Review Article

Advanced Practice Nursing: a strategy to improve maternal and child care in Brazil

Enfermagem de Prática Avançada: estratégia para melhorar o cuidado materno-infantil no Brasil

Enfermería de Práctica Avanzada: estrategia para mejorar el cuidado materno-infantil en Brasil

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Abstract

Objective: This article aims to investigate how the implementation of Advanced Practice Nursing could contribute to improve the current maternal and child care status in Brazil.

Methods: This study is a literature review conducted in November 2018 to January 2019 through the following databases: CINAHL, PubMed, Medline, Health Source: Nursing Academic edition and PACE University Library. The data were categorized and analyzed considering the concept of access to health care.

Results: From a review of 138 papers, 10 met the inclusion criteria and were reviewed for analysis. Based on the framework used in this study, the researchers identified two main categories of social indicators to the access concept: process and outcome. These themes explored in the narrative analysis are the process and outcome indicators of the Brazilian health system, as well as the expected outcome indicators subsequent to implementation of the Certified Nurse-Midwifery role.

Conclusion: The Certified Nurse-Midwife role could help Brazil improve access and quality of maternal and child health care, as well as improve the cost-benefit of care provided. This role may contribute significantly to one of the main problems faced by this country: inequality in the distribution of health professionals in geographical regions.

Resumo

Objetivo: Investigar como a implementação da Enfermagem de Prática Avançada poderia contribuir para melhorar o *status* atual dos cuidados maternos e infantis no Brasil.

Métodos: Revisão da literatura realizada em novembro de 2018 a janeiro de 2019 através das seguintes bases de dados: CINAHL, PubMed, MEDLINE, *Health Source: Nursing Academic edition* e Biblioteca da Universidade PACE. Os dados foram categorizados e analisados considerando o conceito de acesso aos cuidados de saúde.

Resultados: De uma revisão de 138 artigos, 10 preencheram os critérios de inclusão e foram revisados para análise. Com base no enfoque utilizado neste estudo, os pesquisadores identificaram duas categorias principais de indicadores sociais para o conceito de acesso: processo e desfecho. Esses temas explorados na análise narrativa são os indicadores de processo e desfecho do sistema de saúde brasileiro, bem como os indicadores de desfecho esperado subsequentes à implementação do papel da enfermeira obstetra.

Conclusão: O papel da enfermeira obstetra poderia ajudar o Brasil a melhorar o acesso e a qualidade dos cuidados de saúde materno-infantil e o custo-benefício dos cuidados prestados. Esse papel pode contribuir significativamente para um dos principais problemas enfrentados por este país, como desigualdade na distribuição de profissionais de saúde em regiões geográficas.

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Resumen

Objetivo: Investigar de qué forma la Enfermería de Práctica Avanzada podría contribuir para mejorar el estado actual de los cuidados maternos e infantiles en Brasil.

Métodos: Revisión de la literatura realizada de noviembre de 2018 a enero de 2019 a través de las siguientes bases de datos: CINAHL, PubMed, MEDLINE, *Health Source: Nursing Academic edition* y Biblioteca de la Universidad PACE. Los datos fueron categorizados y analizados de acuerdo con el concepto de acceso a los cuidados de la salud.

Resultados: De una revisión de 138 artículos, 10 cumplían con los criterios de inclusión y fueron revisados para su análisis. Con base en el enfoque utilizado en este estudio, los investigadores identificaron dos categorías principales de indicadores sociales para el concepto de acceso: proceso y resultado. Estos temas estudiados en el análisis narrativo son los indicadores de proceso y resultado del sistema de salud brasileño, así como los indicadores de resultado esperados subsecuentes a la implementación del papel de la enfermera obstetra.

Conclusión: El papel de la enfermera obstetra podría ayudar a mejorar en Brasil el acceso y la calidad de los cuidados de la salud materno-infantil y el costo-beneficio de la asistencia prestada. Este papel puede contribuir significativamente para uno de los principales problemas enfrentados por este país, como la desigualdad en la distribución de profesionales de la salud en regiones geográficas.

