



TECHNOLOGICAL ADVANCES IN OBSTETRIC NURSING CONSULTATIONS USING ULTRASOUND

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ABSTRACT

Objective: to understand how ultrasound tools are used in prenatal Nursing consultations from the perspective of obstetric nurses.

Method: a descriptive and qualitative study carried out with ten obstetric nurses that use obstetric ultrasound in their Nursing consultations at a maternity hospital in Belo Horizonte, Minas Gerais, Brazil. Individual, semi-structured interviews were conducted between December 1st and 4th, 2021. The Atlas.ti software was employed to process the results using Bardin's thematic content analysis.

Results: the obstetric nurses expanded comprehensive care for pregnant women by implementing the use of ultrasound technology during Obstetric Nursing consultations, thus innovating the practices in Brazil. However, they faced countless challenges, which they overcame thanks to the positive results of improving obstetric and fetal care.

Conclusion: using ultrasound technology in Obstetric Nursing consultations represents an advance in the Nursing practice, as it enables access and qualification to timely care, free of charge and through the Unified Health System. The support and encouragement of the institutional management strengthened obstetric nurses' professional autonomy, mediating the implementation of innovation. The study focus is added to the technological development employed in the everyday work of Brazilian Nursing, increasing resoluteness of decision-making in health problems.

DESCRIPTORS: Obstetric nurses. Ultrasound. Prenatal ultrasound. Biomedical technology. Prenatal care. Women's health. Nursing care.

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AVANÇO TECNOLÓGICO NA CONSULTA DE ENFERMAGEM OBSTÉTRICA COM USO DE ULTRASSONOGRRAFIA

RESUMO

Objetivo: compreender o uso da ferramenta ultrassonográfica na consulta de enfermagem de pré-natal sob a perspectiva das enfermeiras obstétricas.

Método: estudo descritivo, de abordagem qualitativa, realizado em uma maternidade de Belo Horizonte, Minas Gerais, Brasil, com dez enfermeiras(os) obstétricas(os) que utilizam a ultrassonografia obstétrica na consulta de enfermagem. Entrevista individual, semiestruturada, realizada entre 1º e 4 de dezembro de 2021. Utilizou-se o *software* Atlas.ti para o tratamento dos resultados por meio da análise de conteúdo temática de Bardin.

Resultados: as enfermeiras obstétricas ampliaram o cuidado integral às gestantes, implementando a utilização da tecnologia ultrassonográfica durante a consulta de enfermagem obstétrica, inovando as práticas no Brasil. Entretanto, enfrentaram inúmeros desafios, que foram superados graças aos resultados positivos de qualificação do cuidado obstétrico e fetal.

Conclusão: a utilização da tecnologia ultrassonográfica na consulta de enfermagem obstétrica significa um avanço na prática de enfermagem, pois possibilita acesso e qualificação ao cuidado em tempo oportuno, gratuitamente, pelo Sistema Único de Saúde. O apoio e o incentivo da gestão institucional fortaleceram a autonomia profissional das enfermeiras obstétricas, mediando a implementação da inovação. O foco do estudo soma-se ao desenvolvimento tecnológico empregado no cotidiano de trabalho da enfermagem brasileira, ampliando a resolubilidade da tomada de decisão aos agravos à saúde.

DESCRITORES: Enfermeiras obstétricas. Ultrassonografia. Ultrassonografia pré-natal. Tecnologia biomédica. Cuidado pré-natal. Saúde da mulher. Cuidados de enfermagem.

AVANCES TECNOLÓGICOS EN CONSULTAS DE ENFERMERÍA OBSTÉTRICA UTILIZANDO ULTRASONIDO

RESUMEN

Objetivo: comprender cómo se utiliza la herramienta de ultrasonido en consultas de Enfermería prenatal, según la opinión de enfermeras especializadas en Obstetricia.

Método: estudio descriptivo de enfoque cualitativo, realizado en una maternidad de Belo Horizonte, Minas Gerais, Brasil, con diez enfermeras(os) especializadas(os) en Obstetricia que utilizan ultrasonido obstétrico en consultas de Enfermería. Se llevaron a cabo entrevistas individuales y semiestructuradas entre el 1 y el 4 de diciembre de 2021. Se utilizó el programa de *software* Atlas.ti para procesar los resultados por medio de análisis temático de contenido según Bardin.

