Servir, 2(5), e29981
DOI:10.48492/servir025.29981

PROCESSO DE ENFERMAGEM CENTRADO NO FOCO DE ENFERMAGEM "LIMPEZA DAS VIAS AÉREAS": PROTOCOLO DE SCOPING REVIEW

NURSING PROCESS RELATED TO NURSING FOCUS "AIRWAY CLEARANCE": A SCOPING REVIEW PROTOCOL

PROCESO DE ENFERMERÍA CENTRADO EN EL FOCO DE ENFERMERÍA "LIMPIEZA DE LAS VÍAS AÉREAS": PROTOCOLO DE REVISIÓN DE ALCANCE

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RECEIVED: 3rd March, 2023
ACCEPTED: 30th March, 2023
PUBLISHED: 1st June, 2023

2023

Gaspar, L., Reis, N., Sousa, P., Paiva e Silva, A., Machado, N., & Pereira , F. (2023).
Processo de Enfermagem centrado no foco de enfermagem “Limpeza das vias aéreas”: Protocolo de Scoping Review.
Servir, 2(5), e29981. https://doi.org/10.48492/servir025.29981

RESUMO

Introdução: Anualmente, mais de um bilião de pessoas sofrem de doenças respiratórias, e cerca de 4 milhões de pessoas morrem por essas doenças em todo o mundo. O compromisso na limpeza das vias aéreas está profundamente relacionado com estas doenças, causando um impacto significativo no autocuidado e alterando profundamente a qualidade de vida destas pessoas. Neste sentido, é essencial identificar quais os dados clínicos, os diagnósticos de enfermagem e as intervenções de enfermagem que forneçam uma base sólida para o raciocínio clínico, integrando a melhor evidência científica potenciando melhores cuidados de enfermagem.

Objetivo: Mapear a evidência científica existente sobre dados clínicos, diagnósticos de enfermagem e intervenções de enfermagem relacionados com o foco de enfermagem “Limpeza das vias aéreas”.

Métodos: Esta Scoping Review utilizará a metodologia do Joanna Briggs Institute. Literatura publicada em inglês, português e espanhol de 1975 a 2021 nas bases de dados MEDLINE, CINAHL Complete, Scopus, Web of Science e PEDro serão consideradas para inclusão. Os dados serão extraídos utilizando uma tabela alinhada com os objetivos da Scoping Review.

Resultados: Os achados desta revisão permitirão sistematizar o processo de enfermagem relacionado com o foco de enfermagem “Limpeza das vias aéreas”.

Conclusão: Alcançar um consenso sobre esse processo parece bastante relevante, pois pode melhorar o processo de tomada de decisão e a qualidade dos cuidados de enfermagem.

Palavras-chaves: enfermagem avançada; limpeza das vias aéreas; enfermagem; processo de enfermagem; scoping review

ABSTRACT

Introduction: Each year, more than a billion people suffer from respiratory diseases, and about 4 million people die from these diseases worldwide. Airway Clearance impairment is deeply related to these diseases, causing a significant impact on patients’ self-care, profoundly altering their quality of life. Therefore, it is essential to identify clinical data, nursing diagnoses, and nursing interventions that provide a solid basis for clinical reasoning, improve clinical records, and integrate the best scientific evidence to enhance nursing care.

Objective: To map the existing evidence on clinical data, nursing diagnoses, and nursing interventions addressing nursing focus “Airway Clearance”.

Methods: This scoping review will use the Joanna Briggs Institute Scoping Review methodology. Published English, Portuguese, and Spanish literature from 1975 to 2021 in MEDLINE, CINAHL Complete, Scopus, Web of Science, and PEDro databases will be considered for inclusion. Data will be extracted using a charting table aligned to the scoping review objectives.

Results: With this scoping review, we aim to show clinical data, nursing diagnosis and nursing interventions addressing nursing focus “Airway Clearance”.

Conclusion: The findings of this review will add substantial value for systematizing the nursing process related to nursing focus “Airway Clearance”. Reaching a consensus regarding this process seems highly relevant, as it could improve nursing decision-making and care quality.

Keywords: advanced practice nursing; airway clearance; nursing; nursing process; scoping review

RESUMEN

Introducción: Todos los anos, más de mil millones de personas padecen enfermedades respiratorias, y alrededor de 4 millones de personas mueren a causa de estas enfermedades en todo el mundo. El compromiso de la limpieza de las vías aéreas está profundamente relacionado con estas enfermedades, causando un impacto significativo en el autocuidado de los pacientes, alterando profundamente su calidad de vida. Se torna, es fundamental identificar los datos clínicos, diagnósticos e intervenciones de enfermería que proporcionen una base sólida para el raciocinio clínico, mejorando los registros clínicos e integrando la mejor evidencia científica potenciando mejores cuidados de enfermería.

