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REVIEW PROTOCOL

Technological innovation ultrasound in the professional practice of the nurse midwives: scope review protocol

Inovação tecnológica ultrassom na prática profissional da enfermeira obstétrica: protocolo de revisão de escopo

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ABSTRACT

Objective: To identify and map the professional practice of nurse midwives regarding the use of ultrasound technology tools worldwide. **Method:** Scope review protocol according to the Joanna Briggs Institute (JBI) methodology and checklist *Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews* (PRISMA-ScR). The search strategy will be applied to the selected databases, and resolutions and opinions of the Federal Nursing Council (Cofen) and Regional Nursing Council of Minas Gerais (Coren-MG) will also be added. Two self-employed researchers will carry out the entire process of searching, evaluating, selecting, and extracting data, and if there are disagreements, a third reviewer will assist in the process. A table, elaborated by the researchers, will be used to extract the data. The results will be presented in a narrative form, with the support of tables and pictures. The protocol is registered at Open Science Framework (OSF): https://doi.org/10.17605/OSF.IO/K8PGX.
Descriptors: Prenatal Care; Nurse Midwives; Ultrasonography.

RESUMO

Objetivo: Identificar e mapear a prática profissional da enfermeira obstétrica em relação à utilização da ferramenta tecnológica ultrassom no âmbito mundial. **Método:** Protocolo de revisão do escopo de acordo com a metodologia Joanna Briggs Institute (JBI) e checklist *Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews* (PRISMA-ScR). A estratégia de busca será aplicada nas bases de dados selecionadas e serão acrescentados Resoluções e Pareceres do Conselho Federal de Enfermagem (Cofen) e Conselho Regional de Enfermagem de Minas Gerais (Coren-MG). Dois pesquisadores independentes cegados, realizarão todo o processo de busca, avaliação, seleção e extração de dados e, caso existam discordâncias um terceiro revisor auxiliará no processo. Para a extração dos dados será utilizada uma tabela, elaborada pelos pesquisadores. Os resultados serão apresentados de forma narrativa, com apoio de quadros e figuras. Protocolo registrado na *Open Science Framework* (OSF): https://doi.org/10.17605/OSF.IO/K8PGX.
Descritores: Cuidado Pré-Natal; Enfermeiras Obstétricas; Ultrassonografia.

INTRODUCTION

United Nations member countries have been striving to improve the quality of prenatal care, which has resulted in a reduction in maternal and neonatal mortality. Despite efforts, this reduction has been slow due to several factors, including lack of access to quality health services, lack of information and education on reproductive health, and unfavorable socioeconomic conditions, as well as regional and gender inequalities[1].

In Brazil, although maternal mortality indicators have decreased, they have not yet reached the levels desired by the World Health Organization (WHO), which is a maximum of 20 deaths per 100,000 live births. The maternal mortality rate remained below 60 deaths per 100,000 live bir-

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ths between 2015 and 2019. In addition, approximately 49% of preventable neonatal deaths were related to poor-quality prenatal care[2,3].

According to preliminary reports by the Brazilian Ministry of Health, the COVID-19 pandemic has marked a decline in obstetric health in Brazil. In 2021, the maternal mortality rate was 107.53 for every 100,000 live births, an increase of 94.4% compared to the early 2000s. This rate is related to complications in childbirth, pregnancy, and post-delivery[4].

Therefore, it is urgent to adapt prenatal care with quality that goes beyond the guarantee of minimum consultation so that pregnant people have access to the appropriate time for regular consultations, inputs, and necessary resources. In order to reduce the alarming rate of maternal and neonatal mortality[5].

During prenatal care, ultrasound is essential for screening and stratification of gestational risk, allowing early follow-up and interventions, in addition to determining gestational age, number of fetuses and their position, uterine cervix length, possible amniotic fluid abnormalities, congenital anomalies and placenta location and growth[6]. WHO recommends that a routine ultrasound be performed before 24 weeks of gestation for all pregnant women, including those at low risk, and the International Federation of Gynecology and Obstetrics (Figo) recommends performing at least two ultrasound examinations on all pregnancies[6].

Some research suggests that counting with nurse midwives trained to use ultrasound, with the ability to make immediate decisions based on the findings of the images, enables women to be offered better quality prenatal care at the care site[1].