Introduction

Notable advances in the health sector occurred over the last decades throughout Latin America and the Caribbean. However, social and health inequities remain relevant problems. Many of the countries in this region, including Brazil, have not achieved their target maternal and infant health outcomes, resulting in large disparities.[1] With an estimated MMR of 141 per 100,000 live births in 1990, according to its Health Ministry, Brazil presented a Maternal Mortality Ratio (MMR) of 62 per 100,000 live births in 2015, which still meets the criteria for being high, and an Infant Mortality Ratio (IMR) of 15.1 per 1,000 live births in the same year.[2,3]

The reductions of MMR and IMR were two of Brazil's priority Millennium Development Goals (MDG) to be achieved between 1990 and 2015.[4] Despite there being a relevant reduction of MMR since 1990, the Brazilian Federal Government recognized that the goal of reducing MMR was among the most difficult to achieve.[5] Brazil only achieved a reduction in MMR of 50%, rather than its goal to reduce it by 75%. This resulted in the country's classification of the fifth slowest country in the quest to reduce maternal deaths.[3,6] Regarding IMR, although Brazil achieved a target rate of 15.7 deaths per 1,000 live births, this indicator is persistently high and obstacles remain to be overcome.[7,8]

In an attempt to address the remaining inequities in the Latin American region, the UN published its Agenda 2030 for Sustainable Development. In this document, the 2030 Sustainable Development Goals (SDG) have again been revised, aiming to lower the prevalence rate of maternal and infant mortality.[3] One of the challenges to achieve this target and address these regional inequalities in Brazil is that there are unequal distributions of physicians across Brazil, leaving remote areas relatively deprived of adequate health workforce.[1]

In Brazil, nurses and physicians are among the main health care providers that are directly involved in improving the health indicators of women and children. On the other hand, the nurses have a more uniform distribution across the varied regions of the country as compared to physicians.[9] Nevertheless, the process of regulation of health professionals in Brazil is belated in terms of enabling the extension of the scope of practice to certain categories of health care providers, such as nursing. This kind of restriction works against the needs of the population. Many other countries have adopted strategies to restrain the exclusive right of practice to some professional categories.[10]

Advanced Practice Nursing (APN) emerges in this context as a strategy to improve the professional scope of nursing practice. The Certified Nurse-Midwife (CNM) role, one of four APN roles, is marked by the critical features of: clinical focus, patient advocacy, education and training, audit and research, and consultancy.[11] With a pre-requisite of a master's degree as entry to their advanced level of practice, CNMs aim to provide expert patient-centered care and consultancy in their field of specialty.[11,12] The WHO recommends enhancing the scope of practice of health

workers as a means to improving vital health-care services, particularly in rural and remote areas, and those with an absolute shortage of health providers.[13] To increase the workforce, and consequently the access to primary health care in Latin America and the Caribbean, this organization recommends utilization of APNs.[14,15]

Within the Brazilian maternal and child health context, the policy of *Rede Cegonha* (freely translated as Stork Network) acknowledges that a professional qualification directly relates to the quality of care and good practices of labor and birth care. This policy further acknowledges that incorporating these good practices is one of the most impactful actions against maternal and child morbidity and mortality. [16] Therefore, *Rede Cegonha* recommends investment in advanced professional training, especially for obstetric nurses, which could be perfectly met by implementing the CNM role. The CNM model of care and *Rede Cegonha* both have as their priority a model of childbirth care that offers humanized and quality care to pregnant women, puerperal women, and newborns.

Evidence of several studies supports that APNs provide more health care in remote areas than physicians.[17-19] The evidence also demonstrates that APNs provide effective, high-quality patient care, with desired improvement in health outcomes; cost-savings; and increased health care coverage.[19-25] The patient outcomes of care provided by CNMs, one of the APN groups, are also demonstrated to be at least equivalent to, and in some cases better than outcomes of care provided exclusively by physicians.[19]

It follows to reason that the inclusion of the CNM role in Brazil could promote the achievement of better access to care and consequently improved health outcomes, helping the country to reduce MMR and IMR and thus achieve the SDG targets for 2030. The research question is: How could the implementation of APN, through CNMs specifically, contribute to improve the current maternal and child health status in Brazil? This article aims to investigate how the implementation of APN could contribute to improve the current maternal and child health care status in Brazil.