Resultados: las enfermeras especializadas en Obstetricia ampliaron la atención integral provista a las embarazadas, implementando el uso de la tecnología de ultrasonido durante las consultas de Enfermería Obstétrica, innovando así las prácticas de la profesión en Brasil. No obstante, enfrentaron innumerables desafíos, que fueron superados gracias a los resultados positivos de calificación de la atención obstétrica y fetal.

Conclusión: utilizar la tecnología de ultrasonido en consultas de Enfermería Obstétrica representa un avance en la práctica de Enfermería, puesto que permite acceder y calificar los cuidados en tiempo y forma, de manera gratuita y a través del Sistema Único de Salud. El apoyo e incentivo por parte de la gerencia institucional fortalecieron la autonomía profesional de las enfermeras especializadas en Obstetricia, mediando la implementación de la innovación. El punto central del estudio se suma al desarrollo tecnológico empleado en la rutina de trabajo de los profesionales de Enfermería en Brasil, expandiendo así la capacidad de resolución del proceso de toma de decisiones relacionado con problemas de salud.

DESCRIPTORES: Enfermeras especializadas en Obstetricia. Ultrasonido. Ultrasonido prenatal. Tecnología biomédica. Atención prenatal. Salud de la mujer. Atención de Enfermería.

INTRODUCTION

Social and health inequalities are still serious problems in various regions of the world, such as Latin America and the Caribbean. Despite improvements in the health sector, several countries in this region, including Brazil, have not yet reached the target proposed by the Sustainable Development Goals (SDGs) related to reducing maternal mortality. The target for Brazil by 2030 is to reduce the maternal mortality ratio (MMR) to a maximum of 30 deaths per 100,000 live births¹⁻².

In the period from 2015 to 2019, the MMR varied below 60 deaths; however, in 2021, in the scenario of the COVID-19 pandemic, there was an increase to 107 deaths per 100,000 births¹⁻², showing that Brazilian prenatal care goes through multifaceted and chronic difficulties, which can interfere with the obstetric outcomes³. This increase in maternal mortality during the COVID-19 health crisis signaled the need to implement actions in Brazilian public policies, with a view to improving the quality of prenatal care, screening pregnant women early in time and ensuring access to the recommended supplies and tests.

In relation to neonatal mortality, according to the target set in the SDGs, by 2030 Brazil intends to tackle preventable deaths of newborns in order to reduce them to a maximum of five per 1,000 live births¹. The year 2021 showed a neonatal mortality rate of 8.38 deaths per 1,000 live births, which represents a decrease in the number of neonatal deaths. In 2000, this rate was 13.6; however, the current rates are still above the agreed upon target¹⁻².

In this context, prenatal care is essential for the health of pregnant women and newborns alike, with a focus on preventing problems and promoting the health of the dyad, favoring a reduction in maternal, fetal and neonatal morbidity and mortality⁴⁻⁵. Obstetric ultrasound is fundamental for prenatal monitoring, as it allows for the quick and accurate identification of various aspects, such as anatomy and possible pathologies of the fetus, presence of multiple pregnancies, fetal viability, estimating weight and growth of the fetus, location of the placenta, fetal position, if there is an ectopic pregnancy, as well as detection of oligohydramnios, among other relevant factors⁴⁻⁹. Evaluating umbilical blood flow with Doppler ultrasound makes it possible to detect possible placental insufficiency and fetal anemia⁹.

In this way, risk stratification and the identification of complications through ultrasound enable timely actions to be taken and referrals to the appropriate care level to be made, according to the needs of the dyad. This contributes to reducing perinatal deaths because, when abnormalities are identified through ultrasound, the care and approach to the case can be adjusted according to individual needs^{8,5}.

On this premise of optimizing obstetric results, the World Health Organization (WHO) has recognized the need for all pregnant women to undergo at least one ultrasound test before the 24th gestational week. The International Federation of Gynecology and Obstetrics (IFGO) recommends two ultrasound tests for all pregnant women¹⁰. In Brazil, the public health system's protocol includes carrying out at least two transvaginal ultrasound examinations during the first four months of normal risk pregnancies¹¹. However, access to this technology is unequal¹² and the test is still little used by nurses.

Technology has been used to ease human activities and has evolved to play a fundamental role in the health field. It provides support to the professionals in the provision of health care, covering the use of soft technologies, which are the processes that lead to conversation and bonding between professionals and users directed at the needs in terms of health actions; and hard technologies, which comprise devices, equipment and systems, the use of which is expanding, even in Nursing. When combined, these technologies qualify care and ground the professional practice on scientific knowledge¹³.