Objetivo: Mapear la evidencia científica existente sobre los datos clínicos, diagnósticos e intervenciones de enfermería relacionados con el foco de enfermería “Limpieza de las vías aéreas”.

Métodos: Esta Scoping Review utilizará la metodología del Instituto Joanna Briggs. Se considerará para su inclusión la literatura publicada en inglés, portugués y español desde 1975 hasta 2021 en las bases de datos MEDLINE, CINAHL Complete, Scopus, Web of Science y PEDro.

Resultados: La sistematización del proceso de enfermería relacionado con el foco de enfermería “Limpieza de las vías aéreas”.

Conclusión: Llegar a un consenso sobre este proceso parece muy relevante, ya que podría mejorar la toma de decisiones de enfermería y la calidad de los cuidados.

Palabras Clave: enfermería avanzada; limpieza de las vías aéreas; enfermería; processo de enfermería; scoping review

Introduction

Respiratory diseases are a significant cause of death and disability worldwide. In 2019, pneumonia and other lower respiratory infections were the deadliest group of communicable diseases and ranked the fourth leading cause of death (World Health Organization, 2023). The mortality rate related to these diseases increases in people over 65 years and should be expected to go exponential in the coming years. (GBD Chronic Respiratory Disease Collaborators, 2020).

The clinical findings related to these diseases can become severe, triggering a broad spectrum of respiratory disorders, including impaired airway clearance. Defined by ICN® as the process which allows “keeping air passage open from mouth to lung alveoli through the ability to clear secretions or obstruction from the respiratory tract” (International Council of Nurses, 2023), airway clearance impairment usually is a consequence of respiratory diseases with a significant impact on patients care. The mucociliary clearance and the cough reflex protect the respiratory system by enabling pulmonary secretion clearance and preventing airway obstruction and infections. However, many factors make it difficult to mobilize and expel lung secretions, such as ageing, tobacco use, environmental exposures, pulmonary diseases, neurodegenerative conditions, or complications related to acute pulmonary infections or invasive ventilation-related problems. (Dransfield, Stolz, & Kleinert, 2019). Nurses collect, analyze, and interpret data related to airway clearance daily, allowing clinical judgment, creating nursing diagnoses, and prescribing, implementing, and evaluating nursing interventions. Thus, it is therefore expected that these data can be reused in a particularly useful way, supporting clinical decision-making, promoting continuity of care, and improving nursing care quality. (Lee & Park, 2017).

The permanent changes in healthcare information systems and the increased complexity of health problems required developing, improving, and mastering nurses’ intellectual, interpersonal, and technical abilities to make clinical decisions compatible with safe and effective practice. This path leads to data standardization introducing taxonomies, like International Classification for Nursing Practice or NANDA-I, allowing the use of the standard language regarding nursing care, enhancing continuity of care, and nursing outcomes production (Guoli, Yue, Peng, Xiong, & Li, 2018).

Clinical reasoning, as well as clinical judgment or decision-making process, are terms that commonly refer to the processes through which nurses guide their clinical practice, gathering clinical data and information to better frame nursing care. (Griffits, Hines, Moloney, & Ralph, 2019) Therefore, nursing information is linked with contextualized data that, when provided appropriately, assures knowledge to nurses, optimizing the clinical reasoning process. Hence, nurses must identify and define the relationship between different data sets, transforming them into information that simultaneously includes the best scientific evidence and is applicable, ensuring better nursing care. (Cruz, Bastos, Pereira, Silva, & Sousa, 2016) (Gonçalves, Sequeira, & Paiva e Silva, 2018). Nursing informatics leads to complex data processing systems, able to help clinical reasoning, suggest solutions, and present outcomes of nursing care (Hoover, 2016) (Keser, 2016). Defining nursing-specific ontologies and developing multiple nursing detailed clinical models is essential to achieve this. (Bacelar & Correia, 2015) The improvement of nursing clinical data models (NCDM) provides evidence-based data allowing information to be structured to a specified concept, systematizing the relations between data, diagnoses and interventions for a given nursing focus and describing complex information structures that indicate how it should be expressed and what is mandatory, or optional according with the most actual scientific evidence. (Lee & Park, 2017) . NCDMs can be classified as specific (if they refer to a data model for a specific nursing focus) or complex, aggregating several specific data models. This relation between them is only possible if a Nursing Theory guides it. The nursing theory that will guide this investigation is Afaf Meleis’s Transition Theory, as it gives a conceptual structure close to clinical practice, allowing a more specific understanding of the client’s adaptive process with impaired airway clearance in constant interaction with the environment, with adaptive capacity to change, but which, due to the disease experiences, or is at risk of experiencing an imbalance (Meleis, 2010).

