ABSTRACT

Objective: to review scientific evidence on nursing care in nasogastric and nasoenteric screening in adult patients. Method: this is a bibliographic, descriptive, integrative review-type study that used, in articles published in LILACS, MEDLINE, BDENF and SciELO Virtual Library, in Google Academic, in Portuguese and English, from 2014 to 2020, with full texts available, which may be observational or experimental research. The search strategies "Nursing AND Enteral Nutrition AND Adult Health" and "Nursing Care AND Eating Tube" were used. At the end, 18 studies were selected and the Content Analysis technique was performed. Results: three theoretical categories were formed: Deficit in the Nursing team's knowledge about the use of the nasogastric/nasoenteric probe; Administration of drugs through nasogastric/nasoenteric probing; Need of the Nursing process in the care of the patient with nasogastric/nasoenteric probe and Safer method in the insertion of nasogastric/nasoenteric probe. Conclusion: the permanent training of nursing professionals to base their practices on scientific evidence and promote a quality, humanized and integral assistance becomes indispensable.

Descriptors: Nursing; Enteral nutrition; Patients; Gastrointestinal Intubation; Nursing Care; Feeding Tube.

RESUMO

Objetivo: revisar as evidências científicas sobre a assistência de Enfermagem na sondagem nasogástrica e nasoentérica em pacientes adultos. Método: trata-se de um estudo bibliográfico, descritivo, tipo revisão integrativa que utilizou, em artigos publicados nas bases de dados LILACS, MEDLINE, BDENF e na Biblioteca Virtual SciELO, no Google Acadêmico, em português e inglês, no período de 2014 a 2020, com textos completos disponíveis na íntegra, podendo ser pesquisas observacionais ou experimentais. Utilizaram-se as estratégias de busca “Enfermagem AND Nutrição enteral AND Saúde do adulto” e “Cuidados de Enfermagem AND Tubo de Alimentação”. Seleccionaram-se, ao final, 18 estudos e realizou-se a técnica de Análise de Conteúdo. Resultados: formaram-se três categorias teóricas: Déficit no conhecimento da equipe de Enfermagem sobre a
utilização da sonda nasogástrica/nasoentérica; Administração de medicamentos por meio da sondagem nasogástrica/nasoentérica; Necessidade do processo de Enfermagem no cuidado ao paciente com sonda nasogástrica/nasoentérica e Método mais seguro na inserção de sondagem nasogástrica/nasoentérica. **Conclusão:** torna-se indispensável a capacitação permanente dos profissionais de Enfermagem para fundamentar suas práticas em evidências científicas e promover uma assistência de qualidade, humanizada e integral.

**Descritores:** Enfermagem; Nutrição Enteral; Pacientes; Intubação Gastrointestinal; Cuidados de Enfermagem; Tubo de Alimentação.

**RESUMEN**

**Objetivo:** revisar la evidencia científica sobre el cuidado de Enfermería en la sonda nasogástrica y nasoentérica en pacientes adultos. **Método:** se trata de un estudio bibliográfico, descriptivo, tipo revisión integradora que utilizó, en artículos publicados en las bases de datos LILACS, MEDLINE, BDENF y en la Biblioteca Virtual SciELO, en Google Académico, en portugués e inglés, en el período de 2014 a 2020, con textos completos disponibles en su totalidad, que pueden ser investigaciones observacionales o experimentales. Se utilizaron las estrategias de búsqueda “Nursing AND enteral Nutrition AND adult health” y “Nursing care AND feed tube”. Al final, se seleccionaron 18 estudios y se realizó la técnica de Análisis de Contenido. **Resultados:** se conformaron tres categorías teóricas: Déficit en el conocimiento del equipo de Enfermería sobre el uso de la sonda nasogástrica / nasoentérica; Administración de medicamentos mediante sonda nasogástrica / nasoentérica; Necesidad del proceso de Enfermería en el cuidado del paciente con sonda nasogástrica / nasoentérica y Método más seguro para la inserción de una sonda nasogástrica / nasoentérica. **Conclusión:** la formación permanente de los profesionales de Enfermería es fundamental para basar sus prácticas en la evidencia científica y promover una atención de calidad, humanizada e integral.

**Descriptores:** Enfermería; Nutrición Enteral; Pacientes; Intubación Gastrointestinal; Atención de Enfermería; Sonda de Alimentación.