In recent years, ultrasound (US) equipment has become more compact, portable and accessible, with better image quality and lower costs. Increased access to the US technology has favored its use by other non-medical professionals, such as nurses. This has expanded the possibility of performing imaging exams in a variety of clinical settings, favoring care for the population in places where access to these resources has been limited⁹.

Ultrasound is a high-tech tool that provides care focused on patient safety, enabling obstetric nurses in prenatal Nursing consultations to improve the Nursing practice, with a focus on care safety and quality for the mother-child dyad. According to diverse scientific evidence, this technology has been used by nurses all over the world and is described as an essential practice for qualifying the professional Nursing practice^{14,7}. In this sense, using ultrasound as a tool to support physical examinations during Nursing consultations has been an important strategy, as it favors access to the recommended test for pregnant women, contributing to risk stratification^{7,4}.

In high-income countries such as Sweden and Norway, obstetric nurses carry out routine obstetric ultrasound examinations, as they are responsible for prenatal care and the management of normal-risk childbirth, as well as for providing assistance during high-risk childbirth in collaboration with the obstetricians and for performing postpartum care^{15,5}. Thus, the use of ultrasound by obstetric nurses is a tool for collecting data during Nursing consultations.

Ultrasound tests performed by obstetric nurses innovated prenatal care, incorporating an unprecedented qualification to Nursing consultations, and providing a view of the anatomy, growth and well-being of the fetus that was not available in other times⁶. Furthermore, the implementation of this test during prenatal consultations with obstetric nurses in low-income countries has proved to increase pregnant women's early adherence to prenatal care, making it possible to detect high-risk pregnancies, guaranteeing a minimum number of consultations and closer follow-up, as well as universal access to imaging services for these women⁹.

Considering that this innovation in the professional Nursing practice makes it possible to qualify and provide obstetric and fetal safety, this study aimed at understanding how the ultrasound tool is used in prenatal Nursing consultations from the perspective of obstetric nurses.

METHOD

A descriptive study with a qualitative and methodological approach. The *Consolidated Criteria for Reporting Qualitative Research* (COREQ) were adopted, meeting the criteria for reporting qualitative research. This study is based on an excerpt from the dissertation entitled "Obstetric nurses' views on the effects of the regulation of obstetric ultrasound on Nursing consultations"¹⁶.

The research was carried out at a maternity hospital in Belo Horizonte, Minas Gerais, Brazil, a philanthropic institution under private law, with 100% service provided by the Unified Health System (*Sistema Único de Saúde*, SUS), where a mean of 900 deliveries are performed every month, with obstetric nurses assisting nearly 88% of the normal deliveries. It is a reference point for high-risk prenatal care, as well as for low- and high-risk labor and birth.

This hospital was chosen because it was a pioneer in Brazil in the use of obstetric ultrasound by obstetric nurses during Nursing consultations. It has two units, each one with two ultrasound rooms equally equipped with ultrasound machines and other accessories for the immediate release of the description of the Nursing consultation and images of the examination.

The inclusion and selection criterion for the participants was being an obstetric nurse who has completed and received certification in basic obstetric ultrasound and performs Nursing consultations using this technology while on duty in the imaging department, with low- and high-risk pregnant women,

referred by the other sectors of the maternity ward, prenatal outpatient clinic, emergency room, normal delivery center, clinical case ward, high-risk pregnancy unit, maternity home and operating room, according to the needs of the dyad identified by the interdisciplinary team.

In order to identify the research participants, a telephone call was made to the obstetric nurse coordinating the ultrasound department, who informed us that 13 obstetric nurses (ONs) had been trained and certified to use obstetric ultrasound during Nursing consultations.

However, when the field research was initiated, three obstetric nurses were excluded because they no longer belonged to the institution's professional staff. This made a total of ten ONs. Sample composition was closed due to exhaustion.

For the face-to-face interviews, the ten ONs were invited by telephone to take part in the study, and their contact details were provided by the obstetric nurse who coordinates the ultrasound department. The study and its purpose were explained in this first contact. After agreeing to take part in the research, the date, time and place of the interviews were scheduled at the interviewees' convenience.

The interviews were pilot-tested with two obstetric nurses that did not meet all the inclusion criteria. The data from these interviews were not analyzed and were disregarded. During the test, adjustments were made to the question to help improve the way the interview was conducted.

The data were collected in person between December 1st and 4th, 2021, through an interview with a semi-structured script consisting of two parts: the first for the sociodemographic identification of the participant; and the second, containing the research question: talk about your professional practice as an obstetric nurse that uses the ultrasound technological tool during Nursing consultations.