Ageing and disease processes are moments of transition in people's lives that lead to physical, emotional, and cognitive limitations, meaning higher social costs, more significant needs for family and community support, larger probability of long-term care, and greater requests for formal and informal support. Therefore, concepts such as awareness (reflected in the coherence between knowledge about the transition process and the answers given) and involvement (reflected in the search for information, the reorganization, and the adjustment of your daily routine) are fundamental. (Neves & Parente, 2019).

Considering the importance of this matter in nursing practice, developing a nursing clinical data model related to "Airway Clearance" is very important in enhancing, replicating, and improving nursing care.

We did a preliminary search in PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Evidence synthesis to avoid duplication. No current or underway scoping or systematic reviews on the topic were identified.

This scoping review is part of a vaster research protocol of the Oporto Nursing School, which aims to create a Nursing Clinical Data Model based on nursing focus "Airway Clearance".

As the evidence in this area is dispersed, three guiding research questions were constructed:

1. What nursing diagnoses are related to the nursing focus "airway clearance"?
2. What clinical data do nurses use to identify those diagnoses?
3. What nursing interventions positively address nursing diagnoses focused on airway clearance?

1. Methods

This scoping review will follow the Joanna Briggs Institute methodology for scoping reviews (Peters, Godfrey, Mcinerney, & Soares, 2015) and aims to map a set of clinical data, diagnoses, and nursing interventions that will help to nursing clinical reasoning. This mapping will help advance nursing clinical reasoning, improve evidence-based health care, develop nursing knowledge, and increase quality nursing care.

The protocol of this scoping review is registered in Open Science Framework (https://osf.io/wx5ze/)

Inclusion criteria

Participants

This scoping review considered all studies that include adult patients (above 18 years old) related to nursing focus "airway clearance".

Concept

The concept of this scoping review is the nursing knowledge used in the nursing clinical reasoning process, particularly nursing assessment, nursing diagnosis, planning and implementation.

Context

This scoping review included all studies developed in hospital, primary care, and home care, regardless of country of origin or sociocultural settings.

Types of sources

It considered quantitative, qualitative and mixed methods study designs. Quantitative designs include experimental, quasi-experimental study designs (including randomized controlled trials, non-randomized controlled trials, and other quasi-experimental studies) and observational designs (descriptive, cohort, cross-sectional, case, and case series studies). Qualitative designs include studies that focus on qualitative data, including but not limited to phenomenology, grounded theory and ethnography designs. In addition, it had systematic reviews and text and opinion papers. Conference abstracts and posters were excluded from this review due to their brevity. Only studies published in English, Spanish and Portuguese from 1975 to 2021 were considered, as 1975 was the beginning of the Rehabilitation Nursing Journal due to the close relationship between airway cleaning techniques and rehabilitation nursing.

Exclusion criteria

Studies linked to the deglutition process and addressing other nursing focuses were excluded. In addition, studies that included caregiver or parental roles were also excluded from this review.

Search strategy

The search strategy will intend to locate published and unpublished primary studies, reviews and opinion papers related to airway clearance. An initial limited search of MEDLINE (PubMed) and CINAHL (EBSCO) databases was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles and the index terms used to describe the articles were used to develop a full search strategy for reporting the name of the relevant database (Appendix I). The reference lists will be screened for additional papers. Studies published in English, Spanish and Portuguese from 1975 to 2021 will be included. The databases to be searched include CINAHL Complete, MedicLatina, MEDLINE with Full Text and PEDro.

Study selection

Following the search, all identified records will be uploaded into EndNote 8.0 (Clarivate Analytics, PA, USA), and duplicates will be removed. The study selection will be performed independently by two researchers, assessing the studies against the inclusion criteria and disagreements between reviewers will be solved through discussion or using a third reviewer.

