















REVIEW

## Philosophies, theories, and models used in occupational health nursing

### Filosofías, teorías y modelos utilizados en la enfermería del trabajo

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#### ABSTRACT

No studies have been identified that address theoretical frameworks to guide the work of occupational health nursing. This integrative review aimed to identify nursing philosophies, theories and conceptual models applied in occupational health nursing. The search conducted in the WoS, PubMed, SCOPUS, BVS and CINAHL databases, analyzing 2974 manuscripts, applying filters, inclusion, and exclusion criteria previously defined, the final sample was composed of 17 articles. Of the selected studies, no philosophies were identified in the area, 1 manuscript corresponded to a theory and the remaining 16 were conceptual models. Regarding the topics, 2 papers were focused on environmental health, 3 addressed the client as a worker and 12 analyzed nursing as a worker; highlighting mainly emerging models, with a diminished development, as these were rescued mainly through the original publications of the authors and no uses were identified in other manuscripts. The identified theoretical frameworks will allow guiding the approach to health situations in occupational nursing. It was possible to distinguish developed areas, mainly associated with the formation, vision, role, orientation, and well-being of occupational health nursing, while the approach to the client as a worker and environmental health were only minimally addressed, being considered as knowledge gaps.

**Keywords:** Philosophy Nursing; Nursing Theory; Models Nursing; Occupational Health Nursing; Nursing Research.

#### RESUMEN

No se han identificado estudios que aborden marcos teóricos para guiar la labor de la enfermería del trabajo. Esta revisión integradora tuvo como objetivo identificar filosofías, teorías y modelos conceptuales de enfermería aplicados a la enfermería del trabajo. La búsqueda fue realizada en las bases de datos WoS, PubMed, SCOPUS, BVS y CINAHL, analizando 2974 manuscritos, aplicando filtros, criterios de inclusión y exclusión previamente definidos, la muestra final quedó compuesta por 17 artículos. De los estudios seleccionados, no se identificaron filosofías en el área, 1 manuscrito correspondió a una teoría y los 16 restantes fueron modelos conceptuales. En cuanto a las temáticas, 2 trabajos se centraron en la salud ambiental, 3 abordaron al cliente como trabajador y 12 analizaron la enfermería como trabajador; destacándose principalmente modelos emergentes, con un menguado desarrollo, ya que estos fueron rescatados principalmente a través de las publicaciones originales de los autores y no se identificaron usos en otros manuscritos. Los marcos teóricos identificados permitirán orientar el abordaje de las situaciones de salud en la enfermería del trabajo. Fue posible distinguir áreas desarrolladas, principalmente asociadas a la formación, visión, rol, orientación y bienestar de la enfermería del trabajo, mientras que el abordaje del cliente como trabajador y la salud

ambiental fueron abordados de forma mínima, siendo estos considerados como brechas del conocimiento.

**Palabras clave:** Filosofía en Enfermería; Teoría de Enfermería; Modelos de Enfermería; Enfermería del Trabajo; Investigación en Enfermería.

## INTRODUCTION

Occupational nursing has an ancient origin, attributed to the nurse Phillippa Flowerday in 1878, known as industrial nursing, which in turn stems from public health;<sup>(1)</sup> it has evolved to be considered by the World Health Organization (WHO)<sup>(2)</sup> as fundamental to the provision of high quality occupational and environmental health services to working populations worldwide.

The American Association of Occupational Health Nurses (AAOHN)<sup>(3)</sup> states that the work of occupational nursing is focused on the delivery of specific clinical and emergency services, as well as services associated with specialized skills, such as providing effective incident investigation, prevention, recognition, treatment and directing the rehabilitation of workers' illnesses and injuries.

In order to accomplish this task, nursing must develop its practice under the perspectives of theoretical models, since they guide it, predict phenomena, and guide the prescription of care;<sup>(4)</sup> each theory provides a different vision of the concepts of the nursing metaparadigm. It should be noted that no theory is better than another, but there are theories that are better suited to some situations than others, hence the importance of knowing them.<sup>(5)</sup> According to their degree of abstraction, theoretical models can be classified into metaparadigms, philosophies, conceptual models, theories, and empirical indicators, from greater to lesser degrees respectively.<sup>(6)</sup>

In the 1950s, there was a boom in the theoretical models of nursing, which have been used as a reference to generate other theories, starting with the work of Peplau, and their development continues to the present day.<sup>(7)</sup> However, on reviewing the main scientific databases, no studies have been identified that address theoretical models to guide the work of occupational nursing.