To overcome the remaining challenges presented by Brazil after the Millennium Development Goals (MDG), the Sustainable Development Goals (SDG) established that the global Maternal Mortality Ratio (MMR) should be less than 70 per 100,000 live births and that the preventable deaths of newborns and children under 5 years old should end by 2030.[6] Although the Brazilian MMR average is under this global target, there are many disparities among states, some of them demonstrating an MMR above 100 deaths per 100,000 live births, especially in the North and Northeast regions.[3]

The MMR and IMR are among the most important indicators to demonstrate the health status of a country.[26] Other relevant indicators of maternal and infant health status are Cesarean Section rate, low birth weight, and rate of exclusive breastfeeding (<6 months). Additional risk factors related to MMR and IMR are service coverage and health system infrastructure, including antenatal care coverage and workforce capacity. [27] The scope of antenatal coverage statistics reveals that in 2015, only 70,2 % of the Brazilian women had access to adequate (or more than adequate) care, at least six prenatal visits.[3] The C-section rate in Brazil in 2015 registered 55,5 %. In this same year, newborn and infant health outcomes also did not meet the target goals: the low birthweight rate (LBW) in Brazil was 8,4%. In 2017, exclusive breastfeeding prevalence in children up to six months old was only 38,6%.[3,28]

In an attempt to support the achievement of the SDGs, in 2011 the Brazilian government instituted a program called *Rede Cegonha*. This program is composed of four elements: prenatal care; delivery and birth; postpartum care; and comprehensive attention to children's health.[5] It aims to provide qualified and humanized care, by establishing a model of care delivery for pregnant women, mothers, and children up to 2 years old.[29] Prenatal care and care for women during childbirth are recognized as relevant strategies to reduce the morbidity and mortality risk among pregnant women and children and are priorities to the Brazilian Unified Health System (*Sistema Único de Saúde*).[3]

To provide this qualified care, it is imperative that the country addresses its health-workforce shortage issues. To function properly, the health systems depend directly on their workforce.[30] Thus, to obtain better outcomes, and improve health service coverage, the health workforce must be adequate in its size and skills.[31] The WHO identified the SDG index threshold of 4.45 doctors, nurses, and midwives per 1,000 population as an indicative minimum density of health professionals that are needed to achieve the global goals by 2030.[31] Despite an inadequacy of this proportion, the Brazilian government estimates that the physicians should increase from the current 1.7 per 1,000 population to a ratio of between 2.3 and 3.5 per 1,000 population in the next twelve years. The nurses should increase from 0,7 to a ratio of 2.4 to 4.0 per 1,000 population.[10]

As a priority SDG for 2030, Brazil must also decrease its disparity in health worker distribution between urban and rural areas.[32] Countries like Brazil, with human resources challenges, will need to develop appropriate, sustainable and cost-effective strategies to eliminate needs-based shortages.[31] They must consider innovations in their models of care and educational strategies to include providers, such as nurses and advanced-practice nurses, to be integrated into the primary health care system.[33,34]

With regards to maternal and infant health, one seminal article reports that CNM care results in: lower rates of cesarean section; increased chance of vaginal deliveries; lower rates of analgesia use; fewer instrumental births; comparable rates of low birth weight; and higher breastfeeding rates, when compared with the care provided by physicians.[19] In consideration of the positive results of CNM care experienced and proven in other countries, and given the aforementioned health disparities, Brazil should strongly consider the implementation of this APN role, as a strategy to improve access to high-quality maternal-infant care and improved health outcomes.