Data collection was conducted by the main researcher, who is an obstetric nurse and is familiar with the topic under study, as well as the fundamental principles of the interview technique used to obtain the data. The interviews were carried out individually, in a private place at the participants' workplace, according to their availability. As the obstetric nurses provide care in various sectors of the institution according to a rotating schedule, the interviews were conducted in the Surgical Center, the Ultrasound Department, the Maternity Home, the Normal Delivery Center, the Study Center and the Boardroom.

The interviews lasted a mean of 30 minutes and were recorded using an electronic voice recorder, to be later on transcribed in full by the researcher. In order to ensure confidentiality and privacy of the interviewees, they were identified by the letters "ON" (initials of the words "Obstetric" and "Nurse") accompanied by the Arabic numeral randomly assigned as the identifier of the interview in question. The chronological order in which the interviews were carried out was not followed in order to maintain the participants' anonymity (ON1, ON2, ON3 ... ON10). The ethical determinations set forth in Resolution No. 466/2012 of the National Health Council (*Conselho Nacional de Saúde*, CNS) were followed, including approval by the Research Ethics Committee (*Comitê de Ética em Pesquisa*, CEP). All the participants signed the Free and Informed Consent Form (FICF) in two copies, which was presented to them beforehand for their consent.

The data analysis process was initiated by transcribing the interviews into Microsoft Word and then sending the ten documents to the Atlas.ti 22 software. The Atlas.ti software is a versatile tool for composing data for qualitative analysis, with advanced resources for organizing, analyzing and interpreting the data¹⁷⁻¹⁸, using Bardin's thematic content analysis technique¹⁹.

The interviewees' speeches were coded, the registration units were identified, the counting rules were selected and so the coding process began and, consequently, this set of codes was transposed into a network of codes, forming the established category, based on the schematized thematic nucleus (Figure 1), representing the set of context units from which the respective category emerged.