Studies identified from reference list searches will be assessed for relevance based on the study's title and abstract. Full-text studies that do not meet the inclusion criteria will be excluded, and reasons for exclusion will be provided in an appendix in the final report.

The search results will be reported and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping reviews (PRISMA-ScR) flow diagram. (Tricco, et al., 2018)

Data extraction

According to Joanna Briggs Institute's methodology for scoping reviews, data will be extracted by two independent reviewers using a data extraction table developed by the reviewers, aligned with the objectives and research questions. (Peters, Godfrey, Khalil, & Mcinerney, 2015). This extraction table will be modified and revised as necessary during each included paper's extraction data procedure.

Two reviewers will extract data independently. Any reviewer disagreements will be solved through discussion or by using a third reviewer. The two reviewers will chart the "first five to ten studies using the data charting form and meet to determine whether their approach to data extraction is consistent with the research question and purpose", as suggested by Levac, Colquhoun, and O'Brien. (Levac, 2010) Also, if necessary, primary authors will be contacted for further information/clarification of the data, as Arksey and O'Malley's framework suggests. (Arksey & O´Malley, 2005)

Data presentation

The extracted data will be presented in diagrammatic or tabular form that aligns with the review's objective. A descriptive summary will accompany the tabulated and/or charted results and describe how the results relate to the review's objective and question.

A summary of each article will include the author(s), publication year, country of origin, purpose, population, sample size, methodology, concepts of interest, and key findings relating to the review questions.

For question 1 the tables and charts may include data indicated in Table 1:

Table 1 – Nursing data regarding people with impaired airway clearance

Data category	Frequency	Unit of context

For question 2 the tables and charts may include data indicated in Table 2:

Table 2 – Nursing diagnoses regarding people with impaired airway clearance

Diagnosis category	Frequency	Unit of context

For question 3 the tables and charts may include data indicated in Table 3:

Table 3 – Nursing interventions regarding people with impaired airway clearance

Intervention category	Frequency	Unit of context

2. Results

Various factors can interfere with the airway cleaning mechanism. Associated to this variability, human responses also lead to changes that generate instability. The recovery of this stability is expected to be consolidated through the nursing intervention that translates not only the management of signs and symptoms related to airway clearance impairment but also associated with the transition process and the need to incorporate these changes into their life (Meleis, 2010). The results of this review will describe the clinical data, the nursing diagnoses and the nursing interventions assessing nursing focus “Airway clearance”. The results will also show their relations, helping the nursing decision-making process.

3. Discussion

In their daily practice, nurses collect, analyze, and interpret data related to airway clearance. Nurses must identify and define the relationship between different data sets, transforming them into information that simultaneously includes the best scientific evidence and is applicable, ensuring better nursing care. (Cruz, Bastos, Pereira, Silva, & Sousa, 2016) (Gonçalves, Sequeira, & Paiva e Silva, 2018) . We expect that this review will map relevant clinical data, diagnoses and nursing interventions that help the nursing decision-making process. Synthesizing the clinical data, nursing diagnoses and nursing interventions linked to airway clearance to a nursing-led classification based on nursing theories will help translate the existing knowledge into precise, interoperable data enhancing nursing care and providing a solid basis for nurses’ decision-making process.

Conclusion

By resuming each step of the nursing process, this review can lead the way to a clinical data model comprising the elements of the nursing process centred on airway clearance.

Conflict of Interests

The authors do not have any conflict of interest.

Acknowledgements

The Universidade Católica Portuguesa, Institute of Health Sciences (Oporto), Escola Superior de Enfermagem do Porto, Center for Information Systems Research and Development of Oporto Nursing School.

Funding

This study will not be funded

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Appendix I: Search strategy

CINAHL Complete; MedicLatina; MEDLINE (PubMed).
Search conducted in October 2021.

