurses, designated Magnet hospitals (1). These organizations incorporated certain forces or components that raised greater involvement,

professional satisfaction and lower turnover rates, greater customer satisfaction and better health results. They also obtained a greater financial return for the health organization (3). In them, there was a transformational leadership, structural empowerment, an exemplary professional practice, incorporating new knowledge, innovation and improvements and empirical results (1, 3). In the 90s the recognition of these features has launched the concept in a new phase, trying to relate it to quality of care and customers outcomes. Therefore a credit program for obtaining Magnet status considered the highest distinction that an organization may receive in the scope of the excellence of nursing care in the USA.

Magnet distinction is therefore attributed to health organizations with a high level of nursing care quality, as well as distinguishes organizations with a healthy nursing practice environment and positive outcomes for nurses and patients (4). Many organizations have understood that the model to improve nurses' work environments, which appears from the Magnet Recognized program, is a useful guide to proceeding with the challenges of the organizational culture change, based on values, attitudes and beliefs about professional practice and processes through which professional practice is supported in the workplace (3).

Lake (1) identified the five aspects that characterize positive nursing practice environment, being the involvement of nurses in decision-making; the nursing care organization (time to meet the needs of the patients the support and support by the nurses heads; the adequacy of the teams (taking into account the professional skills and equilibrated work schedules) and the resources; and the efficient relationships between physicians and nurses (5, 6, 7, 8). Positive nursing practice environment was then defined as a safe, capacitating and satisfactory workplace for nurses and is considered vital importance for prevention of medical errors, keep the stable teams and retain the best nurses (4).

The Institute of Medicine established the link between patient safety and the nurses' work environment, after publication of the To Err Is Human report in 99's (9). This organization considered that positive nursing practice environments are essential for nurses' satisfaction and retention, for patient safety and the quality of nursing care provided, while taking a fundamental role in financial feasibility of health organizations (4).

When nursing practice environment is perceived as positive the outcomes found are suggestive of better quality and safety of care (3, 5, 9, 10), lower mortality rates (3, 5, 10), and less complications (5) for patients, better overall performance (9,11) and increased productivity (11). In this scenario, there is also a greater professional satisfaction of nurses (2, 5, 6, 7, 9, 10, 11), lower turnover intention (5, 6, 9, 10, 11), and increased stability of the nursing teams (6) by decreased turnover (10, 11) and lower absenteeism fee (11).

On the other hand, when is perceived as negative, outcomes are negative: low efficiency, professional dissatisfaction, turnover (2, 12) and burnout (2, 9, 13) and for customers, verifying the increase in mortality and other complications (4, 5, 7, 9), longer hospitalization (4, 6), more drug's administration related errors (6, 9, 10), safety compromising (10) and lower patient satisfaction in accordance with incoming care (6).

In view of the evidence, we proposed to deepen the impact of the nursing practice environment for patients and nurses outcomes.

## 2 METHODS

We conducted a review through research at EBSCO HOST first through natural terms (*Nursing Practice Environment, Turnover, Burnout, Quality of Nursing Care, Nurse Management, Primary Health Care*) and then through descriptors Medical Subject Healing (Mesh) indexed terms, and Booleans “And” and “OR”. We have searched for bases Cumulative Index to Nursing and Allied Health Literature (Cinahl Complete), Medical Literature Analysis and Retrieval System Online (Medline Complete), Medicatina, Cochrane Database of Systematic Reviews and Scopus. We put as selection criteria to be articles on study theme with nurses, available in full text, written in English, Spanish or Portuguese.

## 3 RESULTS AND DISCUSSION

To facilitate the analysis of the found evidence we present the outcomes divided into subthemes, which we present below.

### 3.1 INFLUENCE OF THE NURSING PRACTICE ENVIRONMENT IN THE QUALITY OF NURSING CARE

Several studies have shown that one or more unfavorable attributes in the nursing practice environment are associated with higher mortality rates due to the occurrence of errors, many of them are related to an unhealthy work environment, characterized by communication failures between health professionals, change resistance and lack of effective leadership (6).

Aiken et al. (14) concluded in their studies that in the organizations with adequate nurses, the patients presented a less likelihood of dying at all levels of risk and the costs of the care they received were equal or lower in these organizations than in those who revealed inadequate nurses resources.

Appropriate nurses hospitals have had better results for patients with the same costs or costs smaller than hospitals with worse outcomes, considering that they admitted less 40% of patients in intensive care units and had a shortest time of hospitalization (14).

These results are concluded that associated costs to contracting more nurses are offset by the reduction of intensive treatments, lower time hospitalization, nosocomial infections 30% less (5, 14), which translates into security and quality in care (4, 7, 10, 15).

On the other hand the results show that by each additional patient attributed to a nurse increase 6 to 9% in readmissions by pneumonia, heart failure and acute myocardial infarction, increase 8% in readmissions by fracture from the lap of the femur, increase 3% in readmissions after general surgery and increase 11% in readmissions hospitalized children, unnecessarily increasing the cost of care.

It should also be noted that half of the nurses assume that they have not had time to complete high planning and hold anticipatory care to the client (14), decreasing the quality of nursing care. Evidence demonstrates that when nurses' assessment on the standards of professional nursing practice increases, the adequacy of the team and professional relations are evaluated as better (7), concluding that when nurses perceive that nursing care with quality, nursing teams are provided with skills elements and sufficient numbers (6). These conclusions corroborate the results verified in the studies of Aiken et al. (14). When they refer that in hospitals where nurses have been existed with necessary skills and in adequate number, the rate of pressure ulcers, fall lesions and urinary tract infections are smaller.

