



**PERSONEL DIMENSIONING AND ITS INTERFERENCE IN THE QUALITY OF CARE**  
**DIMENSIONAMENTO DE PESSOAL E SUA INTERFERÊNCIA NA QUALIDADE DO CUIDADO**  
**DIMENSIONAMIENTO DE PERSONAL Y SU INTERFERENCIA EN LA CALIDAD DEL CUIDADO**

Lais Carolina da Silva<sup>1</sup>, Diego Augusto Lopes Oliveira<sup>2</sup>, Amanda Barbosa da Rocha Santos<sup>3</sup>, Lidiane Marinho da Silva Barbosa<sup>4</sup>, Luanne Gomes Araújo<sup>5</sup>, Maria Thereza Vieira Barboza<sup>6</sup>, Wanessa Barros da Silva<sup>7</sup>, Yasmim Simão Tenório de Melo<sup>8</sup>

**ABSTRACT**

**Objective:** to analyze the nursing staff dimensioning the quality of care. **Method:** this is a bibliographical study, an integrative review, of articles published in the period 2007 to 2017, in the MEDLINE, LILACS and BDNF databases. The articles were read and the summaries of the results of the articles in figures. **Results:** 103 publications were identified in the initial search. Eleven articles were selected from the analysis of the title, the researched topic and the eligibility criteria, and three contents remained in the reading of the contents, two of which were qualitative and one quantitative approach. It should be highlighted that the descriptors most used by the authors of the articles were Nursing care, personnel dimensioning, quality of health care, being the field of research of these studies the dimensioning of Nursing staff. **Conclusion:** it can be considered that the personnel dimension is an important step, which directs the assistance of the Nursing team, so that it recognizes the need to devise strategies to identify the profile of patients attended and the need for professionals to assist them. **Descriptors:** Nursing Care; Personnel Downsizing; Quality of Health Care; Human Resources; Nurse Practitioners; Competence Professional.

**RESUMO**

**Objetivo:** analisar o dimensionamento de pessoal de Enfermagem frente à qualidade da assistência. **Método:** trata-se de um estudo bibliográfico, tipo revisão integrativa, de artigos publicados no período de 2007 a 2017, nas bases de dados MEDLINE, LILACS e BDNF. Apresentaram-se as sínteses dos resultados dos artigos em figuras. **Resultados:** identificaram-se, na busca inicial, 103 publicações. Selecionaram-se 11 artigos a partir da análise do título, da temática pesquisada e dos critérios de elegibilidade e, na leitura na íntegra dos conteúdos, restaram três, sendo dois de abordagem metodológica qualitativa e uma de abordagem quantitativa. Destaca-se que os descritores mais utilizados pelos autores dos artigos foram cuidados de Enfermagem, dimensionamento de pessoal, qualidade da assistência à saúde, sendo o campo de pesquisa desses estudos o dimensionamento de pessoal de Enfermagem. **Conclusão:** pode-se considerar que o dimensionamento de pessoal é uma etapa importante, que direciona a assistência da equipe de Enfermagem, de modo que ela reconheça a necessidade de planejar estratégias para identificar o perfil dos pacientes atendidos e a necessidade de profissionais para assisti-los. **Descritores:** Cuidados de Enfermagem; Dimensionamento Pessoal; Qualidade da Assistência à Saúde; Recursos Humanos; Profissionais de Enfermagem; Competência Profissional.

**RESUMEN**

**Objetivo:** analizar el dimensionamiento de personal de enfermería frente a la calidad de la asistencia. **Método:** se trata de un estudio bibliográfico, tipo revisión integrativa, de artículos publicados en el período de 2007 a 2017, en las bases de datos MEDLINE, LILACS y BDNF. Se presentaron las síntesis de los resultados de los artículos en figuras. **Resultados:** se identificaron, en la búsqueda inicial, 103 publicaciones. Se seleccionaron 11 artículos a partir del análisis del título, de la temática investigada y de los criterios de elegibilidad y, en la lectura íntegra de los contenidos, quedaron tres, siendo dos de abordaje metodológico cualitativo y uno de abordaje cuantitativo. Se destaca que los descriptores más utilizados por los autores de los artículos fueron cuidados de Enfermería, dimensionamiento de personal, calidad de la asistencia a la salud, siendo el campo de investigación de esos estudios el dimensionamiento de personal de Enfermería. **Conclusión:** se puede considerar que el dimensionamiento de personal es una etapa importante, que dirige la asistencia del equipo de Enfermería, de modo que ella reconozca la necesidad de planificar estrategias para identificar el perfil de los pacientes atendidos y la necesidad de profesionales para asistirlos. **Descritores:** Atención de Enfermería; Reducción de Personal; Calidad de la Atención de Salud; Recursos Humanos; Enfermeras Practicantes; Competencia Profesional.