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It is known that gastrointestinal intubation is a very old practice and used for diagnostic or therapeutic purposes. It is noted that, among the therapeutic indications, Enteral Nutrition (EN) stands out, which consists in the treatment of individuals who cannot feed themselves totally or partially through the mouth, being the first choice to provide nutrition to these patients. In this case, gastrointestinal intubation is performed through the nasal or oral route, being the first the most used and defined as the insertion of a tube that goes from the nostril to the stomach (nasogastric tube) or to the intestine (nasoenteral tube) and, through this tube, the food or medication is administered.¹

It is added, depending on this, that the probes, besides having great importance in nutrition in patients with compromised digestive function, are widely used to perform other procedures, such as gastric lavage in cases of poisoning, allergies to some food, medication administration, as well as to collect materials for exams, besides being commonly used in patients who need intensive therapy, among others.²

It turns out that, as it is an old procedure, little by little, it has been improved and improved, as much as the technique used as the probe materials. It is detailed that the first tubes created were in the 17th century and their material was composed of silver; some time later, the eel leather probes, created by Hunter, appeared, and in 1921, the rubber probes appeared; in 1950, finally, the polyurethane plastic catheters appeared, being these used until today.¹

Despite the scientific evidence published on the procedure regarding its technique, indications, contraindications, complications and specific care, it is warned that several cases of probe insertion occur in an inappropriate manner, causing some complications to patients, such as migration of the probe towards the lung, leading the individual to develop aspiration pneumonia; perforation of the esophagus; bronchopulmonary complications; the probe can go towards the brain and perforate it, among other problems. However, the technique is still considered the safest to nourish the patient, provided that the recommendations of the published literature are followed.³

It should be noted that, in addition to the complications mentioned above, there are other problems related to the size of the probe and its caliber. It is described that, although smaller calibers are more comfortable for patients, they are also easier to be obstructed, mainly by medication and solid and very viscous food, which becomes unfeasible, making the patient go through another procedure to insert a larger caliber probe.⁴

In addition to the above, we also discuss the various benefits offered by enteral nutrition therapy, including a reduction in length of stay, as well as a decrease in clinical complications and an improvement in the immune response of patients. It is necessary, however, for these benefits to
subsist within the care of the patient who needs EN, that the professionals, highlighting the nurses, have dexterity and knowledge regarding the correct technique of feeding tube insertion, recognizing the advantages and disadvantages of the same.\(^5\)

It is believed that, in this tuning fork, nurses play an important role when it comes to the introduction of the nasogastric or nasoenteric probe, since they are the most qualified for such procedure. However, it is necessary that every health professional able to perform the introduction of the probe does it through a safe and correct practice, based on scientific evidence, so that there are no major complications to the patients, thus promoting a qualified assistance.\(^6\)

It is informed that there are three main types of internal measurement for nasogastric probe: the NEX, a model that measures from the nose (N), going to the earlobe (LO) and then to the xiphoid appendix (X); the EXU model, which measures directly from the ear lobe, going towards the xiphoid process and then adding up to a midpoint of the umbilical scar (U) and the NEX+XU model, which measures from the nose to the ear lobe, from the ear lobe to the xiphoid process, going up to the midpoint of the umbilical scar.\(^2\)

It is observed that, although the NEX method is the most widespread in assistance practices and the most taught in Nursing books and guidelines, the NEX mode is not the safest, being the NEX+XU method more effective than NEX.\(^2,7-9\) There are, however, still discrepancies in the published literature about the best method for nasogastric probe measurement. It was concluded in a randomized clinical trial conducted in Brazil, that the EXU method is the one that promotes more safety for patients among the three mentioned.\(^2\)

It is explained, in view of this discussion, in view of its relevance for academic and scientific purposes, that this study resulted from the following guiding questions: "How is nursing assistance provided to adult patients with nasogastric or nasoenteric probing? What is the safest method to perform nasogastric and nasoenteric probe insertion?".

It is essential, therefore, the search for scientific evidence for the performance of nasogastric and nasoenteric probing, in order to minimize the risks of adverse effects on the insertion and maintenance of the catheter, so that there is a qualified assistance and improvement in the performance of nursing in relation to the care needed by the patient who is in use of nasogastric / nasoenteric probing, in addition to contributing to the standardization of the procedure and thus encourage the technical alignment of the team and preserve the importance of the work of nursing.