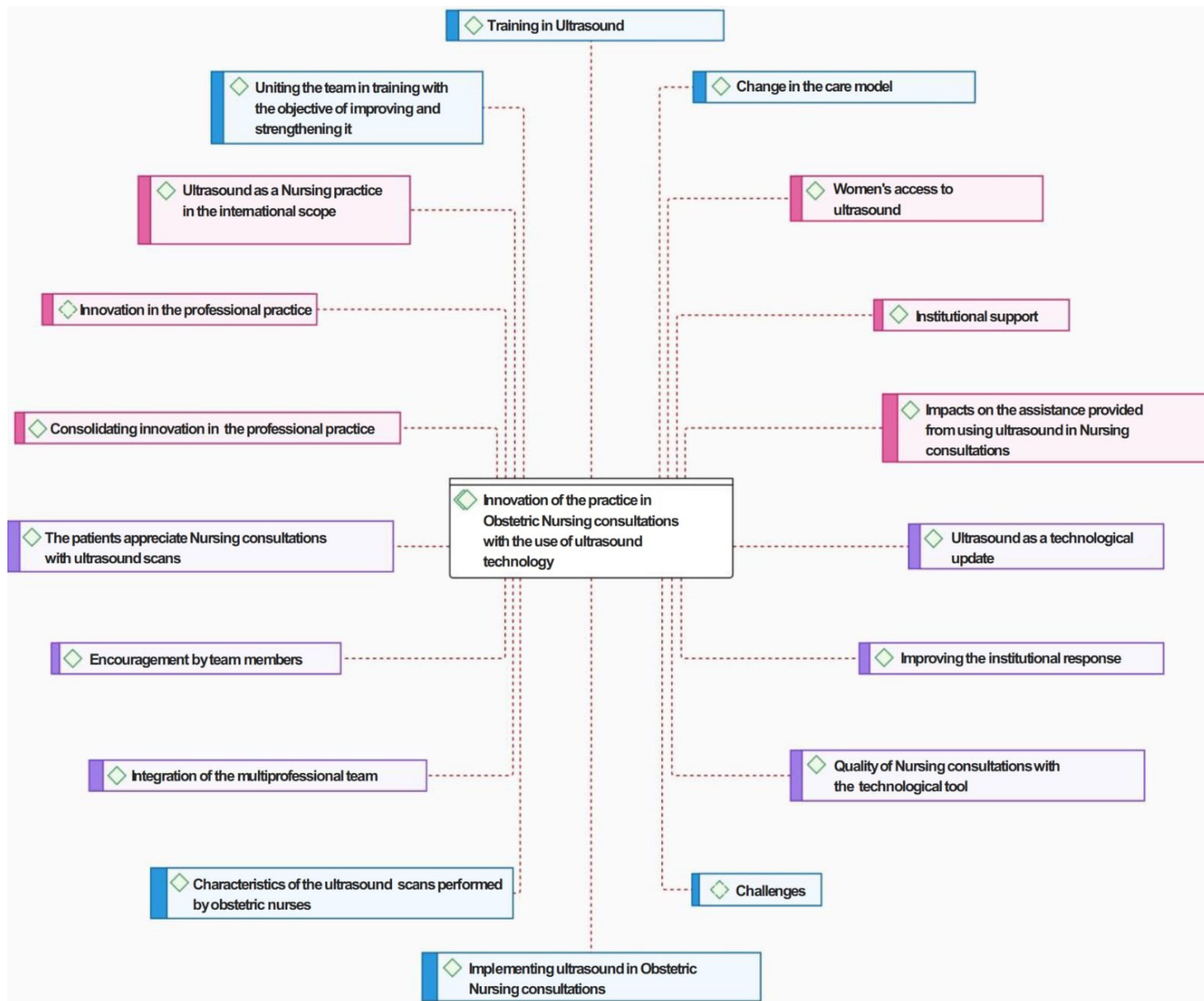


Figure 1 – Network of codes referring to the category extracted from the Atlas.ti software. Niterói, RJ, Brazil, 2023.

The following thematic category emerged from the data analysis: Innovation of the practice in Obstetric Nursing consultations with the use of ultrasound technology.

RESULTS

The results showed that the group of obstetric nurses sought to advance their professional practice by incorporating new care processes and technology into Nursing consultations, through the use of ultrasound technology. This action guaranteed pregnant women and their unborn infants the right to the resources required for risk stratification during prenatal care and better obstetric and neonatal outcomes, enabling women to have access to ultrasound scans so that the interdisciplinary team could make timely decisions about clinical management.

Most of the ten obstetric nurses taking part in this research were women (n=9), aged between 31 and 49 years old. In relation to skin color/race, two participants declared themselves to be white-skinned, seven were brown-skinned and one stated being black-skinned. Thus, eight participants declared themselves as belonging to the Black race (the sum of black and brown). Eight obstetric nurses have been working in the maternity ward for more than ten years. All the participants (n=10) had completed ultrasound training and had been using ultrasound for more than two years, with the majority (n=7) having been using it for between five and seven years.

Innovation of the practice in Obstetric Nursing consultations with the use of ultrasound technology

Due to the high demand from pregnant women who have difficulty accessing obstetric ultrasound tests in a timely manner, for adequate risk stratification and assessment of clinical conditions, as well as the need for comprehensive care for the mother-child dyad, the obstetric nurses felt the need to innovate their scope of practice, incorporating ultrasound into Nursing consultations in order to seek resoluteness and quality for obstetric and fetal care. This is synthesized in the following statements:

[...] this path started around 2014, 2015, when we began to familiarize ourselves with the ultrasound tool and saw the need for Nursing to advance with the use of this technology, so that we could provide comprehensive and more resolute care for women. I work as an obstetric nurse in the high-risk department here at the institution, and we saw how difficult it was to access ultrasound and how big its impact was, even on these women's hospitalization time here at the institution. And also in terms of resoluteness, in terms of neonatal outcomes, we often had indications of termination of pregnancy due to absence of a more complete assessment and ultrasound (ON3).

[...] nursing consultations using the ultrasound tool are a way of bringing greater resoluteness to women's problems. Before, pregnant women would be admitted to hospital and, when they needed an ultrasound, they'd spend around a week to 15 days in hospital waiting for the test (ON8).

[...] now we carry out a Nursing consultation using ultrasound and, if everything is normal, we can release the woman to return to her home or to follow-up on her prenatal care, without her necessarily needing to be hospitalized. I believe that their access has been made easier and that they've have been offered a more opportune time to make decisions (ON6).

As a result, the obstetric nurses sought training in how to carry out Nursing consultations using obstetric ultrasound:

[...] we had an extensive 15-day course, it's exclusively for physicians but, at that time, the management here got this course for us, we were nine obstetric nurses, we did this training, I had never even touched an ultrasound machine, as soon as we returned from the course, we implemented it here in the service and we haven't stopped, it's only grown! (ON2).