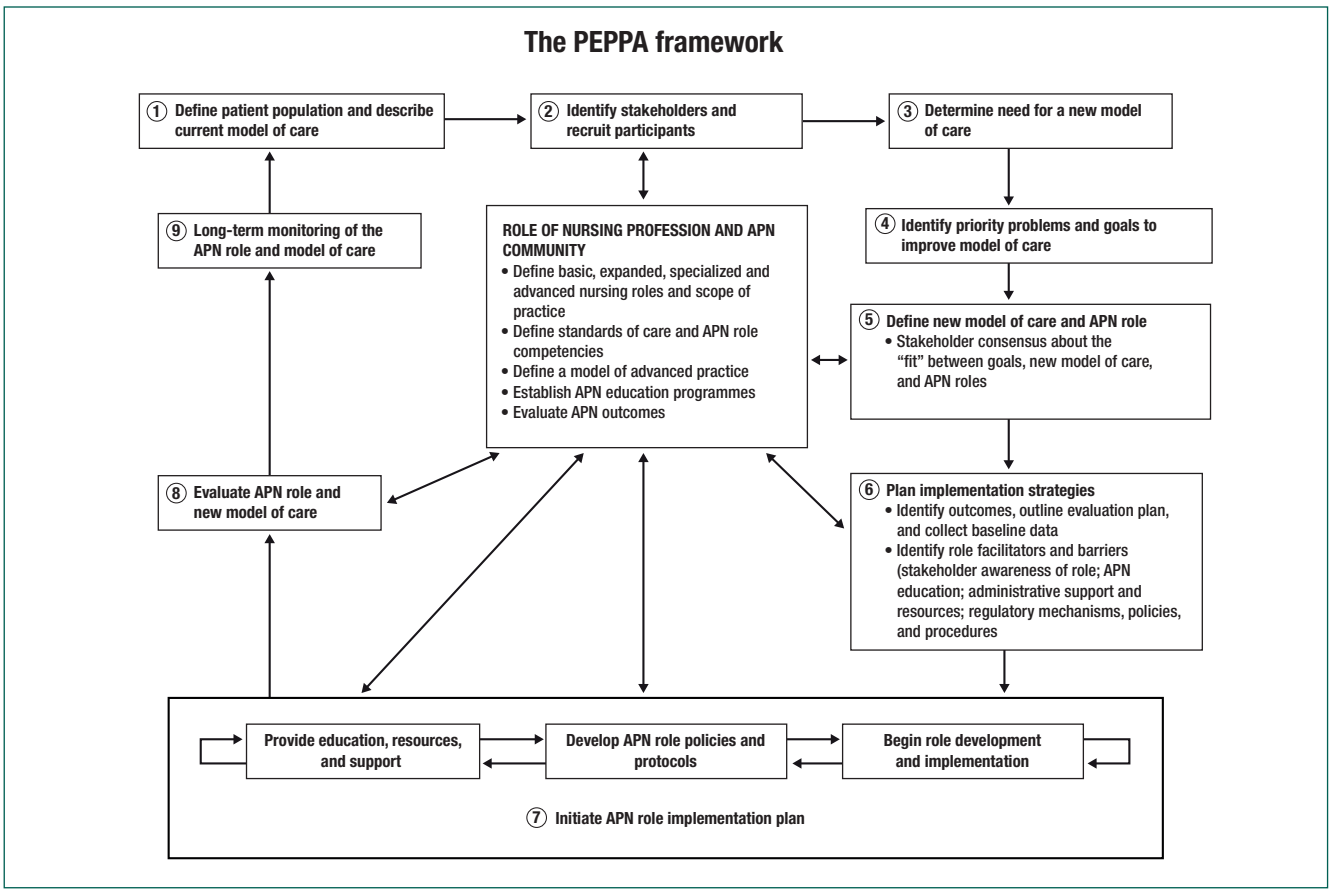
Conceptual framework

APN in Latin America and the Caribbean is a new concept.[35] To guide the implementation process of this role, the Participatory, Evidence-based, Patient-centered-focused Process for Advanced Practice Nursing role development, implementation, and evaluation, well known as the PEPPA framework, will be applied.[36] This framework is recognized as the best practice approach for introducing APNs and more than 16 countries have implemented it successfully.[37] The PEPPA framework articulates nine steps and strategies to guide specific implementation issues of the APN role, creating a flexible and iterative process, as illustrated in the figure below (Figure 1).

The first step of the PEPPA framework helps to identify barriers and guide the implementation process.[35] This step also identifies the patient populations to be the focus of activities in subsequent steps and establishes the scope of the process from different perspectives.[36] Thus, to facilitate the implementation and overcome the obstacles that are inherent to this process, the PEPPA framework presents strategies that are health-oriented, patient-focused, participatory and stakeholder-driven.[36]

The concepts related to health policies are intrinsic in those strategies shown in the PEPPA framework. In an attempt to connect the implementation process of an APN role with the desired health outcomes, the concept of access to care will be addressed.[38] Access to care may be conceptualized as proceeding from health policy objectives, through the characteristics of the health care system and of the population striving to reach better health outcomes. Those outcomes are the actual utilization of health care services and consumer satisfaction with these services.[38] Figure 2 demonstrates how the framework is designed.