Based on the above, it is necessary to have guidelines or manuscripts that account for the wide variety of theoretical models in the area to understand and guide the work of occupational nursing, as well as to support future research. In this scenario, the present review was elaborated with the objective of identify in the available state of the art, philosophies, theories, and conceptual models of nursing applied to occupational nursing.

## METHODS

This integrative review develops the review protocol "Philosophies, theories, and models used in occupational nursing: a review protocol", published in 2022.<sup>(8)</sup> Structured according to "INTEGRA, by their acronyms in Spanish" methodology:<sup>(9)</sup> (I) Idea or study problem; (N) Question or objective; (T) Search tactics; (E) Execution or use of the search; (G) Degree and quality control of the results; (R) Filtered results; and finally, (A) Analysis and discussion. Answers the question: What philosophies, theories, or conceptual models of nursing guide the work of occupational nursing? We conducted the searches in Spanish, English, and Portuguese, respecting the descriptors and Booleans established in the protocol.

The English search equation was: (((“Occupational health”) OR (“Occupational health nursing”)) AND (“Models nursing”) OR (“Nursing theory”) OR (“Philosophy nursing”))).

However, to enrich the results, we incorporated a fifth database, as shown in table 1 below, with the search methods and filters applied.

**Table 1.** Search strategies and applied filters

Database	Search method	Applied filters
WoS	All fields	Language: Spanish, English, and Portuguese Source type: Article
SCOPUS	All fields	Language: Spanish, English, and Portuguese Keywords: Nursing theory, models nursing, theoretical models.
PubMed	All fields	Language: Spanish, English, and Portuguese
BVS	Title, abstract, subject	Language: Spanish, English, and Portuguese Main subject: Theoretical models, nursing theories.
CINAHL	Full text	Language: Spanish, English, and Portuguese Subject: Occupational health nursing

To improve the results, the analysis was enriched with a manual search in Google Scholar®. The inclusion criteria used were articles in Spanish, English, and Portuguese, published in the period from 1950 to October 2022 (month and year of search), and that presented a philosophy, theory, or conceptual model of nursing in the context of occupational health; the exclusion criteria corresponded to letters to the editor, editorials, and duplicates. Figure 1 shows the process flowchart.

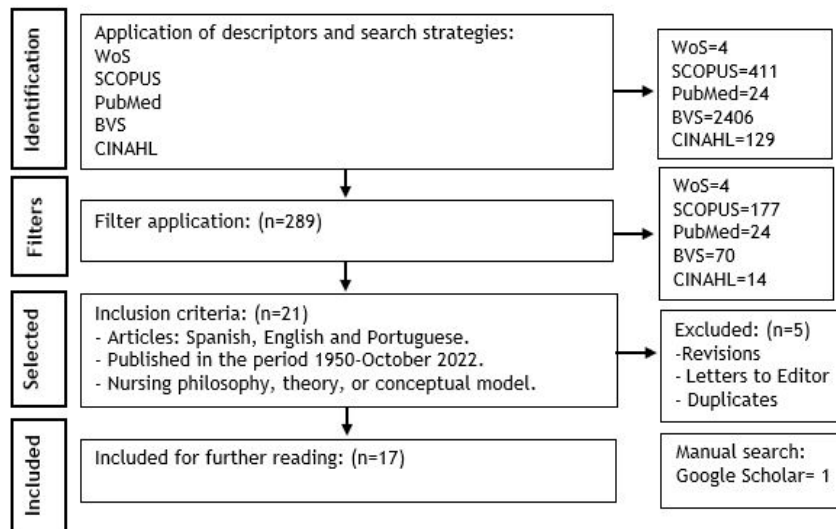


Figure 1. Review flowchart. Adapted from PRISMA 2020

For the analysis of the "Grade and quality control of the results",<sup>(9)</sup> we used the Evaluation Scale for Articles with Heterogeneous Methodologies for Integrative Reviews (EAMH, by their acronyms in Spanish),<sup>(10)</sup> which was applied to the results identified. The scale has six "YES/NO" evaluation questions. Each "YES" answer scores one point; therefore, the scale score ranges from zero to six points and is interpreted as follows: From 0 to 3 points "article not recommended for analysis"; from 4 to 5 points "article suitable for analysis," and, finally, 6 points "article ideal for analysis". Table 2 below shows the score obtained for each manuscript.