**OBJECTIVE**

To review, in the published literature, the scientific evidence on nursing assistance in nasogastric and nasoenteric probing in adult patients, identifying the safest method for the probing procedure.
This is an integrative review of the literature, which followed the guidelines recommended by Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA).

It is pointed out that the integrative literature review is one of the many scientific methodologies that have the objective of synthesizing the results obtained in studies on the subject to be discussed, in a methodical, organized and broad way, and has this integrative denomination, because it offers more comprehensive knowledge about the problem or subject in question. In this sense, the researcher can develop an integrative review with innumerable purposes, which can be focused on the definition of theories, concepts and methodological analyses.10

The strategy adopted to develop the guiding question and the subject of the study by the acronym PICOS are known, where the letter P refers to the patient or population, the letter I indicates intervention or indicator, the letter C means comparison or control, the letter O comes from “outcome”, which means outcome, and the letter S refers to the design or type of study.11 Thus, the construction of this integrative review was guided by the following questions: “How is nursing care provided to adult patients with nasogastric or nasoenteric probing? What is the safest method to perform the technique of nasogastric and nasoenteric probing?”, being presented the acronym below.

<table>
<thead>
<tr>
<th>Description</th>
<th>Abreviation</th>
<th>Components of the question</th>
<th>Descriptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>P</td>
<td>Adult patients</td>
<td>Adult Health</td>
</tr>
<tr>
<td>Intervention</td>
<td>I</td>
<td>NEX method; nursing care to the patient with NGP/NEP</td>
<td>Enteral nutrition; Nursing; Nursing Care</td>
</tr>
<tr>
<td>Comparisson</td>
<td>C</td>
<td>EXU and NEX+XU method; failures in patient nursing care with NGP/NEP</td>
<td>Tubo de Alimentação</td>
</tr>
<tr>
<td>Outcome</td>
<td>O</td>
<td>Safe nasogastric/nasoenteric probing</td>
<td>Gastrointestinal Intubation</td>
</tr>
<tr>
<td>Type of study</td>
<td>S</td>
<td>Experimental and observational (quantitative and qualitative)</td>
<td>-</td>
</tr>
</tbody>
</table>

In the sample insertion criteria, the use of national and international journals through a free search engine, the Virtual Health Library (VHL), accessing the Medical Literature Analysis and Retrieval System Online (MEDLINE) databases, was considered, Latin American and Caribbean Literature in Health Sciences (LILACS), Nursing Database (BDENF), Scientific Electronic Library Online (SciELO), in addition to Google Academic, as a form of complementary consultation, with the aim of expanding research, since there are few studies on the subject. The bibliographic survey was conducted in May 2020 at the Federal University of Campina Grande/UFCG, at the Center for Education and Health/CEH, Cuité Campus.

The inclusion criteria used for the selection of studies in the composition of the integrative revision were: studies in Portuguese and English, produced in the period from 2014 to 2020, with full texts available, which were related to the theme, in the databases LILACS, MEDLINE, BDENF, SciELO, in addition to Google Academic, and could be observational and experimental researches,
with a quantitative or qualitative approach. Duplicate articles and productions that did not answer to the objective of the study were excluded.

The Health Sciences Descriptors (DeCS) allowed access to the registered terms that simplify and standardize the research in the databases. The descriptors "Nursing", "Nursing Care", "Enteral Nutrition", "Adult Health", "Gastrointestinal Intubation" and "Feeding tube" were found in the DeCS. The flowchart is shown in figure 2, schematizing the bibliographic survey performed to search and select the articles in the databases for the composition of the integrative review. As search strategy, "Nursing AND Enteral Nutrition AND Adult Health" and "Nursing Care AND Feeding Tube" were crossed. Thus, the total number of records was found during the research of 2,114 studies; after the exclusion of the duplicate articles, 1,898 productions remained; when applying the filters or inclusion criteria, 350 studies remained, from which the title and abstract were read. After this stage, the research that did not contemplate the objective of this review was excluded, leaving 27 articles for complete reading. At the end of the bibliographical survey, 18 articles were selected for the elaboration of the integrative revision.