### 3.2 INFLUENCE OF THE NURSING PRACTICE ENVIRONMENT ON TURNOVER

Turnover directly affects the care ability of the nursing team. While the change of organization can be seen as a professional development opportunity for nurses, turnover can become a problem for organizations if change is driven by unfavorable characteristics of the nursing practice environment (16). The exit of experienced professionals leads to which nursing teams lose knowledge and competence (17). Even replacing the element for another one the new element has to learn from experience in order to develop its skills and the clinical judgment that enables them to act towards complex situations and prioritize care (18). This development process takes time and during this period the quality of nursing care can be compromised. Thus in addition to the costs related to the selection and integration of the new elements, the team is reduced and loses now how which leads to the reduction of effectiveness and reduction of productivity (17).

### 3.3 INFLUENCE OF NURSING PRACTICE ENVIRONMENT IN BURNOUT

The nurse's perception not to carry out all necessary care, caused by the high workload or in-wood teams, can give rise to high levels of burnout and dissatisfaction of nurses, also affecting the quality of health care (15).

Burnout is known to be influenced by the environment in which the professional exercises, being particularly related to inadequate organization of work, due to lack of autonomy in clinical practice and support by the heads (13, 19), stress and accumulated tension caused by excessive workload, by needs to perform additional administrative tasks, to which the poor relationship with the medical team (20) is added. The evidence shows that when they exercise in unfavorable nursing practice environments nurses tend to present high emotional exhaustion, first phase of burnout (13, 21). In an attempt to overcome their negative consequences nurses can neglect their professional obligations, with negative repercussions on nursing care, in satisfaction of the patient on care received and still in their adherence to treatment. Despite stress and high risk of exhaustion, not all nurses develop Burnout (22). About this the evidence reinforces that when support from the heads and greater autonomy in the holding of the care, the nurse can recover from the stressful situation, to recover the work capacity and increase its professional satisfaction (13, 21, 22).

### 3.4 INFLUENCE OF NURSING PRACTICE ENVIRONMENT IN PROFESSIONAL SATISFACTION

Professional satisfaction can be an important indicator of how nurses feel about their work as well as a predictor of the behavior at work (17). It is a multidimensional construct where requirements professional autonomy, work relations and organizational conditions (2) are included. Evidence relates professional satisfaction with decrease absenteeism, with better organizational climate (17), increasing productivity and better performance at work (17, 23). It can strengthen the professional commitment of the professional with the organization (2). On the other hand, dissatisfaction will cause less organizational commitment, greater absenteeism and increase turnover (17). In order to promote greater satisfaction and improve productivity levels positively contributing to outcomes of organizations and for the quality of nursing care, we find a reference to several strategies such as appropriate nurse-patient ratios, invest in training, promote participation of nurses in decision-making and organizational policies (2).

### 3.5 NURSING PRACTICE ENVIRONMENT IN PRIMARY HEALTH CARE

The positive nursing practice environment has been referred to as the most important influence on nurses' professional satisfaction in the context of primary health care (6, 24). Given the growing demand for nursing care and the greater complexity in the provision of primary health care, caused by high overall aging rate (6), either by the transfer for the community of patient monitoring with chronic disease – homes and schools - monitored by the primary health care teams (11), either by the reduced nurses rate to be exercised in this context (6), are needed motivated and committed professionals in compliance with organizational goals and to provide the necessary care, not compromising organizational performance (11). In this context it is necessary existing a philosophy and definition of nursing care model, as a set of organizational values and beliefs where advanced nurse care is valued, a condition of a Magnet organizations (8). However this is a challenge given the focus on the doctor and the biomedical model. Evidence in primary health care highlights that appropriate labor relations between nurses and physicians (8, 12) promote professional respect and the highest independence to make decisions, with improvement of care to the chronic patient. This greater autonomy in nurses allows them to incorporate advanced care practices, making them more efficient and qualitatively positive (8).

### 3.6 IMPLICATIONS FOR NURSING MANAGEMENT

Evidence has shown that management practices can contribute to promoting a favorable work environment (6) and organizational changes that promote better working conditions (12) and better medical-nurse relationship. Support of the leadership were identified as the most important factors to improving care (8, 11). According to the authors, these characteristics combined with the development of nurses' competences and participation in decision-making, promote the incorporation of evidence-based clinical practices, which contribute to the improvement of quality and safety of care (8).

## 4 CONCLUSION

The nursing practice environment has an influence on patients and nurses outcomes but also in the costs of health organizations.

When there is a positive nursing practice environment nurses can apply all their skills, exercise with professionalism, are empowered and provide high quality and safe nursing care, are valued and there is a recognition of the role of nurses in the patients

outcomes, which leads to the highest productivity to the organization and better outcomes for all actors, nurses and patients.

Studies about this subject in primary health care is still limited even internationally but it is clear that also in this context is needed the existence of stable teams, empowered and valued, with high quality standards, with well-defined and targeted goals for teamwork.

In these economically difficult times health organizations should invest in managers nurses capable of promoting positive nursing practice environments, in order to retain the best professionals and keep them committed to provision of high quality care.

## 5 CONFLICT OF INTEREST

The authors don't have any conflict of interest.

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## SOBRE O ORGANIZADOR

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