Table 2. Grade and quality control of results

Heterogeneous Methodology Article Rating Scale for Integrative Reviews (EAMH, By their acronyms in Spanish)							
Name of model/theory	Does the article clearly define the objectives?	Does the article clearly define the type of methodology used?	Are the objectives consistent with the methodology used?	Does the article justify the quantity and type of sample?	Does the article describe how the sample was accessed?	Do the results or conclusions meet the objectives set?	Score 0-6 (Interpretation)
Nursing Theory and Model for Occupational Health Nursing <sup>(11)</sup>	Yes (1 point)	No (0 points)	No (0 points)	Yes (1 point)	Yes (1 point)	Yes (1 point)	4 points (Article suitable for analysis)
Occupational Health Nursing: A Model for Practice <sup>(12)</sup>	Yes (1 point)	No (0 points)	No (0 points)	Yes (1 point)	Yes (1 point)	Yes (1 point)	4 points (Article suitable for analysis)
An Educational Model to Prepare the Baccalaureate Nurse for Occupational Health Nursing <sup>(13)</sup>	Yes (1 point)	No (0 points)	No (0 points)	Yes (1 point)	Yes (1 point)	Yes (1 point)	4 points (Article suitable for analysis)
Conceptual model for the occupational health nurse clinical specialist <sup>(14)</sup>	Yes (1 point)	No (0 points)	No (0 points)	Yes (1 point)	Yes (1 point)	Yes (1 point)	4 points (Article suitable for analysis)
Model for occupational health practice <sup>(15)</sup>	No (0 points)	No (0 points)	No (0 points)	No (0 points)	No (0 points)	No (0 points)	0 points (Article not recommended for analysis)

Wilkinson Windmill Model of Occupational Health Nursing <sup>(16)</sup>	Yes (1 point)	No (0 points)	No (0 points)	Yes (1 point)	Yes (1 point)	Yes (1 point)	4 points (Article suitable for analysis)
A theoretical model for occupational health nursing <sup>(17)</sup>	Yes (1 point)	No (0 points)	No (0 points)	No (0 points)	No (0 points)	Yes (1 point)	2 points (Article not recommended for analysis)
The resource model <sup>(18)</sup>	No (0 points)	No (0 points)	No (0 points)	No (0 points)	No (0 points)	No (0 points)	0 points (Article not recommended for analysis)
The nursing worklife model <sup>(19)</sup>	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	6 points (Ideal article for analysis)
Theory of part-time nursing <sup>(20)</sup>	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	6 points (Ideal article for analysis)
A Nursing Conceptual Model of Contamination <sup>(21)</sup>	Yes (1 point)	No (0 points)	No (0 points)	Yes (1 point)	Yes (1 point)	Yes (1 point)	4 points (Article suitable for analysis)
Hospital nurse force theory: a perspective of nurse fatigue and patient harm <sup>(22)</sup>	Yes (1 point)	No (0 points)	No (0 points)	Yes (1 point)	Yes (1 point)	Yes (1 point)	4 points (Article suitable for analysis)
Model for predicting fatigue in Chinese nurses <sup>(23)</sup>	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	6 points (Ideal article for analysis)
The JOINT conceptual model for explaining and predicting absenteeism and turnover among nurses <sup>(24)</sup>	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	6 points (Ideal article for analysis)
Wellbeing at work of hospital nurses: a theoretical model <sup>(25)</sup>	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	6 points (Ideal article for analysis)
Modelo de Promoción de la Salud en el Trabajo <sup>(26)</sup>	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	Yes (1 point)	6 points (Ideal article for analysis)
Symptom Science Model for Environmental Health <sup>(27)</sup>	Yes (1 point)	Yes (1 point)	Yes (1 point)	No (0 points)	No (0 points)	Yes (1 point)	4 points (Article suitable for analysis)

Most of the manuscripts identified were "Article suitable for analysis" and "Ideal article for analysis" according to the score of the "Heterogeneous Methodology Article Rating Scale for Integrative Reviews".<sup>(10)</sup> Only 3 articles presented scores lower than 4 points "Article not recommended for analysis", however, the shortcomings identified were associated with the demands of the scale, related to the requirement to explicitly indicate the elements evaluated, instead, the methodological strategies used by the authors could be inferred. The authors predominantly used a deductive approach, meaning that the theoretical frameworks proposed were developed from existing theories, which is why the entire sample was considered for analysis regardless of its score, since the objective of this review was to "identify" the theoretical frameworks associated with occupational nursing, where the quality of these should be considered by the readers in their use, whose characteristics were transparent in table 2.