Figure 2: Flowchart of the stages of search and selection of studies for the development of integrative revision. Cuité-PB, Brazil, 2020.
The data was collected using an instrument prepared by the authors of the research. This instrument was composed by two tables containing the description of the articles. Table 1 was formed by the number of the study, title of the study, origin (database); journal/Qualis; year of publication; authors’ area of work; country of origin; language. Table 2 was composed by the type of study; study approach; type of sample; data analysis technique; study objective and level of evidence.

The articles selected were analyzed by means of the Content Analysis technique, in the Thematic modality, which is understood as a set of techniques that emerged in the United States at the beginning of the 20th century. Two basic functions stand out today in the application of the technique: the first one refers to the verification of hypotheses and/or questions, because by means of content analysis it is possible to find answers to the elaborated questions and also confirm or not the considerations established before the research work, which are the hypotheses; the second function refers to the discovery of what is behind the contents, going through what, in fact, is being communicated. In this way, the two functions can be applied, in a practical way, from the principles of quantitative or qualitative research, and can also be complementary.12

Figure 3 presents the characterization of the studies selected for the composition of the integrative revision. It can be observed that most of the studies proceeded from the SciELO (38.8%) and MEDLINE (33.3%) database, 83.3% of the productions were developed by researchers in the area of Nursing, 55.6% were published in journals of Qualis A1 or A2, 66.7% were published in the period from 2015 to 2018 and in the Portuguese language.

<table>
<thead>
<tr>
<th>Study No.</th>
<th>Title</th>
<th>Research source</th>
<th>Journal/Qualis</th>
<th>Year</th>
<th>Authors’ Area of Action</th>
<th>Country</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Adverse events related to the use of enteral nutrition therapy</td>
<td>BDENF</td>
<td>Gaúcha Journal of Nursing /B1</td>
<td>2014</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E2</td>
<td>Pharmaceutical interventions in medicines prescribed for administration via burial probes in a university hospital</td>
<td>SciELO</td>
<td>Latin American Journal of Nursing/A1</td>
<td>2016</td>
<td>Pharmacy</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E3</td>
<td>Elaboration of a tool to know the preparation and administration of drugs via probe by the nursing team</td>
<td>LILACS</td>
<td>Online Research Journal Care is Fundamental /B2</td>
<td>2018</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E4</td>
<td>The effects of systematic educational interventions on nasogastric tube feeding on the knowledge and skills of caregivers and on the incidence of dietary complications</td>
<td>MEDLINE</td>
<td>Journal of Clinical Nursing/A1</td>
<td>2015</td>
<td>Nursing</td>
<td>Taiwan</td>
<td>English</td>
</tr>
<tr>
<td>E5</td>
<td>Investigating Critical Care Nurses’ Perceptions of Enteral Nutrition</td>
<td>MEDLINE</td>
<td>Nurse Education Today/A1</td>
<td>2015</td>
<td>Nursing</td>
<td>Jordan</td>
<td>English</td>
</tr>
<tr>
<td>E6</td>
<td>A necessary evil? Experience of patients receiving a feeding tube in critical care</td>
<td>MEDLINE</td>
<td>Nutrition Clinical Practice/B1</td>
<td>2017</td>
<td>Nutrition</td>
<td>Canada</td>
<td>English</td>
</tr>
<tr>
<td>E7</td>
<td>Adherence to standard nursing protocols in gastric tube feeding at a reference hospital in Ghana: comparing the self-assessments of nursing professionals and auxiliaries</td>
<td>MEDLINE</td>
<td>BMC Health Services Research/A1</td>
<td>2019</td>
<td>Collective Health</td>
<td>Ghana</td>
<td>English</td>
</tr>
<tr>
<td>E8</td>
<td>Oral medications from a hospital unit: suitability for use by enteral catheters</td>
<td>SciELO</td>
<td>Brazilian Journal of Nursing/ A2</td>
<td>2016</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E9</td>
<td>Bundle of nursing interventions in enteral nutrition in intensive care: a collective construction</td>
<td>SciELO</td>
<td>USP Nursing School Journal / A2</td>
<td>2014</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E10</td>
<td>Profile of the drugs used via oral and gastroenteral tube in a prompt service</td>
<td>SciELO</td>
<td>USP Nursing School Journal / A2</td>
<td>2018</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E11</td>
<td>Benchmarking residual gastric volume: portrait of the clinical practice of nurses</td>
<td>SciELO</td>
<td>USP Nursing School Journal / A2</td>
<td>2018</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E12</td>
<td>Nursing diagnosis risk of aspiration in critically ill patients</td>
<td>SciELO</td>
<td>Anna Nery School - Journal of Nursing / B1</td>
<td>2016</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E13</td>
<td>The difficulties and risks during the introduction and positioning of the nasoenteric probe in patients of the Jahu Fellowship of Mercy hospital</td>
<td>Google Scholar</td>
<td>-</td>
<td>2018</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E14</td>
<td>Enteral probing: agreement between auscultation test and x-ray in determining probe positioning</td>
<td>SciELO</td>
<td>Gaúcha Journal of Nursing / B1</td>
<td>2015</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E15</td>
<td>Validation of the predictive method for introduction of the nasogastric tube into adult feeding: randomized clinical trial</td>
<td>Google Scholar</td>
<td>-</td>
<td>2016</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E16</td>
<td>Nurses’ knowledge about nutrition therapy</td>
<td>Google Scholar</td>
<td>Contemporary Nursing Journal / B5</td>
<td>2020</td>
<td>Nursing</td>
<td>Brazil</td>
<td>Portuguese</td>
</tr>
<tr>
<td>E17</td>
<td>Adequacy of the different measurement methods in determining the length of the nasogastric probe insertion: an observational study</td>
<td>MEDLINE</td>
<td>International Journal of Nursing Studies/ A1</td>
<td>2019</td>
<td>Nursing</td>
<td>Singapore</td>
<td>English</td>
</tr>
<tr>
<td>E18</td>
<td>Confirming the placement of the nasogastric tube in adult patients</td>
<td>MEDLINE</td>
<td>Nursing Jenkintown/ A2</td>
<td>2020</td>
<td>Nursing</td>
<td>United States</td>
<td>English</td>
</tr>
</tbody>
</table>