The authors who framed the concept of access to care consider health policy as its foundation. Health policies are designed to affect the characteristics of the health care delivery system and the population at risk to get better results.[38] These results can be understood as the desired changes to the utilization of health care services and the satisfaction of consumers. In other words, access to health care results from interactions between process indicators (population characteristics and health system char-

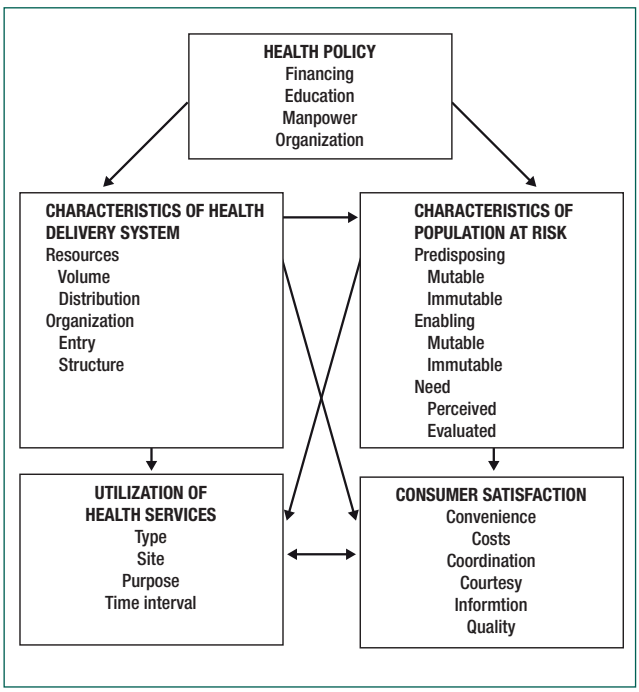


Source: Bryant-Lukosius D, & DiCenso A. PEPPA Framework: A Participatory, Evidence-based, Patient-focused Process for Advanced Practice Nursing role development, implementation, and evaluation. J Adv Nurs. 2004; 48(5):530-40.[36]

Figure 1. The PEPPA framework

acteristics) and outcome indicators (consumer satisfaction and utilization of health services), having the health policy as a starting point. In the context of this study, the implementation of the APN role of CNMs is expected to positively affect Brazilian maternal and child poor health outcomes and the health system ineffectiveness to achieve better use of the health system and greater user satisfaction.[38]

Thus, using this framework assumption, health policy will be the starting point for the desired changes.[38] In agreement with this, one of the main objectives of the implementation of APN is to increase access to health and improve the quality of care and health outcomes.[39] Therefore, to inform this study, the PEPPA framework is applied within the context of the concept of access to care[38] to articulate the discussion of how the implementation of an APN role could potentially improve Brazilian maternal-infant health outcomes. The first step of the PEPPA framework is part of this discussion,



Source: Aday LA, Andersen R. A Framework for the Study of Access to Medical Care. Health Serv Res. 1974 Fall; 9(3): 208–220.

Figure 2. Framework for the study of access[38]

while it will promote an understanding of the populational needs and how the health system and a new model of care can be introduced.

Methods

This study is a literature review about the status of maternal-child health in Brazil and how the APN role of CNMs could contribute to improve the health indicators in this population. A study protocol to organize the review process was constructed which included: the theme of the research, aim, research questions, research strategies as selected databases, MesH terms and combination strategies, inclusion and exclusion criteria and strategies for data analysis.

To obtain the understanding intended in this study three questions guided the research process in literature: How is the Brazilian health system organized within the context of maternal and child health care? What is the current maternal and child health status in Brazil? How could APN help to achieve better maternal and child health outcomes? The search was conducted in November 2018 to January 2019 through the following databases: CINAHL, PubMed, MEDLINE, Health Source: Nursing Academic edition and PACE University Library. Additionally, a secondary search was made through the references of the selected studies. The databases were selected according to the possibility of the results contemplating specific themes of APN, which is not a reality in all countries of the world. The electronic search was limited to studies conducted in the previous five years (2015–2019), to provide a current overview of the health status in Brazil.