<sup>1,3,5,6,7,8</sup>Nursing students, Centro Universitário Tabosa de Almeida ASCES-UNITA. Caruaru (PE). Email: [2015206050@app.asc.es.edu.br](mailto:2015206050@app.asc.es.edu.br) ORCID iD: <https://orcid.org/0000-0001-8500-0883>; Email: [amandanegah.negah@gmail.com](mailto:amandanegah.negah@gmail.com) ORCID iD: <https://orcid.org/0000-0003-0383-7888>; Email: [luagomesaraujo@gmail.com](mailto:luagomesaraujo@gmail.com) ORCID iD: <https://orcid.org/0000-0001-8682-1018>; Email: [thereza\\_barboza10@hotmail.com](mailto:thereza_barboza10@hotmail.com) ORCID iD: <https://orcid.org/0000-0002-6883-2028>; Email: [wanessanaturalima@gmail.com](mailto:wanessanaturalima@gmail.com) ORCID iD: <https://orcid.org/0000-0002-9778-3659>; Email: [yasmimsimao46@gmail.com](mailto:yasmimsimao46@gmail.com) ORCID iD: <https://orcid.org/0000-0002-5626-3438>;

<sup>2</sup>Masters student, University of Pernambuco/UPE. Caruaru (PE), Brazil. E-mail: [diegooliveira@asc.es.edu.br](mailto:diegooliveira@asc.es.edu.br) ORCID iD: <https://orcid.org/0000-0003-1754-7275>; <sup>4</sup>Master, Federal University of Pernambuco / UPE. Caruaru (PE). Email: [lidianebarbosa@asc.es.edu.br](mailto:lidianebarbosa@asc.es.edu.br) ORCID iD: <https://orcid.org/0000-0002-9278-9234>

INTRODUCTION

Through the changes in the world political context, the diffusion of new technologies and the socialization of the media has been contributed, so that the population becomes more and more aware of their rights and, therefore, more demanding in relation to quality of the services placed at their disposal, making quality a criterion that is increasingly present in hospitals, through a commitment to meeting customer needs, seeking to increase the level of user satisfaction, by offering an effective assistance and safe, with the technical quality of care processes under appropriate structural and ethical conditions.<sup>1</sup>

It is known that, within this context, the Nursing services face challenges in order to meet the clients' demands, in order to achieve the excellence of care quality in the hospital context.<sup>1</sup>

The Federal Nursing Council (COFEN) has decreed guidelines that represent minimum technical standards, through COFEN Resolution Num. 189/1996, repealing COFEN Resolution Num. 293/2004 on topics related to the increase number of hours of nursing care per level of complexity and per bed, establishing that it is the responsibility of the nurse to quantify and qualitative definition of the pannel of Nursing professionals needed to meet the need for care.<sup>2</sup>

It is detailed in COFEN Resolution No. 543/2017, on the other hand, specifies that the size of the nursing profession is determined by the context of the unit and by the identification of the workload, where, for the identification of the variables, it is necessary to in order to measure the time used for the provision of skilled nursing care.<sup>3-4</sup>

The Patient Classification System (PCS), or Risk Classifications, was used to carry out this measurement in order to increase the knowledge about the clientele served and the real needs, as well as the development of skills and competences of the reducing the difficulties and managing them in a more secure, innovative, autonomous and participative way, allowing, also, a lower incidence of health problems for the workers due to the reduction of the work overload and a fast and effective quality care.

The following question was defined, taking into account the need for the dimensioning of staffing in Nursing and their probable contributions: "What is the influence the dimensioning of staffing on the quality of Nursing care?".