Figure 3: Characterization of studies selected for review according to study number, study title, database, journal and qualis, year of publication, authors' field of work, country of origin and language. Cuité (PB), Brazil, 2020.
It is pointed out in figure 4 that there was a variation as to the types of studies, but most of them were descriptive, observational and cross-sectional studies, having also exploratory, comparative and experimental studies, as a randomized clinical trial. It is added that the most used research approach was the quantitative one (50%), there were also researches of qualitative nature or of mixed approach, besides the methodological approach; regarding the type of sample, 50% were systematic, 27.7% were simple, 5.5% were stratified type and 16.6%, for convenience, and most of the studies carried out descriptive analysis of the data.

<table>
<thead>
<tr>
<th>Study No.</th>
<th>Type of Study</th>
<th>Study Approach</th>
<th>Type of sample</th>
<th>Data analysis technique</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Exploratory, longitudinal and descriptive</td>
<td>Quantitative</td>
<td>Systematic</td>
<td>Descriptive</td>
<td>IV</td>
</tr>
<tr>
<td>E2</td>
<td>Observational, descriptive</td>
<td>Quantitative</td>
<td>Systematic</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E3</td>
<td>Observational, descriptive</td>
<td>Methodological</td>
<td>Systematic</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E4</td>
<td>Quasi-experimental with pre/post-test evaluations</td>
<td>Quantitative Qualitative</td>
<td>Systematic</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E5</td>
<td>Comparative, descriptive and cross-sectional</td>
<td>Quanti-Qualitative</td>
<td>Systematic</td>
<td>Descriptive, inferential</td>
<td>VI</td>
</tr>
<tr>
<td>E6</td>
<td>Exploratory, descriptive</td>
<td>Qualitative</td>
<td>Simple Random</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E7</td>
<td>Cross-sectional, descriptive</td>
<td>Quantitative</td>
<td>For convenience</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E8</td>
<td>Descriptive, exploratory</td>
<td>Qualitative</td>
<td>Systematic</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E9</td>
<td>Care Convergent</td>
<td>Qualitative</td>
<td>Estratificada</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E10</td>
<td>Cross-sectional</td>
<td>Quantitative</td>
<td>Simple Random</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E11</td>
<td>Cross-sectional</td>
<td>Quantitative Qualitative</td>
<td>Simple Random</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E12</td>
<td>Observational, cross-sectional</td>
<td>Quantitative</td>
<td>For convenience</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E13</td>
<td>Observational, analytical and cross-sectional</td>
<td>Quantitative</td>
<td>Systematic</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E14</td>
<td>Cross-sectional</td>
<td>Quantitative Qualitative</td>
<td>Simple Random</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E15</td>
<td>Preventive trial, randomized, controlled, parallel, double-blind, prospective, three-arm clinical trial</td>
<td>Quantitative</td>
<td>Simple Random</td>
<td>Descriptive</td>
<td>II</td>
</tr>
<tr>
<td>E16</td>
<td>Observational, descriptive</td>
<td>Quantitative</td>
<td>For convenience</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E17</td>
<td>Observational, descriptive</td>
<td>Quantitative</td>
<td>Systematic</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
<tr>
<td>E18</td>
<td>Observational, descriptive</td>
<td>Qualitative</td>
<td>Systematic</td>
<td>Descriptive</td>
<td>VI</td>
</tr>
</tbody>
</table>