The participation of the obstetric nurse in prenatal care is crucial to achieving the 2030 Sustainable Development Goals (SDGs), which include reducing overall maternal mortality and ending preventable deaths of newborns and children under the age of 5 years[4]. Therefore, the obstetric nurse must use technologies that allow the tracing and stratifying maternal and fetal risks to identify and prevent pathological problems that may affect the delivery and healthy development of the fetus, thus improving obstetric care[7].

Increasing the scope of nursing practices is essential to ensure women›s access to adequate examinations and care during pregnancy, delivery, and post-delivery. In Brazil and Latin America, the performance of ultrasonography by the obstetric nurse has yet to be widespread, so it is essential to progress its implementation worldwide to improve the quality of prenatal care and reduce maternal mortality. To this end, it is crucial to know and share the diverse realities and challenges that exist so that we can adapt obstetric nursing practices to the specific needs of each region and community.

In this context, preliminary research was conducted from September to October 2021 in the following databases: PROSPERO (International Prospective Register of Systematic Reviews), JBI Disclosure Synthesis, Medical Literature Analysis and Retrieval System Online (MEDLINE), via PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Open Science Framework (OSF), Cochrane Library, a complete or ongoing scope review about the professional practice of the nurse midwife is not identified with the use of the ultrasound technology tool. Therefore, it was decided to perform this research that aims to identify and map the professional practice of the nurse midwife regarding the use of ultrasound technology tools worldwide. Specifically, it intends to answer the following research question: How do you use the ultrasound technology tool in the professional practice of nurse midwives worldwide?

METHOD

Since ultrasound during obstetric nursing consultation is still an innovative practice in Latin America, the scope review methodology was chosen to map and clarify existing evidence, identify the gaps, and inform about this practice from the literature examined[8].

The conduct of this scoping review will be by the recommendations of the Joanna Briggs Institute (JBI)[8], using the checklist Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) to present the results[9].

The scoping review was registered on the OSF platform according to JBI recommendations and can be accessed through the https://doi.org/10.17605/OSF.IO/K8PGX link.

Review question

Formulated based on the PCC mnemonic (Population, Concept, and Context)8, namely: How is the ultrasound technology tool used in the professional practice of the nurse midwife in the world?

Inclusion criteria

Population
The population of this review will be nurse midwives in obstetric or gynecological care who use ultrasound.

Concept
This review will consider studies using ultrasound technology, not characterizing any specific model.

Context
Studies will be considered in the various healthcare scenarios in the world context.

Types of sources:
This review will consider primary studies as sources of technical and scientific data, quantitative, qualitative, mixed approaches, experimental and quasi-experimental designs, case--control studies, studies before and after, time series, observational studies, cohort studies, and cross-sectional studies. Resolutions and opinions of the Federal Nursing Council (Cofen) and the Regional Nursing Council of Minas Gerais (Coren-MG) will also be added through manual searches in the portals of these municipalities.

Exclusion criteria
Studies that do not relate the use of the ultrasound technology tool to the obstetric nurse professional will be excluded, as well as reviews, conference summaries, duplicate documents, and expert opinions.

Search strategy
The search strategy will be carried out blindly in three stages by two independent researchers and will also count on the support of a librarian. The first step will be the primary search in MEDLINE via the National Library of Medicine National Institutes of Health (PubMed) and CINAHL, where it will conduct an appreciation of the titles, abstracts, and descriptors of publications.
The second stage will be carried out using the descriptors, in Portuguese and Spanish, included in the list of Descriptors in Health Science (DeCS): Obstetric nurse, midwife, nurse, ultrasound, and ultrasonography, using Boolean AND OR operators. The databases to be used will be the Virtual Health Library (VHL) Portal by accessing the following databases: Latin American and Caribbean Health Sciences Literature (LILACS), Bibliographic Índice Español en Ciencias de la Salud (IBECS), Nursing Database (BDENF), *Base Internacional de Guias GRADE* (BIGG), Peruvian literature in Ciencias de la Salud (LIPECS) and National Bibliografía en Ciencias de la Salud Argentina (BINACIS). Then, using the descriptors in the English language included in the list of DeCS and Medical Subject Headings (MeSH), it will search again on the VHL portal and in the following databases: MEDLINE via National Library of Medicine National Institutes of Health (PubMed), CINAHL and Excerpta Medica DataBase (Embase), as described in Figure 1. A manual search will be performed at Cofen and Coren-MG portal, covering the field of professional legislation. The search for additional studies will understand the third stage, and if necessary, contact will be made with the authors of the primary articles in order to obtain further clarification.