The search process was guided by the following MesH terms: Access to health care; Healthcare quality indicators; Maternal-Child Health Services; Maternal Health; Advanced Practice Nursing; and the following Keywords: Patient Outcomes; Midwifery; and Brazil. The combination search strategies used AND and OR as Boolean Operators as following. Combination search strategy one: (Access to Health Care OR Health Care Quality Indicators) AND (Maternal Health OR Maternal Child Health Services) AND Brazil; and Combination search strategy two: Midwifery AND Patient Outcomes. The following combination search strategy didn't get any result: Advanced Practice Nursing AND Maternal Health and Patient Outcomes. The first combination resulted in 34 studies and the second one 104 studies that would be analyzed according to the criteria described below.

The inclusion criteria are: complete articles published in the selected databases that addressed the theme of the study and that are written in Portuguese, English or Spanish. Articles that did not answer the guiding questions of this study and were not available electronically were excluded, as well as editorial publications, letters to the editor, abstracts, reviews, and expert opinion. One researcher performed the search, then a second researcher reviewed it.

The papers were selected after two readings. The first one was an exploratory reading, intending to know the content of the material and to make a preliminary selection. From this step 18 articles remained. The second reading was an interpretative one, which aimed to reaffirm if the study met the selection criteria and to understand the factors that could be changed by the implementation of an APN role in Brazilian reality. The researchers' experience in both realities, in a country with and one without APNs, is also taken into consideration. From this step 10 articles were selected for the final analysis. The figure below shows in detail the results for the search strategies in each database over the three steps (Figure 3).

The data collected were organized in tables and the following information was extracted from the studies: title, authors and year of publication; Brazilian heath system in maternal and childcare (network, structure, and processes); health outcomes in maternal and childcare in Brazilian context; health outcomes in maternal and child care in countries in which the CNM role is implemented. In the following step, data were categorized and analyzed considering the concept of access to health care, which divided them into two main categories: process and outcome indi-

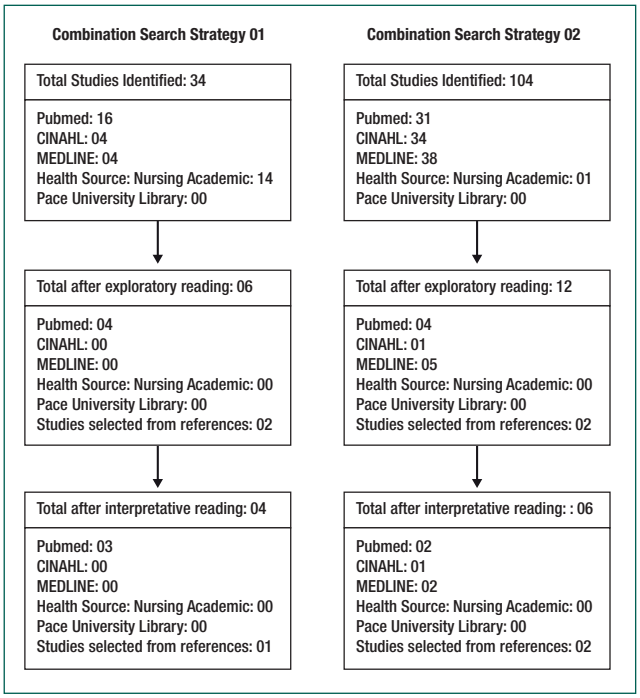


Figure 3. Diagram of the literature review process

cators, as defined in the section presenting the conceptual framework.[38]

The outcome indicators were also divided into real outcomes and expected outcomes after implementation of the APN role within the Brazilian context, given that this is not a reality but it is an expectation for this country, based on the experience of other countries. The health policy objectives, deemed the starting point of this concept, are considered here as the implementation process of the APN.[38] Thus, the analysis of those data was an interpretative process, based on a conceptual framework.

The discussion of these findings includes their position in the PEPPA framework, most specifically in its first step, regarding the characteristics and needs of the population to implement an APN role in Brazil, according to this framework. Thus, the step taken in this study is also the beginning of this process. It is a part of a larger study that aims to encourage the APN implementation process in Brazil, "Proposal for implementation of advanced practice in the context of Brazilian obstetric nursing", for which one of the authors went to the United States of America to analyze their context of practice.