## RESULTS

The final sample included 17 articles,<sup>(11-27)</sup> in which no philosophies were identified in the area, 1 corresponded to a theory and the remaining 16 were conceptual models; of these, 2 models focused on environmental health,<sup>(21,27)</sup> 3 addressed the customer as a worker,<sup>(12,17,18)</sup> and 12 analyzed nursing as a worker.<sup>(11,13-16,19,20,22-26)</sup> The models and theories identified will be described below, in ascending order, from the oldest to the most recent:

The oldest identified model dates back to 1977, created by Baughn<sup>(11)</sup> titled as "Nursing Theory and Model for Occupational Health Nursing", where the author presents nursing as an open system whose goal is to help people adapt to stress so that they can achieve, maintain, and sustain a high level of well-being; she develops a model that facilitates the implementation of the theory through the use of the nursing process.

Subsequently, two models published in 1983 were identified, the first one created by Javid et al.<sup>(12)</sup> entitled

"Occupational Health Nursing: A Model for Practice". The model assumes that there is a complex relationship between work, health, and stress; it demonstrates that health promotion activities used by the advanced nurse practitioner can improve the individual's coping strategies. The second model was created by Talbot<sup>(13)</sup> entitled "An Educational Model to Prepare the Baccalaureate Nurse for Occupational Health Nursing". Model made to integrate occupational health nursing content into baccalaureate curricula, presents 6 steps: 1. Develop a content map of occupational health concepts; 2. Use grid models for curriculum content distribution; 3. Assist faculty in integrating content; 4. Plan clinical experiences; 5. Search for up-to-date information resources; and finally, 6. Publish findings.

Then, in 1984, the "Conceptual model for the occupational health nurse clinical specialist", created by Dees.<sup>(14)</sup> The model was developed for the occupational health clinical nurse that provides a model to guide and direct practice. A year later, in 1985, Morris<sup>(15)</sup> published the "Model for occupational health practice". The model outlines four nursing roles: team member, manager, practitioner, and patient care provider.

A few years later, in 1990, is developed the "Wilkinson's Windmill Model of Occupational Health Nursing",<sup>(16)</sup> where with its core, hub, base, blades, and winds, symbolically represents a conceptualization of nursing practice in an occupational health setting. Two years later, in 1992, Lundberg<sup>(17)</sup>, designed the "A theoretical model for occupational health nursing". The model is an attempt to conceptualize the workplace from the point of view of the worker, in it, the world is exposed divided into two environments, one internal and the other external, these are in interchange; the model presents five main components: non-work environment (external), the work environment (internal), the aggregate of workers, safety and health equipment input into the work and health output.

Subsequently, in 1998, Slage et al.<sup>(18)</sup> developed "The resource model". The Model outlines the occupational health nursing process as dynamic, revolving around the core interaction between the client and the workplace; it incorporates the various resources available in the workplace, community, and professional settings. Eight years later, in 2006, Laiter<sup>(19)</sup> created "The nursing worklife model". The model begins with leadership as a direct influence on policy involvement, staffing, and nurse-physician relationships; through these, leadership indirectly influences the nursing model and burnout. Nurse-physician relationships mediate the relationship of leadership to the nursing model and to policy involvement. These pathways recognize physicians' positions of power with respect to administrative policy development and treatment.

In 2008, Jamieson et al.<sup>(20)</sup> generated the "Theory of part-time nursing", which allows understanding and explaining the phenomenon of part-time work in nursing, where the difficulties of interaction and professional development experienced are described as contributing to the inability of part-time nurses to reach their optimal potential. Then, in 2012, two models and one theory were identified; the first model was created by Green et al.<sup>(21)</sup> titled as "A Nursing Conceptual Model of Contamination", where the model provides a comprehensive view of contamination with the key elements necessary to integrate essential nursing knowledge and skills to prevent, identify and respond to contamination incidents. The identified theory was developed by Drake et al.<sup>(22)</sup> titled as "Hospital nurse force theory: a perspective of nurse fatigue and patient harm", the one that allows assessing the relationships between hospital environment, nurses' well-being, fatigue, nurses' strength and harm to patients; finally, Fang et al.<sup>(23)</sup> generated the "Model for predicting fatigue in Chinese nurses", the one that explores the direct and indirect effects of predictors of acute and chronic fatigue in nursing professionals.