The obstetric nurses perceive the use of ultrasound technology during Nursing consultations as an advance in their professional practice:

[...] nursing advances a lot when we take what is ours! We understand that care doesn't just have to be basic, care is also in technology, it's going hand in hand with technological advances. Spaces that seemed like they could only be occupied by one professional category, can be occupied by other categories, this is very possible, we are proof of this (ON7).

[...] when we searched the literature, we realized that there's a knowledge gap in relation to ultrasound and how to use this technology in Nursing consultations, together with colleagues, we saw how much we could advance! [...] I think it's a very important process that has brought great progress to Brazilian Nursing (ON5).

Implementing the use of ultrasound technology during Nursing consultations has brought about countless benefits:

[...] the tool helps us save lives! [...] we have certain confidence, cases such as a very calcified placenta, fetal growth restriction, very reduced amniotic fluid: we admit this woman to the Maternity Home, invest in fluid intake, two days later, a fluid that was 5 is 8, is 9! (ON1).

[...] we can see the difference this technological tool is making to Nursing consultations here at the hospital. The patients at risk are admitted to the Maternity Home, patients from inland towns, with 27 gestational weeks, we make a "ductus venosus" every day for up to a month, so as not to interrupt the pregnancy too early. Sometimes it's necessary for the fetus to gain one, two or three more days in the womb, so we manage to gain that time, time to make at least the corticoid! The Doppler monitoring of patients with pre-eclampsia, who sometimes used to arrive and terminate the pregnancy, the premature babies weighing 500 grams, 600 grams, now, with the ultrasound at the obstetric nurse's appointment, we can safely gain more days of growth and development for this fetus (ON9).

Despite the countless benefits such as improved monitoring of pregnant women and access to ultrasound technology in a timely manner, the hospital and obstetric nurses faced several challenges.

[...] this process was very difficult at the beginning, the clashes, the very construction of this field, given that it's a new field, that it's an advanced practice, because it causes certain strangeness to other colleagues (ON4).

[...] it was a study challenge, a confrontation challenge too, because we had a lot of confrontation, a lot of resistance from other categories and from Nursing itself. Until you manage to make these people understand that technology is available to humanity and that it has to be used very well by all categories, this is a process that we build day by day (ON10).

The challenges faced by this group of obstetric nurses and this maternity hospital have even reached the legal framework and professional ethical processes.

[...] back in 2015 we ended up doing external consultations (with US) for patients who came in and we had a lot of problems, because many professionals took our evolutions and filed a lawsuit with the CRM. [...] we've had some legal implications, due to other Councils in other categories, but we've carried on [...] (ON2).

[...] some of our professionals, from the medical category, who were sympathetic to the cause and understood the importance of technology being socialized for people, not for Nursing, but for people, were also somewhat cornered by their councils and are facing lawsuits. [...] then you find a path marked by resistance. [...] and that brings insecurity, which generates fear (ON6).

These confrontations show that the hospital's physical and organizational barriers were surpassed, bringing insecurity, fear and, at times, even leading the team to back down in the process

of implementing this practical innovation in Nursing consultations. However, faced with successful experiences and better outcomes, both the obstetric nurses and the institution continued to incorporate this technology into the work process.

[...] now I see that we're on the right track and that there's a need to expand this practice so that we have more sustainability, considering that today we only have a few locations that actually carry out this consultation, which is a qualified and comprehensive consultation that reduces mortality (ON4).

[...] we made progress, talked and had many meetings, and that's where the hospital's management came in and gave great support to this innovation. The team that was involved took on this process with great courage, the partners who supported us, the Federal Nursing Council, the Regional Nursing Council of Minas Gerais, ABENFO. So all these movements that we managed to make and these partners that we brought into the discussion were very important for developing projects, for developing practice, for us to understand where we were going within this process (ON10).

DISCUSSION

Prenatal ultrasound is important for clinical care and plays an essential role in revealing pregnancy-related complications such as multiple gestation, oligohydramnios and *placenta previa*⁴. In this context, the WHO recommends that pregnant women undergo at least one ultrasound scan by the 24th gestational week. Meanwhile, IFGO recommends two tests¹⁰. In June 2023, the Brazilian public health network protocol included two transvaginal ultrasound exams in the first four months of pregnancy¹¹.

According to a national survey, *Nascer no Brasil* (Being Born in Brazil)¹², there are regional inequalities in access to and quality of prenatal care in Brazilian public health services and their association with perinatal health, including access to ultrasound tests. In fact, the North region of the country presented the highest coverage deficit in relation to this technology, at less than 70%¹². Pregnant women treated at a primary care unit in São Luís, Maranhão, Brazil, were unaware of the possibility of undergoing an ultrasound exam through the SUS, and some women who were aware of this right decided to pay for the test in the private network, given the difficulty scheduling it and receiving the results²⁰.