Figure 4: Characterization of the studies selected for review according to the type of study, study approach, sample type, data analysis technique and level of evidence. Cuité (PB), Brazil, 2020.

As for the level of evidence of the studies, it is indicated that one of them was level II, two were level IV and the other 15 studies were level VI. The following levels were considered when verifying the quality and classification of the level of evidence of the studies: Level I for evidence originating from systematic review or meta-analysis of randomized controlled trials; Level II for evidence originating from at least one well-designed randomized controlled trial; Level III for evidence originating from well-designed clinical trials without randomization; Level IV for evidence from well-designed cohort or case-control studies; Level V for evidence from systematic review of descriptive or qualitative studies; Level VI for evidence from a single descriptive or qualitative study; Level VII for evidence from authority opinion and/or expert committee report.13

**DISCUSSION**

The selected studies were analyzed by means of the Content Analysis technique, in the Thematic modality, which originated the formation of three theoretical categories: Deficit in the Nursing
team's knowledge about the use of the nasogastric/nasoenteric probe: implications for care; Administration of drugs through nasogastric/nasoenteric probing; Need of the Nursing process in the care of the patient with nasogastric/nasoenteric probe; Safer method in the insertion of nasogastric/nasoenteric probe.

**Category 1 - Deficit in the Nursing Team's knowledge about the use of the nasogastric/nasoenteric probe: implications for care**

According to the results found in studies E1, E4, E5 and E7, there was a deficit in the team's knowledge of the practice of nasogastric probing, being remarkable the failure in nursing care both in the knowledge of the procedure and the risks of adverse reactions and in the most appropriate form for the administration of drugs.\(^3,14-6\)

The results showed the incidence of lesions in patients who make use of this therapy, related to the poor positioning of the probe or the traction exerted by the adhesive tapes placed on the skin, as well as the mechanical obstruction of these probes, which often happens due to lack of irrigation with water, which in turn must be performed before and after the offer of diet, medication administration or elbowing of the probe and others. It is therefore up to Nursing to carry out daily evaluations in order to minimize these adverse effects arising from the use of the probe.\(^3,14\)

It is also warned that in-hospital malnutrition is a concern and is caused when the diet is not satisfactory, which can lead to greater complications for the patient, as well as increasing their stay in hospital.\(^3\) In addition, there are patients who make use of undernourished NET and, because it is an adverse reaction, it deserves greater attention, since it may be related to inadequate management of gastric waste, as well as prolonged fasting, which implies lack of knowledge and/or negligence in the care of the patient in NET.\(^3,15\)

NE is thus the responsibility of a multiprofessional team, but for this it is necessary to have the knowledge about the subject, beyond the divisions of tasks in a clear way, so that each professional can carry out his work more effectively.\(^15\) Therefore, according to the research, the need for educational actions and updates aimed at strengthening and adding knowledge of health professionals becomes noticeable, since the nurses, who were submitted to a systematic intervention addressing NET, showed greater commitment and better quality of care in relation to others, who did not participate.\(^14,16\)

Depending on this, it is important to point out that the shortage of professionals in the Nursing area affects the dynamics of assistance, besides favoring the adverse effects of NET, since, in most cases, the demand is higher than the quantity of professionals, therefore, the need to expose and review the protocols and guidelines of this type of nutrition, as well as review the practices and functions applicable to each professional of Nursing.\(^16\)
Category 2 - Administration of drugs through nasogastric/nasoentheric survey