OBJECTIVE

♦ To analyze the influence of Nursing staff dimensioning on the quality of patient care.

METHOD

It is a bibliographical study, of integrative review type.<sup>5</sup>

The following steps were adopted: 1. Identification of the theme and selection of the research question; 2. Establishment of criteria for inclusion and exclusion of studies in the literature; 3. Definition of the information to be extracted from the selected studies; 4. Evaluation of included studies; 5. Interpretation of results and 6. Presentation of the revision/synthesis of knowledge.<sup>6</sup>

Thus, the development of the study was guided by the following guiding question: "What is the influence of staffing on the quality of nursing care?".

Latin American Literature in Health Sciences (LILACS), Nursing Database (BDENF) and International Literature in Health Sciences (MEDLINE) databases were used, using the advanced search method categorized by title, abstract and subject. The data were collected in April and May of 2018, considering the publications of the last ten years (2007-2017), and the following DeCS (Health Sciences Descriptors) were used: Nursing Care; Personal Dimensioning and Quality of Health Care, from the association of the Boolean operator "AND" in the referred data bases.

The following eligibility criteria were considered: original studies, in the English and Portuguese languages, that met the research objective. Theses, dissertations and background materials for professional programs in Nursing were excluded.

Data was analyzed considering the following steps: 1 - reading the title of the publications; 2 - summary reading; 3 - reading the full text. For each stage, the studies that did not show consistency with the objective of the review, as well as those that were not in accordance with the established criteria for the sample selection were disregarded. After discussing the text, the discussion of the review product was organized into categories of analysis based on the articulation of the themes discussed in the publications and their contributions to the practice of staffing in Nursing. The peer review process was used in the study, critically evaluating the research manuscripts. The publications were analyzed by a third person, when the disagreement

between the researchers was evidenced, that decided on the inclusion or not of the study.<sup>7</sup>

The studies were classified considering the hierarchy of evidence for intervention studies in: Level I - systematic review or meta-analysis; Level II - controlled and randomized studies; Level III - controlled studies without randomization; Level IV - case-control or cohort studies; Level V - systematic review of qualitative or descriptive studies; Level VI - qualitative or descriptive studies and Level VII - opinions or consensus.<sup>8</sup>

A critical analysis product and interpretation of the reading for the study was gathered after the critical reading of the articles. The last stage was the presentation of the researches, through the discussion of the relevant results in the literature, enabling the accomplishment of the critical analysis of the studies and the inclusion of important themes related to the research.

It is understood, through the interpreted results, according to the Content Analysis: the steps of pre-analysis, floating reading and organization of the selected material as corpus; coding the data in registration and context units with the most significant terms; the categorization of the results into classes by differentiation and regrouping of common elements and, finally, the inference by the identification of information from the categories found.<sup>17</sup>

RESULTS

In the initial search of the selection process of the scientific articles, 103 publications were identified. In this integrative review, 11 articles were selected, based on the analysis of the title, the researched topic and the eligibility criteria, all published in the BIREME database and, in the complete reading of the contents, three studies remained, where each article answered inclusion criteria. It should be noted that, among the three articles included in the integrative review, all of them were authored by nurses, developed in an ICU, a private hospital and an emergency room in a university hospital. The selected studies were published in Portuguese and English, according to the research topic, from 2007 to 2017, in national nursing journals. It is reported that the descriptors most used by the authors of the articles were Nursing care, personnel dimensioning, quality of health care, being the field of research, of these studies, the dimensioning of Nursing staff. It was identified, when analyzing the most frequent research designs in the sample studied, that two articles are of qualitative methodological approach and one of quantitative approach. The selection process and the general outline of the evaluated articles are illustrated in Figures 1 and 2, presenting the thematic approach of the articles included for this study, respectively.