DATABASE	SEARCH STRATEGIES
LILACS, IBECS, BDENF, BIGG, LIPECS and BINACIS via BVS	("Enfermeira obstétrica" OR Enfermeira obstetra* OR obstetriz* OR enfermera* obstetrice* OR enfermera* comadrona* OR enfermera* matrona* (("Enfermeiras" OR enfermeira*) AND (parteira* OR enfermeir*)) OR enfermeir* OR enfermeiro*) AND ("ultrassonografia" OR ultrassom* OR ultrassonográfico OR "ultrasonido" OR "Ultrasonografia" OR "ultrassonografia pré-natal" OR "Ultrassonografia fetal" OR "ultrassonografia obstétrica" OR "ultrassom obstétrico")
LILACS, IBECS, BDENF, BIGG, LIPECS and BINACIS via BVS	("Nurse Midwives" OR Nurse midwife* OR ((Nurses OR nurse*) AND (midwife* OR midwive*)) OR midwife* OR midwive*) AND (Ultrasonography OR ultrasound* OR ultrasonographic OR "prenatal ultrasonography" OR "Fetal Ultrasonography" OR "Obstetric ultrasonography" OR "Obstetric ultrasound")
MEDLINE via PubMed	("Nurse Midwives"[mh] OR Nurse Midwife*[tiab] OR (("Nurses"[mh] OR Nurse*[tiab]) AND (Midwife*[tiab] OR Midwive*[tiab])) OR Midwife*[tiab] OR Midwive*[tiab]) AND ("Ultrasonography"[mh] OR Ultrasound*[tiab] OR Ultrasonographic[tiab] OR Prenatal Ultrasonography[tiab] OR "Fetal Ultrasonography"[tiab] OR "Obstetric ultrasonography"[tiab] OR "Obstetric ultrasound"[tiab])
CINAHL and Embase	("Nurse Midwives" OR Nurse midwife* OR ((Nurses OR nurse*) AND (midwife* OR midwive*)) OR midwife* OR midwive*) AND (Ultrasonography OR ultrasound* OR ultrasonographic OR "prenatal ultrasonography" OR "Fetal Ultrasonography" OR "Obstetric ultrasonography" OR "Obstetric ultrasound")

Figure 1 – Data Search Strategy. Niterói, RJ, Brazil, 2022

Selection of studies

Closing the searches, the documents found will be exported to the Rayyan web application (Qatar Computing Research Institute, Doha, Qatar) so that the duplicates can be detected and removed, as well as the documents found. A thorough reading of the titles and abstracts of the documents will be carried out by two independent reviewers (blind) according to eligibility criteria. The full text will then be analyzed. If there are discrepancies between the reviewers during the selection steps of the documents, they will be resolved by discussion and/or assistance from a third reviewer.

Data extraction

To extract the selected data, a table, elaborated by the researchers, will be used to provide information according to the objective and the research question, Figure 2, and a database will also be created to detail the study. In the event of changes to the data extraction instrument, they will be informed in the final report.

Instrument developed for data extraction					
Title	**Country of origin**	**Year of publication**	**Authorship**	**Purpose**	**How is ultrasound used in the professional practice of obstetric nurses?**

Figure 2 - Instrument developed for data extraction. Niterói, RJ, Brazil, 2022

Data analysis and presentation
After the phase of data extraction, the documents included at the end of the scoping review will result in the identification and mapping worldwide of the professional practice of the obstetric nurse about the use of the ultrasound technology tool, the countries with the most significant scientific production on the subject will be analyzed and the existing knowledge gaps identified. The data analysis will be presented in a narrative way, with the support of tables and figures to illustrate the results and achieve the research objective.

CONFLICT OF INTERESTS
The authors have declared that there is no conflict of interests.

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