It was pointed out by the results of studies E2, E3, E8 and E10 that the preparation and administration of drugs are competencies of the Nursing team; however, this category is not solely responsible for the well-being of the patient. Therefore, a multi-professional interaction is necessary in order to reduce the incidence of errors and seek comfort and progress in care. It is fundamental that the team has the knowledge about the interactions between the drugs and the nutrients, the ways of dilution and transformation of these drugs, as well as the pharmacokinetic properties, besides using the appropriate administration technique. It is understood that these measures are extremely important to avoid new procedures involving radiological materials, costs for the care unit, besides a greater inconvenience to the patient.4,17-9

However, it was pointed out by the studies that the lack of knowledge about the preparation and administration of drugs generates serious consequences to the care, such as the act of not washing the tube after the administration of drugs, as well as crushing the drug inappropriately, incurring in the obstruction of the catheter.18

The crushing of medicines is still frequently found in hospitals and, although the liquid form is the most indicated, many of these services still do not have a great variety of medicines, and it is necessary to use the solid form, which can generate obstruction of the catheter. It is also important to emphasize that, as much as the liquid form is available in hospitals, the solid form is still commonly prescribed, which, in turn, requires maceration for the administration of these drugs, which can generate alterations in pharmacokinetics and pharmacodynamics when done indiscriminately, not preserving the stability of the drug and its safety.17

In order to better assist the patients, some care is needed when preparing and administering the drugs, such as: evaluating if the catheter is properly positioned; washing the probe before and after the administration of diet and drugs; administering each drug separately to avoid their interaction; performing the correct dilution for each type of drug, checking the specificity of each drug. It is therefore necessary to update these protocols with the team, in order to reduce errors and favor assistance, avoiding adverse effects to patients who are already in conditions that need care.17-9

Category 3 - Nursing process need in the care of the patient with nasogastric/nasoentheric probe

The results of studies E6, E9, E11 and E12 show that nursing professionals have a very important role within the multiprofessional team, in the care of people using NET, operating in the identification, support, administration of diet and medication, recovery, as well as monitoring of clinical evolution.6,20-2 In this way, the Nursing Process (NP) is of great value for the elaboration of
diagnoses and for the identification of risk factors present in nasogastric probing, thus promoting
the optimization of the Nursing work and the reduction of risks. It is known that NP is private to the
nurse and is indispensable to ensure qualified, humanized and integral assistance, and corresponds
to five stages: data collection; nursing diagnostics; action planning; implementation and evaluation
of results.

Thus, the following nursing interventions are proposed in the literature: adequate fixation of
the probe; pHmetry for validation of the probe at the bedside; enteric positioning of the probe;
maintenance of the headboard elevated to 30º- 45º; maintenance of the pathway; administration of
diets and interventions in the face of some intercurrence, because these practices will not bring
more responsibilities for Nursing, however, they will provide better quality in the assistance
provided and, consequently, improvement in the care of the patient in an integral way, favoring its
prognosis.

It is also noted that professionals have demonstrated knowledge on the subject, however, most
data point to a deficit in practices subsidized by science, especially in the measurement of gastric
volume, which needs more attention when it exceeds the value of 200 ml in adults, in addition to
the lack of consensus on the standardization of the technique employed and theoretical
reference.

Finally, some articles approached the importance of a humanized view of patients, as well as the
indispensability of analyzing the context in which they are inserted, understanding that it is an
individualized experience and, thus, seek to alleviate the suffering caused by the use of the tube
for feeding and promote the necessary comfort so that the passage through this experience is not
traumatizing.

Category 4 - Safer method in the insertion of nasogastric/nasoenteric probing

It is observed, in view of the results obtained in E13, E14, E15, E16, E17 and E18, that there are
few studies related to the safest and most effective way of catheter insertion, which is often done
blindly, that is, the professional is not sure which path the probe is following. Thus, it is
demonstrated by the fact that the deviation of the probe path is not something uncommon and in
an attempt to minimize the risks of inadequate positioning, that the responsible team uses
measures to verify where the probe is really located, such as the auscultation test and pH analysis,
the first test being discouraged due to the lack of accuracy of the noises identified. It is proposed
that, for confirmation at the bedside, the pH analysis be adopted, being this viable when it is
< 5.5, indicating that the probe is in the stomach, however, it is not yet an accuracy test, since the
results can be altered in the presence of alkalosis or metabolic acidosis, as well as due to the use
of antacids. It is noted that, however, at the insertion of the NEP, such measures are not
accurate due to anatomical diversities, being necessary the referral of the patient to be X-rayed, since it is still the standard method that will validate the path that the catheter has taken.\textsuperscript{8,23}