Source	Query	Records
#1	TI ((MH "Intermittent Positive Pressure Breathing/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Intermittent Positive Pressure Ventilation/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Ineffective Airway Clearance (NANDA)") OR (MH "Airway Resistance/AE/CT/ES/EV/NU/MT/ST/UT") OR (MH "Mucociliary Clearance/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Respiratory Sounds/CO/DI/EV/MT/NU/PC/RH/SS") OR (MH "Work of Breathing/EV/NU") OR (MH "Airway Insertion and Stabilization (Iowa NIC)") OR (MH "Airway Clearance Impairment (Saba CCC)") OR (MH "Artificial Airway Management (Iowa NIC)") OR (MH "Airway Suctioning (Iowa NIC)") OR (MH "Airway Management (Iowa NIC)") OR (MH "Airway Management/NU/ST/UT") OR (MH "Suctioning, Nasopharyngeal") OR (MH "Suctioning, Endotracheal") OR (MH "Respiratory Monitoring (Iowa NIC)") OR (MH "Respiratory Management (Iowa NIC)") OR (MH "Positive End-Expiratory Pressure") OR (MH "Nebulizers and Vaporizers/EV/NU/ST/SD/UT") OR (MH "Chest Physiotherapy (Iowa NIC)") OR (MH "Chest Physical Therapy") OR (MH "Acute Chest Syndrome/DI/NU/PC/RH/RF/SS") OR (MH "Cough/CL/CO/DI/NU/RH/RF/SS/TH")) OR AB ((MH "Intermittent Positive Pressure Breathing/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Intermittent Positive Pressure Ventilation/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Ineffective Airway Clearance (NANDA)") OR (MH "Airway Resistance/AE/CT/ES/EV/NU/MT/ST/UT") OR (MH "Mucociliary Clearance/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Respiratory Sounds/CO/DI/EV/MT/NU/PC/RH/SS") OR (MH "Work of Breathing/EV/NU") OR (MH "Airway Insertion and Stabilization (Iowa NIC)") OR (MH "Airway Clearance Impairment (Saba CCC)") OR (MH "Artificial Airway Management (Iowa NIC)") OR (MH "Airway Suctioning (Iowa NIC)") OR (MH "Airway Management (Iowa NIC)") OR (MH "Airway Management/NU/ST/UT") OR (MH "Suctioning, Nasopharyngeal") OR (MH "Suctioning, Endotracheal") OR (MH "Respiratory Monitoring (Iowa NIC)") OR (MH "Respiratory Management (Iowa NIC)") OR (MH "Positive End-Expiratory Pressure") OR (MH "Nebulizers and Vaporizers/EV/NU/ST/SD/UT") OR (MH "Chest Physiotherapy (Iowa NIC)") OR (MH "Chest Physical Therapy") OR (MH "Acute Chest Syndrome/DI/NU/PC/RH/RF/SS") OR (MH "Cough/CL/CO/DI/NU/RH/RF/SS/TH")) OR SU ((MH "Intermittent Positive Pressure Breathing/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Intermittent Positive Pressure Ventilation/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Ineffective Airway Clearance (NANDA)") OR (MH "Airway Resistance/AE/CT/ES/EV/NU/MT/ST/UT") OR (MH "Mucociliary Clearance/AE/CT/ES/EV/MT/NU/ST/UT") OR (MH "Respiratory Sounds/CO/DI/EV/MT/NU/PC/RH/SS") OR (MH "Work of Breathing/EV/NU") OR (MH "Airway Insertion and Stabilization (Iowa NIC)") OR (MH "Airway Clearance Impairment (Saba CCC)") OR (MH "Artificial Airway Management (Iowa NIC)") OR (MH "Airway Suctioning (Iowa NIC)") OR (MH "Airway Management (Iowa NIC)") OR (MH "Airway Management/NU/ST/UT") OR (MH "Suctioning, Nasopharyngeal") OR (MH "Suctioning, Endotracheal") OR (MH "Respiratory Monitoring (Iowa NIC)") OR (MH "Respiratory Management (Iowa NIC)") OR (MH "Positive End-Expiratory Pressure") OR (MH "Nebulizers and Vaporizers/EV/NU/ST/SD/UT") OR (MH "Chest Physiotherapy (Iowa NIC)") OR (MH "Chest Physical Therapy") OR (MH "Acute Chest Syndrome/DI/NU/PC/RH/RF/SS") OR (MH "Cough/CL/CO/DI/NU/RH/RF/SS/TH"))	14478
#2	TI chest physiotherapy OR TI postural drainage OR TI mechanical insufflation/exsufflation OR TI active cycle breathing technique OR TI active cycle of breathing technique OR TI active cycle of breathing OR TI chest wall compression OR TI chest wall oscillation	55
#3	#1 AND #2	3542
#2	Filter: all adult	2914
#3	Filter: Since 2009-2021	1567
#4	Filter: Languages – English; Portuguese	1352

PEDro Physiotherapy Data Base
Search conducted in October 2021.

Source	Query	Records
#1	"Ineffective Airway Clearance" AND "Mucociliary Clearance" AND "Airway Clearance Impairment" AND "Chest Physiotherapy"	32