Two years later, in 2014, Daouk-Öyry et al.<sup>(24)</sup> published "The JOINT conceptual model for explaining and predicting absenteeism and turnover among nurses"; the model was designed from a multilevel lens to address absenteeism and turnover from a multidimensional perspective. The model has multiple constructs that were defined based on a systematic analysis of all relevant variables identified in a literature review. The authors constructed 11 categories that can be used to distinguish the resulting variables: demographics, personal characteristics, job attitudes, health and wellbeing, management style, interpersonal relationships, job control, job demand, structure, human resource practices, and labor supply. These categories were grouped into 5 levels: Individual, Interpersonal, Job, Organizational, and National levels. These make up the JOINT model (Job, Organization, Individual, National and inTerpersonal).

Subsequently, Utriainen et al.<sup>(25)</sup> in 2015 developed the "Wellbeing at work of hospital nurses: a theoretical model". The theoretical model posits that well-being at work for hospital nurses is built on patients' experience of high-quality care; assistance and support among nurses; nurses' togetherness and cooperation; satisfactory practical organization of work; challenging and meaningful work; freedom to express diverse feelings in the work community; well-conducted daily nursing; status related to one's work; fair and supportive leadership; opportunities for professional development; smooth communication with other professionals; and teaming with other nurses on an informal basis.

Finally, the last two models identified were published in 2016 and 2019, the first one titled as "Model of Health Promotion at Work", created by Sanchez-López<sup>(26)</sup>, the model establishes as a core element of the profession the work of the nurse as a promoter of health in the company, so that the workplace goes from being a place where



the worker is exposed to risks to a space for health; the author points out that the recognition of occupational nursing as a specialist is fundamental for prevention, as well as an important element for the consolidation and independent professional development of nursing. The latter model was developed by Castner et al.<sup>(27)</sup> titled as "Symptom Science Model for Environmental Health", the model adds two major concepts to the NIH-SSM (NIH/NINR Symptom Science Model), environmental expo-sure and the environmental endotype, which emphasizes the important effect that non-infectious exposures have on pathobiological processes and resulting symptoms.

## DISCUSSION

A varied number of results were identified, highlighting mainly emerging models, with a limited development, since these were mainly rescued through the authors' original publications and no uses were identified in other manuscripts.

Based on the results of the review, a content analysis of the different models and theories identified was carried out, assigning them an arbitrary code that allowed their distinction, subsequently logical similarities were identified, which gave rise to 3 dimensions: nurses at work; the customer as a worker; and finally, environmental health.

The predominance of nursing at work stands out, where the formation, vision, role, and well-being in nursing at work are addressed, which allow the orientation of the nursing role of "caring" through its welfare, educational, administrative, and investigative function. On the other hand, three models were identified that considered the users from the perspective of the work "customer as worker", and finally, two models where environmental exposure and contamination "environmental health" were considered.

Figure 2 below shows the results identified, grouped according to core topic, as a proposal of the present authors that allows the results to be organized and classified graphically, making their selection more practical.