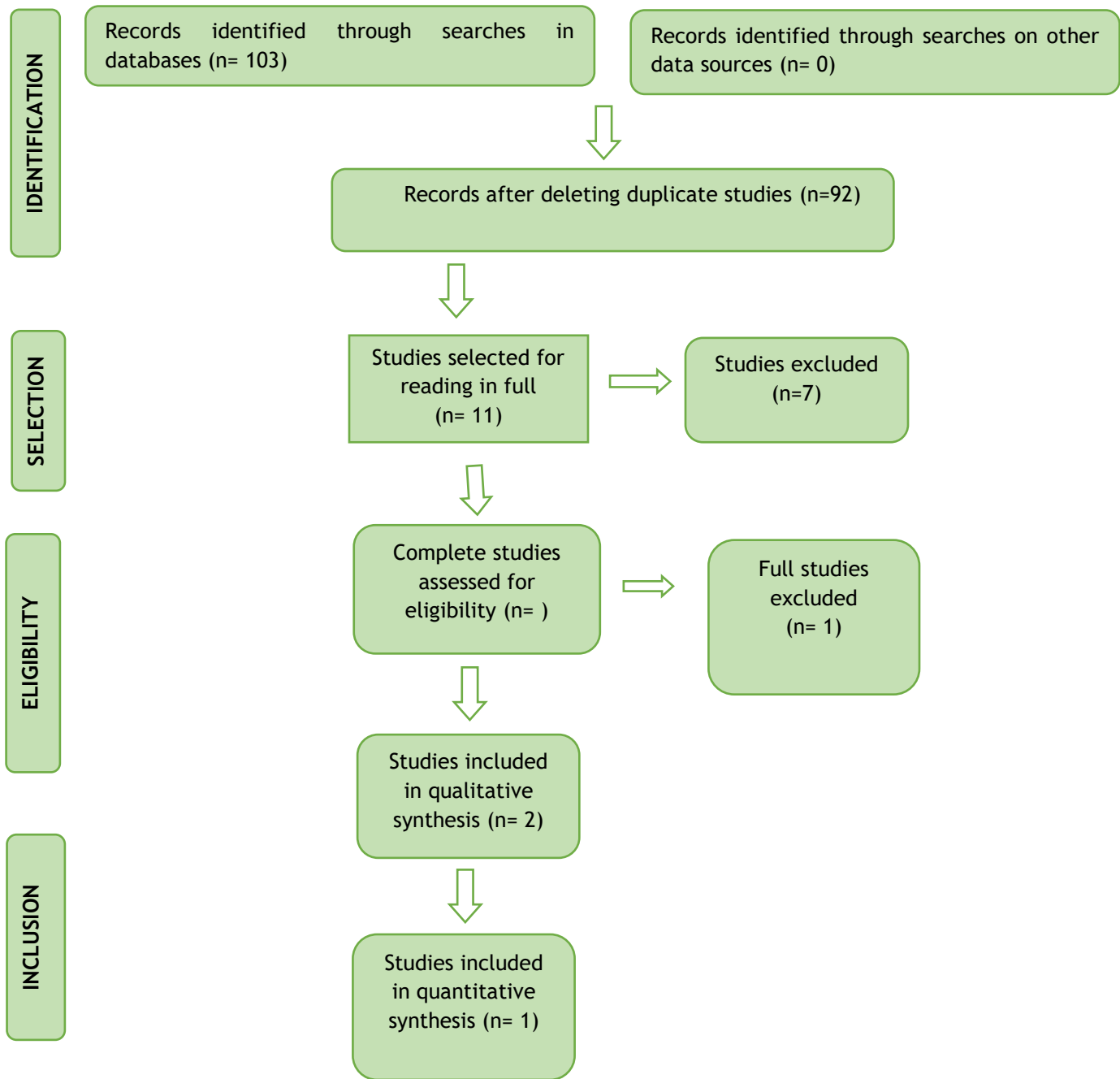


Figure 1. Flowchart of study selection. Bonito (PE), Brazil, 2018.

Evidencia-se, na figura 2, o panorama geral dos artigos avaliados representados por

autores, título da publicação, objetivo, ano e nome do periódico.