Faced with the scenario of difficulty accessing ultrasound, the obstetric nurses interviewed saw the need to incorporate this technology into prenatal Nursing consultations; in other words, to implement an advanced practice in order to meet the clinical monitoring needs of the pregnant women they monitored.

The research results evidenced that using ultrasound in prenatal Nursing consultations allowed for more frequent and detailed monitoring of the fetus, enabling conservative management of the pregnancy and avoiding unnecessary early miscarriages. This has contributed to shorter hospitalization times and lower maternal and neonatal morbidity and mortality rates.

It is worth noting that a study carried out at a maternal intensive care unit in Natal, Rio Grande do Norte, Brazil, found that the institution did not have a full-time ultrasound service to assess fetal well-being, thus discouraging requests for the test, which might be related to the high rate of C-sections observed in this group of patients²¹.

In this context, through the management and organization of processes and practices in the field of multi-professional work, training increases the network of subjects capable of acting effectively in the care process²². The reports presented in this research show that the training of obstetric nurses

had pedagogical strategies aligned with the training-intervention framework, with a view to solving problems in Nursing consultations, seeking to improve access to the technology and maternal and neonatal health indicators.

In view of the modernization of health technologies and the need to implement advanced Nursing practices, investment in training for Nursing professionals is of paramount relevance in the qualification process of this professional category and for the appreciation of their everyday practice. COFEN Resolution No. 627/2020 defined that, in order to use ultrasound technology, obstetric nurses must attend a training course in Basic Ultrasound in Obstetrics, with a minimum hour load of 120 hours and at least 100 hours of supervised tests²³.

According to the interviews, the obstetric nurses taking part in this research had undergone training in obstetric ultrasound and had been using the technology for more than two years; therefore, they had completed the course before the COFEN established the training criteria. According to ON2, the course that was held was exclusively for physicians, corroborating the lack of courses for obstetric nurses in Brazil until then; in other words, it was an innovation in their scope of practice.

Advanced clinical research, the analysis of laboratory and imaging tests, the performance of complementary tests such as ultrasound, as well as the ability to make complex decisions, are all activities of advanced practice nurses²⁴. Thus, the obstetric nurses in this study identify Nursing consultations using obstetric ultrasound as an advanced practice.

Obstetric Nursing is one of the functions of Advanced Practice Nursing (APN), which, by definition of the International Council of Nurses, requires an MSc degree as prerequisite for qualification²⁴. However, in Brazil there is still no standardization for APN training, or even the degree that represents these professionals that have the skills and clinical competence to make complex decisions and who have expanded their practices²⁵. The World Health Organization (WHO) advocates expanding the scope of the Nursing practice in order to maintain the workforce and, thus, improve access to health services in Latin America and the Caribbean²⁶.

An obstetric nurse who is skilled in advanced clinical research, when using a sonar during a prenatal consultation and when the fetal heart rate (FHR) is negative, performs obstetric ultrasound at the point of care with the opportunity to better identify the FHR and fetal movement, as well as checking implantation of the fetus and placenta, amount of amniotic fluid, fetal size and gestational age²⁴.

Therefore, the ultrasound technology has innovated Nursing care for pregnant women in hospital and outpatient care, as well as favoring access to women from inland cities in a timely and resolute way and the adaptation of professional actions according to the needs identified.

However, the results of this research indicate that the implementation of the ultrasound in Nursing consultations was met with resistance from the medical team and the nurses themselves. From this point of view, diverse evidence indicates that there are challenges regarding the inclusion of obstetric nurses and the expansion of their practice due to different understandings and a dichotomized perception of the limits between Medical and Nursing practice, as well as the possibility of limited knowledge about Nursing legislation and market reserve conflicts related to the medical act²⁷.

The APN has been adopted worldwide, but the most developed countries are the ones that have maximized the scope of nurses' clinical work. For example, in these countries, obstetric nurses are responsible for routine prenatal consultations and ultrasound tests, and the maternal mortality rate is approximately 17 deaths per 100,000 live births^{28,9}. However, in developing countries such as Brazil, where the mortality rate is around 60 deaths per 100,000 live births, these practices are still in their infancy and face countless challenges such as those mentioned above by the obstetric nurses taking part in this study.