Findings

The search yielded 138 articles relevant to the research question. An additional 03 papers were identified through a secondary search of the reference lists of the papers selected for the interpretative phase of the study. The number of articles was reduced in the screening step to 18, resulting in a total of 10 being analyzed in the final step. From these studies, the researchers extracted indicators that characterize the Brazilian health system and the maternal and child health care network; the indicators that characterize the health outcomes in the Brazilian maternal childcare field; and the indicators shown by countries where maternal and child care is already provided by CNMs.

Regarding the characterization of the studies found, for the combination search strategy 01, which seeks to understand the situation of maternal and child health in Brazil and the Brazilian health system, 100% of the manuscripts are studies developed in that country. With regard to the combination search strategy 02, which is about the care provided by midwives, 03 of those studies were developed in the United States of America (50%), and 01 in each of the following countries: Australia, Singapore, and Ireland (16.6% each).

Based on the concept of access to care,[38] the indicators found in those studies were grouped as process and outcome indicators. These indicators can measure relevant aspects of access to care. The health policy is designed to affect the characteristics of the health care delivery system and of the population at risk (process indicators), in order to change the utilization of health care services and the satisfaction of consumers with those services (outcome indicators). Other than that, the health policy can be seen in three of the steps of the PEPPA framework: 1. describing a current model of care; 2. determining a need for a new model of care; and 3. identifying priority problems, which were addressed in this study.[39]

Chart 1 presents the processes and outcomes indicators found in the 10 articles investigated through this literature search.

Chart 1. Process and outcome indicators related to the Brazilian Unified Health System and expected outcome indicators after implementing CNM role

Process Indicators	Outcome Indicators	
Characteristics of the health system and population at risk	**Utilization of health services and consumer satisfaction**	**Expected outcomes after implementing the CNM role**
Free access to health provided by the Brazilian Unified Health System.[40]	High rates of intervention in labor and delivery.[41,42]	Better or equivalent clinical outcomes and lower rates of interventions for care provided by CNMs compared to care provided by physicians.[19,43,45]
Health system covers most of the Brazilian population.[40]		
Health system faces underfunding issues.[40]	High rates of C-section.[41,42]	Patient satisfaction is proven to be higher with care provided by CNMs.[43]
Family Health Program expanded primary health care to poorest areas but inequities remain.[41,42]		
Difficulties in access to health care in remote and rural areas.[41,42]	Level of good obstetrical practices bellow expectation.[28,42]	Approach to care provided by CNMs is patient-centered.[44]
Rede Cegonha guarantees comprehensiveness care in maternal and infant care field.[41]		
Prenatal coverage and childbirth care almost universal.[8,41]	Shortcomings in quality of care of pregnant women.[8]	Neonatal outcomes of care provided by CNMs are comparable with care provided by physicians.[19,45]
Lack of organization in the health care network.[8]		
Lack of supplies and infrastructure of the health system.[29,42]	High maternal mortality ratio.[8,41]	Higher breastfeeding rates.[19]
Poor distribution of health professionals throughout the country.[40,41]		
Socioeconomic inequalities.[42]	Infant mortality ratio above the ideal level.[8,41]	Lower or equivalent health care costs when compared to assistance provided by physicians.[21,45]

Discussion

Health policy emerges as the starting point when one intends to make changes or improvements in the access to health of a population.[38] Thus, the workforce regulatory policies need to be established to facilitate introduction of the advanced practice nurse role, particularly that of CNM, to the Brazilian health care system. Among Latin America and the Caribbean, Brazil was recognized as one of the most susceptible places to implement the APN. Amidst the main reasons, there were the increasing number of undergraduate and graduate programs and the legal foundation focused on the autonomy of nursing professionals and the relevance of nursing practice.[46] To put these facilities forward to implement the APN in this country, the PEPPA framework offers a strategic guide to frame and support this process.[25,36] The first step of this strategy, "defining the patient population and describing the current model of care," is delineated throughout this study and will support the achievement of the following steps, through attempts of reform in the sociopolitical context of Brazil.[36]

Being a CNM means to be a primary health care provider for women and newborns. Providing primary care in this context is to provide integrated and accessible health care services; to address the majority of health care needs for this population; and to practice in the context of the family and the community, in a partnership with the pregnant woman. By practicing at an advanced level, the CNMs assume responsibility for the provision of, and referral to, appropriate health care services, including prescribing, administering and dispensing of pharmacologic agents.[47] Brazilian obstetrical nurses work from a very similar philosophy, especially considering that this country has primary health care as the basis of its health care system. Despite not having advanced practice recognized, these obstetrical nurses can work assisting with the labor and birth, from an integrated and humanized perspective, providing safe care that is based on scientific evidence.[48]