ID	Authors	Title	Objective	Year	Journal	
01	Casarolli, Eberhardt; Nicola; Fernandes <sup>4</sup>	Complexity level of care and nursing in an emergency unit of a public hospital	To analyze the level of care complexity and the dimensioning of Nursing professionals in the emergency room of a public hospital.	2015	UFSM Nursing J	
02	Silva, Gabriel, Bernardes, Évora <sup>1</sup>	The importance of using quality indicators in nursing care	To identify the opinion of the nurses of an accredited private hospital about the indicators that evaluate the quality of Nursing care.	2009	Gaúcha Journal	Nursing
03	Inoue, Matsuda <sup>11</sup>	Dimensioning of the nursing team of the ICU - adult of a teaching hospital	Verify that the amount of nursing staff in the ICU-A of a teaching hospital meets the minimum criteria established by COFEN Resolution No. 293/2004.	2009	Electronic Journal	Nursing

Figure 2. Representation of selected assets. Bonito (PE), Brazil, 2018



The thematic approach and level of evidence of the articles included in this study

are presented in figure 3.

ID	Title	Search Mode	Level of Evidence	Summary of Results
01	Level of Care Complexity and Nursing Dimensioning in the Emergency Room of a Public Hospital <sup>4</sup>	Descriptive, quantitative approach	VI	The existing staff obtained a daily average of 2.8 nurses and 15.1 Nursing technicians. In order to cover planned and unplanned absences, 8.6 nurses and 16.5 nursing technicians and auxiliaries were required to meet the unit's demand in the 24 hours, 2.9 nurses and 5.5 Nursing technicians per shift of job.
02	Nurses' opinion on indicators that evaluate the quality of Nursing care <sup>1</sup>	Descriptive, quantitative approach	VI	The distribution of Nursing technician X beds were verified and it was observed that 100% of the nurses interviewed defined the personnel dimension as an indicator of quality in Nursing care. And in relation to the indicator Nurse X bed, the percentage of 94.4%.
03	Dimensioning of the Nursing Team of the adult ICU of a Teaching Hospital <sup>11</sup>	Descriptive, quantitative approach	VI	here was a need for better conditions in the quality of Nursing care, requiring a higher qualification of the Nursing care or replacement by the Nursing technician, as well as an aspect that is related to the number of nurses whose proportion is only 35, 71% in relation to the total number of Nursing workers, a percentage that falls far short of the recommendation of COFEN Resolution No. 293/2004, which establishes a percentage of 52% to 56%. With regard to the work shifts, it is necessary to resize the teams of each shift.

Figure 3. Synthesis of the studies on staff sizing and their interference in quality of care. Bonito (PE), Brazil, 2018.

DISCUSSION

♦ The operationalization of personnel sizing in Nursing

It is considered, from the analysis of selected articles, that, among the tools of management of the Nursing services, the personnel dimension emerges, which is understood as the method of forecasting the human resources of Nursing to meet the demand needs of care of a particular clientele.<sup>3</sup> In the study on the dimensioning of Nursing in the emergency room, it is approached that the reduced number of Nursing professionals to provide quality care to high demand directly implies health care and, when resources are limited, hardly all needs are met and this creates risks for patient safety as well as for occupational health. They become the prediction and provision of important resources for the development of legally prescribed activities that characterize the profession. Thus, the quantitative adequacy of Nursing professionals in promoting and / or maintaining safety and better quality of care.<sup>9</sup>

It is necessary to analyze the dimensioning of Nursing staff as a whole, including all its categories, and to this end, methodologies and criteria should be used that allow the adequacy of human resources in adequate quantitative and qualitative terms.<sup>1</sup> In this perspective, capable of meeting the patient's

care needs, that the nursing sizing based on the COFEN resolution n ° 293/2004, revoked for resolution COFEN 543/2017, which establishes parameters for dimensioning the patient, should be estimated under this approach. quantitative evaluation of professionals from the different categories of Nursing for the services / places where Nursing activities are performed, constituting references to guide the managers, managers and nurses of the health services in the planning of the quantity of professionals required for the execution of the actions of nursing.<sup>10-3</sup>

The adoption of the Patient Classification System (PCS), the knowledge about the clientele served, their real needs, and the development of skills and competencies of the professionals to assure the assistance and the management in a more secure way, innovative, autonomous and participatory.<sup>11</sup> Therefore, it is based on the mathematical determination that appropriates variables inherent to the organization, to the Nursing service, and, mainly, to the characteristics of the clientele according to the degree of dependency of Nursing care, which defines the workload of the care team, being the main variable to be considered in staff.<sup>12</sup>

It is revealed that another important aspect in the process of the operationalization of personnel sizing is the awareness of managers regarding the investment in the strengthening of the workforce, especially

since it is a process that costs costs to the institutions. It is allowed, due to the quality perceived by the users of the services, from the provision of an integral, safe and humanized care, greater reliability in the care actions developed by Nursing, as well as strengthening the institutional image related to caring for people.