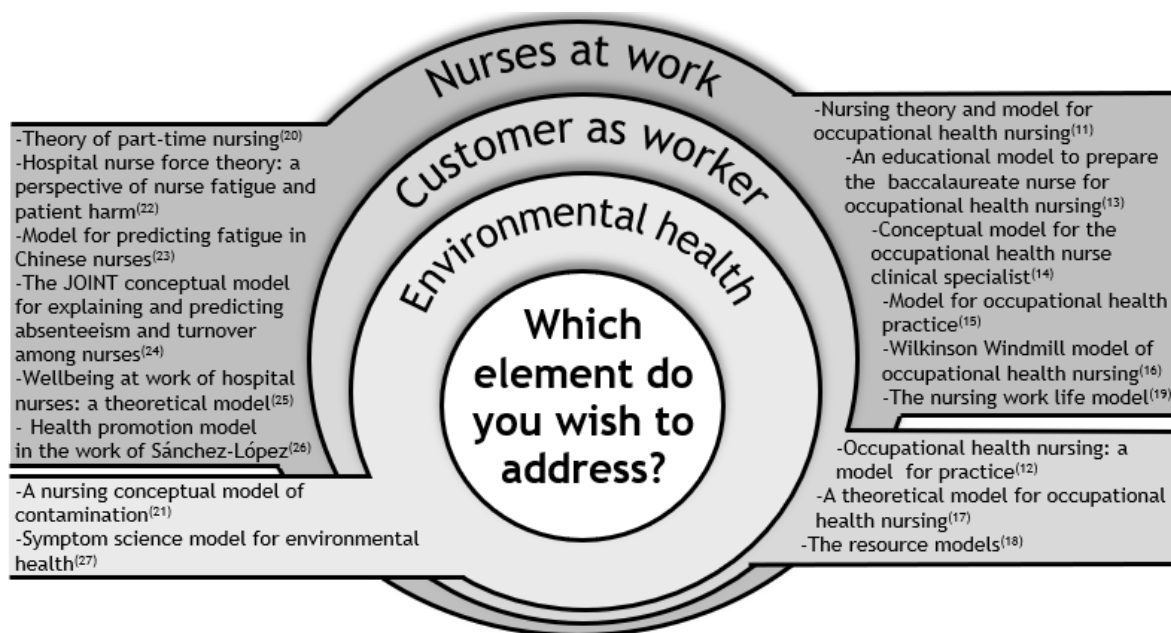


Figure 2. Identified theoretical models

In addition, to enrich the identified results, there are classic nursing models and theories, those that were not generated from work nursing, however, they have proven to be of great help in covering topics related to this, such as: the adaptation model of Callista Roy, which can support the discussion on the adaptation of workers to work from their homes during the pandemic by COVID-19, overcoming personal limitations and discovering new ways of doing and being in the workplace.<sup>(28)</sup>

Likewise, Imogene King's goal attainment theory has been described as a contribution to occupational health nurses in setting goals with workers before retirement.<sup>(29)</sup> As for Betty Neuman's theoretical model, it has been described as enabling the identification of stressors and the implementation of interventions aimed at a healthy interaction of workers with the work environment.<sup>(30,31)</sup> On the other hand, contributions from Rosemarie Rizzo Parse's theory of human becoming to environmental health and worker health have been identified.<sup>(32)</sup>

In addition to the above, Jean Watson's theory of human caring has been described as offering occupational health nurses a structure that not only defines a focus for practice, but also provides a basis for moral and

philosophical analyses of practice.<sup>(33)</sup> Peplau<sup>(34)</sup>, the originator of interpersonal theory, has noted that her theoretical approach provides useful tools to help the industrial nurse understand the relationships between various employees, the nurse herself, and with the work environment. Finally, Orem's self-care theory has been described as an element that promotes the work of work nursing.<sup>(35)</sup>

Regarding the limitations of the present study, although the five main databases in the area were consulted, there may be other sources of information that could further enrich the results identified, in addition to this, the findings are consistent with the search strategies used, which could be improved. Regarding the strengths of the research, this corresponds to the first review of which we have knowledge on the subject, providing great guidance for those involved in occupational nursing, therefore, a consideration for future work is to test the models identified, supporting, or rejecting the relationships they point out.

On the other hand, an aspect to consider in the development of future work in the area are the methodological strategies used in the development of the theoretical frameworks, since they were the main weaknesses identified when analyzing the quality of the sample. Ideally, it is necessary to incorporate various strategies in its construction.

It is pertinent to update the identified theoretical frameworks and adapt them to the reality of the target population, considering the current needs, such as: simplicity and applicability in the work, the active role of patients, the role of technology and health problems of global importance, such as pandemics.

Likewise, the present authors point out as a pending challenge on the part of occupational nursing, not only to use the models that guide their work, but also to generate experience reports to improve the theoretical frameworks. The above is of great relevance, since the nurses who have direct contact with patients are the ones who recognize the gaps between theory and practice; therefore, their perceptions are very valuable for perfecting nursing science, which is applicable to all areas of nursing and not exclusively to occupational nursing.

As for the limitations of the present study, these are framed in the databases used, although the main databases were consulted, as well as the most influential in nursing and complemented by a manual search, the results can be enriched by incorporating even more databases and other sources of information.

## CONCLUSIONS

This study provided answers to the stated objective, identifying 17 theoretical models that will allow guiding its selection for the approach to health situations in occupational nursing, contributing to the excellent quality that nursing must have in care management. Additionally, it was possible to distinguish developed areas, mainly associated with the formation, vision, role, orientation, and welfare of occupational nursing, while only 3 manuscripts addressed the customer as a worker and two addressed environmental health, being these considered as knowledge gaps.

The need to stimulate the generation of reports on the experiences of occupational health nurses in the use of models and theories in the area is highlighted, in this way knowledge can be improved and therefore, the orientation, prediction of phenomena and guidance in the prescription of care will be more adequate to the current needs.

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## CONFLICTS OF INTEREST

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