As evidenced, the implementation of Advanced Practice Nursing faces several challenges in terms of developing competencies, adapting to legislation for professional support and the transition from the medical-centered model to comprehensive, user-focused and interprofessional care²⁶.

The medical hegemony in the Brazilian health context makes it difficult to change the obstetric scenario, jeopardizing women's care and preventing the desired comprehensive and qualified care from being achieved²⁹. When analyzing the results of this study, it was evidenced that the challenges faced by this group of obstetric nurses and the maternity hospital even reached the legal sphere and professional ethical processes, with the medical councils at the center of these confrontations.

Obstetric nurses are agents that can promote changes in the existing care model. However, due to the intricacies related to autonomy in the practice of this profession, it is necessary to have the support of institutional management to mediate the implementation of innovations²⁷. Obstetric nurses believe that this support is a factor that eases and provides their practice in an autonomous way³⁰, a fact evidenced by the interviews in this study, as the maternity hospital management has invested in training and equipping them, making it possible to implement the new professional practice, which has resulted in increased access to ultrasound and improved obstetric health care.

In order to face the challenges and confrontations, both the obstetric nurses and the institution sought partnerships and support from the Federal Nursing Council (*Conselho Federal de Enfermagem*, COFEN), the Minas Gerais Regional Nursing Council (*Conselho Regional de Enfermagem de Minas Gerais*, COREN-MG) and the Brazilian Association of Obstetricians and Obstetric Nurses (*Associação Brasileira de Obstetizes e Enfermeiros Obstetras seccional Minas Gerais*, ABENFO-MG). Thus, the process of advancing the Nursing practice with the use of ultrasound in prenatal Nursing consultations continued. Since 2015, the COFEN has been discussing and supporting Advanced Practice Nursing in order to implement this type of training and care in Brazil, as these practices are fundamental for health promotion and disease prevention²⁵.

In order to accompany and support the advancement of Nursing practices, especially the use of ultrasound during Nursing consultations, the Federal Nursing Council published COFEN Resolution No. 627/2020, standardizing the use of this technology by Brazilian obstetric nurses²³.

In this sense, it is understood that it is necessary to expand the use of ultrasound technology in Nursing consultations throughout Brazil, with training courses, also including this theme in the undergraduate curriculum, in specialization and residency courses, so that more women have access to qualified prenatal care.

Given the unprecedented nature of this study in Brazil, as it focuses on a practice that has been recently implemented in the obstetric nurses' routine, the limitations are associated with the fact that the research was carried out in a Brazilian maternity hospital, which precludes generalizations, as well as the scarcity of publications and scientific evidence that corroborate the results found. The literature is mainly sparse on the implementation of a practical innovation in the workplace, together with the interdisciplinary team; even so, in the analysis carried out, it was possible to contextualize and discuss the results. Thus, the diverse evidence obtained through this study contributes to the Obstetric Nursing practice and to future research studies on the subject matter, which may contribute to the findings or refute them.

CONCLUSION

The study made it possible to understand that using ultrasound technology in prenatal Nursing consultations is an innovation in the professional practice of obstetric nurses, and the clinical findings obtained in this process result in timely decision-making, enable care qualification and guarantee access, with a view to reducing maternal and neonatal morbidity and mortality.

Given the relevance of the new practice in these obstetric nurses' routine, they sought theoretical and scientific grounds in guidelines from other countries and in the legislation itself. In addition to that, they partnered with and had the support of their supervisory bodies, COFEN and COREN-MG, as well as ABENFO-MG. They contribute to technological advances and to the practice of Brazilian Nursing, producing knowledge about the daily routine of health work, increasing resoluteness for decision-making on health problems.

Implementing this technology into the Nursing Process was a challenge for the obstetric nurses in this study, who have trained and are continually improving themselves. They face challenges in relation to the professional limits of Nursing and even the mistaken market dispute, with judicializations and ethical processes on the part of the medical councils.

The study also allowed evidencing that the support and encouragement of institutional management is indispensable for intervening in the arrangement of the health work process, mediating the implementation of innovations in the Nursing practice field, guaranteeing professional autonomy, which resulted in increased access to ultrasound and improved prenatal care. Thus, investments in future research studies in the field of Nursing consultations using ultrasound technology should be encouraged, with a view to increasing the scope of the obstetric nurses' practice and promoting comprehensive care for pregnant women and their unborn children.

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CONTRIBUTION OF AUTHORITY

Conception of the study: Borborema RDB, Alves VH.

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CONFLICT OF INTEREST

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