#### ♦ The implications of scaling in Intensive Care Units (ICUs)

It should be noted that in highly complex sectors, such as the ICU, the size of nursing staff, in addition to meeting the demand for care required by patients, contributes to the maintenance of favorable working conditions and, consequently, the health of workers of Nursing, who deal daily with stressful situations, such as suffering and death.<sup>13</sup>

In a study carried out in the Intensive Care Unit (ICU), it was observed that the PCS used has limited use for this sector, since it does not include many activities and procedures, nor the care required by the patients, and there is a need to expand the number of nurses in relation to the total number of Nursing workers and enabling the development of critical patient care by higher qualified personnel. Therefore, it is relevant to make feasible solutions and mechanisms for the management of human resources in Nursing that respond to the difficulties of the sector, promoting patient safety, quality of care and, consequently, optimization of the application of health resources.<sup>14</sup> It should be considered, however, that in ICU patients are usually debilitated, dependent on more intensive care than in other care sectors, and, for this reason, the nursing staff should be estimated through the use of more complete and easy-to-apply instruments that consider the various activities developed specifically in this sector and help in the real quantification of the nursing workload and in determining the number of workers to compose the team.<sup>13</sup>

It should be considered that the implementation of Nursing care in critical situations requires, from the professionals, greater effort in the application of scientifically accepted, safe and focused measures to the real needs of the patient. It is required, when implementing assistance based on quality assumptions, greater dedication, vigilance, reasoning, training and qualification to achieve real goals in strengthening the therapeutic chain during hospitalization.

#### ♦ Proper sizing as a reflex for quality assurance

It is directly reflected by the inadequacy of the Nursing staff's dimensioning of the quality of care provided to the patient / client, which may cause undesired events, such as the decrease in the quality of nursing care, the increase in the number of adverse events related to patients, an increase in length of hospital stay, an increase in undesirable expenses, a decrease in patient turnover and, in addition, an increase in absenteeism, occupational diseases and occupational diseases.<sup>15</sup> It is stimulated, therefore, by the calculations of nursing professionals dimensioning, the practice of care to the user centered and in a resolute way.

Methodologies and criteria should be used in the design of Nursing staff that allow the adaptation of human resources to the real needs of care, so that the patient receives a quality care that provides safety.<sup>16</sup> In the study on the dimensioning of nursing professionals in the emergency room, when applying PCS, it was verified that the classification of patients allows to support the planning of Nursing actions, proving necessary to subsidize the dimensioning of human resources and contributing to provide patient care with higher quality and safety.

It is also added, in this way, the study that deals with the opinion of nurses on the quality of Nursing care, which proposes to size the number of workers required, based on the indicators related to Nursing specific care processes, in order to identify and to characterize the clientele, seeking to improve the quality of care according to the needs of the individual.

It helps to promote the reflection of the work process by the professionals of the team, in the best adaptation of the means in which Nursing care takes place. By the vision of those who experience the process, important changes are promoted by using the patient's negative experience as an opportunity for continuous improvement of services. It is ensured, by the provision of a staff size, that essential points of the assistance are contemplated and that the gaps, previously configured as obstacles to qualified care, are overcome and the quality component is privileged in Nursing care.

### CONCLUSION

It is concluded, through the above, through this review study, that nurses take ownership of the existing and necessary tools to carry out the dimensioning of personnel, in health institutions, to ensure a quality and safe care. It is determined, with propriety, the human resources are appropriately determined to

support the planning of nursing actions and are necessary to subsidize patient care, thus contributing to integral and holistic care with higher quality and safety.

It is believed that the results of this study allow health professionals, assistants and managers to recognize the need to plan strategies to identify the profile of patients and the need for professionals to assist them.

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#### Corresponding Address

Laís Carolina da Silva  
Avenida Joaquim Nabuco, 263  
Bairro Centro  
CEP: 55680-000 – Bonito (PE), Brazil