The process indicators identified in this study, related to maternal and infant morbidity and mortality, present a context demonstrating that Brazil still needs to address, among other factors, the following: inequalities related to socioeconomic development; inequitable distribution of health professionals over the regions of the country; prenatal care quality; excessive interventions in labor and delivery; limitations and inefficiencies at the organizational and the health network levels; mismanagement of financial resources and budget constraints.[8,41,42] Thus, according to the context mentioned above, bringing together the problem evidenced in the context of maternal and child health in Brazil with the proposal of CNMs, it is possible to infer that these indicators could be directly and positively affected with the implementation of this advanced role.

APNs stand out for their capability to fill gaps of health workers in rural and remote areas.[13,25] This can be taken as one the primary reasons for a country to implement an APN role: to achieve the population's needs by promoting health, preventing morbidity, and reducing mortality rates in the areas they are deprived of this basic right. To cover those needs, and in an attempt to achieve better outcomes, many nurses with a bachelor's degree in Brazil and other Latin American countries work beyond their scope of practice, but without the benefit of formal education and professional regulation.[35] Nurses tend to be present in these remote areas more than physicians, that usually seek large urban areas where they can carry out subspecialties and work in large health centers. Thus, nurses can effectively contribute to develop health systems especially if their potential is recognized, as when the scope of practice is expanded.[14]

CNMs have a practice based on a holistic and humanized perspective, meeting the needs of women as a biopsychosocial human being inserted in a complex context. In addition to this, they have a natural and physiological view of the process of birth and delivery.[47] This way of understanding pregnancy, birth and childbirth may be responsible for solving the problem of high rates of unnecessary interventions, as shown in Brazil.[8, 28, 41,42] Furthermore, it is extremely relevant to consider the fact that these professionals have sufficient technical and scientific knowledge to promote an accurate and resolutive clinical practice that aims to provide an immediate response to the woman who seeks care. This may include the ability to perform an advanced clinical evaluation, prescribe medication and order tests, for example.

The United Kingdom (UK) has the oldest public health system in the world, the National Health Service (NHS), and it could be taken as an example to Brazil. In that country, pregnancy and the assistance to the woman in prenatal, labor, delivery and postpartum care are approached as a physiological process and not as a disease. Therefore, the natural delivery is a midwifery competency and the physicians are called if needed in any more specific and complex conditions presenting throughout this process. This model of care can make the system more effective and is also responsible for increasing the quality of the care delivered. The Netherlands, New Zealand, and the Scandinavian countries also get benefits from the midwifery model of care, which is known for decreasing c-section rates and fewer unnecessary interventions during labor and delivery.[49]

By implementing the nurse-midwife–led model for the provision of obstetrical care, Brazil could benefit the current health care system by improving patient outcomes at the same time it decreases costs.[19,21,45] Thus, the APN role could provide the needed care as a high-quality, safe, and relatively low-cost modality of health care provider for the obstetrical population. Therefore, the use of APNs, specifically CNMs in this context, could improve access to health care in Brazil.

Conclusion

The implementation of the advanced practice nurse (APN) roles in the Brazilian context, specifically that of the CNM, could help the country improve its outcome indicators related to access to health within the maternal-infant population. This process needs to be guided by the strategic PEPPA Framework, including changes in health policy, and it is urgent and necessary given the characteristics of the health delivery system and the population at risk. Thereby, based on evidence generated by other countries' experiences, Brazil could improve access to maternal and child health by improving the access to quality of care and improving the cost-benefit of care provided. Moreover, investing in the existing skilled nursing workforce may contribute significantly to one of the main problems faced by this country: inequality in the distribution of health professionals in geographical regions. The challenge of applying these study findings is to identify the most efficient implementation of the evidence generated by other countries, which have different health system structures and to translate this knowledge to the Brazilian reality. For future studies, Latin America and the Caribbean should keep striving to implement the steps of the PEPPA

framework, to advance in the direction of this desired role implementation. Engaging nurses and stakeholders in this mission is the current Brazilian challenge.

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