Before the introduction of the probe, anesthetic in gel form should be used, however, this is only performed, in many cases, during the procedure and not previously, that is, the body does not have the necessary time to absorb the medicine, causing discomfort in the procedure. Other measures are proposed, such as the inhalation of lidocaine by nebulization or spray, which causes pain reduction in the procedure.\textsuperscript{25}

It was indicated, in this perspective, by E17, that although the wolf method from the ear to the tip of the nose until the xiphoid process is the most commonly taught and diffused, it is not based on evidence and may generate the inadequate positioning of the probe. It was concluded from the results evidenced by this study that the insertion method, which provides more accuracy in the positioning of the nasogastric probe, is from the earlobe to the tip of the nose to the xiphoid process, plus 10 cm more in the measurement.\textsuperscript{8} It was evident from the results of the E15 randomized clinical trial that the NEX mode is not the safest, with the NEX+XU xiphoid-lobe method being more effective than NEX, and the Xiphoid-lobe method being more effective than the Xiphoid-ear-lobe process (EXU), which promotes more safety for patients among the three mentioned above.\textsuperscript{2} For the duodenal positioning of the nasoenteric probe, the measurement must be made NEX, with an addition of 20 cm in the measure.\textsuperscript{25}

It is also noted that E16, in addition to confirming that the EXU technique is more satisfactory, due to the lower suction rate, when compared to the other techniques, also emphasized the need to measure the residual gastric volume according to the patient's clinical data, but the volume and appearance should not be overlooked, as it may cause hydro-electrolytic imbalance and/or nutritional changes.\textsuperscript{9} Therefore, it is essential to place the probe properly, due to the serious complications that can happen if the tube is inserted incorrectly, which can cause gastric perforation, gastritis, pneumothorax, pulmonary abscess, gastric ulcer, esophageal reflux, among other complications.\textsuperscript{24}

It was determined, in short, according to E13, E15, E16 and E17, that the NEX method is the least indicated and the least safe for the insertion of the nasogastric tube in the adult patient and the EXU mode brings fewer complications to the patient, because it will reduce the risks of adverse reactions, such as aspiration. It should be emphasized that both in the probing procedure and in its maintenance, a qualified and humanized Nursing assistance should be guaranteed, which aims at the patient's well-being, even in the midst of invasive procedures, being of extreme importance the confirmation of the probe positioning so that there is the desired therapeutic effect.\textsuperscript{2,8-9,25}
In the analysis of the studies of this integrative review, the lack of preparation of nursing professionals in relation to insertion of the probe, administration of drugs by nasogastric or nasoenteric probe, as well as the identification of risk factors and adverse effects arising from the use of the catheter were evidenced. Therefore, the training of these professionals is indispensable, seeking to improve their techniques and base them on science, so that the failures are reduced. It is also believed that it is important to spread the perspective that, in order to achieve success in therapy, it is fundamental the articulation among the other professionals, aiming to supply the needs of the patient in its entirety.

It becomes, in this context, the role of nursing undoubtedly, since it is responsible for the insertion of the catheter, for maintaining the patent route, besides the administration of the diet and the prescribed drugs. Therefore, it is necessary to systematize the Nursing care provided, through the use of the Nursing Process, in which it will be possible to collect the data, establish the risk factors and, thus, build Nursing diagnoses, as well as to elaborate the necessary interventions to obtain the expected results, thus promoting a qualified and integral assistance.

It is concluded, therefore, that the objectives of this study were achieved and it is expected to be of great contribution to the field of health and nursing, especially for professionals involved in clinical practice.

As a limitation of this study, the scarcity of published articles with a high level of evidence on the subject is highlighted, and it is necessary to expand studies in this area, with the development of more experimental research and randomized clinical trials, in order to transmit more knowledge about the adequate probing techniques, since it is a subject still little discussed when crossed with the practice of evidence-based nursing.

**CONTRIBUTIONS**

It is informed that all authors contributed equally in the conception of the research project, collection, analysis and discussion of the data, as well as in the writing and critical review of the content with intellectual contribution and in the approval of the final version of the study.

**CONFLICT OF INTERESTS**

Nothing to declare.

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