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ORIGINAL ARTICLE

Nursing and public policies to reduce maternal mortality in Morelos, Mexico

Enfermagem e políticas públicas para reduzir a mortalidade materna em Morelos, Mèxico

Enfermería y políticas públicas para reducir la mortalidad materna en Morelos, México

Alemán-Escobar, María de Lourdes[1]; Pelcastre-Villafuerte, Blanca Estela[2]; Rueda-Neria, Celina Magally[3]

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ABSTRACT

Objectives: to identify the public policy mechanisms for reducing maternal mortality and to analyze the participation of nursing personnel in such mechanisms. **Method:** qualitative study, for the data collection semi-structured interviews were carried out with the administrative staff, nurses from public health services and pregnant women in Mexico. The interviews were audio-recorded, transcribed, and thematically analyzed. **Results:** the public policy mechanisms designed to reduce maternal mortality in Morelos include the national "Even Start in Life" program, prenatal care delivered by nursing professionals, and basic information regarding maternal mortality delivered to women, to reduce the maternal mortality. The primary challenges to properly delivering these services include a general lack of coordination between relevant committees and stakeholders, and barriers that women face accessing care. **Conclusions:** there are very limited actions in the design of public policies for reducing maternal mortality led by nursing personnel.
Descriptors: Women's health; Public policy; Nursing, Nursing care

RESUMO

***Objetivos**: identificar os mecanismos de políticas públicas para redução da mortalidade materna e analisar a participação da equipe de enfermagem em tais mecanismos. **Método**: estudo qualitativo, para a coleta de dados foram realizadas entrevistas semiestruturadas com gestores, enfermeiras dos serviços públicos de saúde e gestantes, no México. As entrevistas foram gravadas em áudio, transcritas e analisadas tematicamente. **Resultados**: os mecanismos de políticas públicas projetados para reduzir a mortalidade materna em Morelos incluem o programa nacional "Even Start in Life", atendimento pré-natal prestado por profissionais de enfermagem e informações básicas às mulheres para reduzir a mortalidade materna. Os principais desafios para prestação adequada desses serviços incluem uma falta geral de coordenação entre os comitês relevantes e as partes interessadas e as*

1 Nurse. PhD in Nursing. National Institute of Public Health. Mexico (MX). E-mail: lourdes.aleman@insp.mx http://orcid.org/0000-0003-3147-8878
2 Psychologist. PhD in Social Psychology. National Institute of Public Health. Mexico (MX.). E-mail: blanca.pelcastre@insp.mx http://orcid.org/0000-0003-4755-1881
3 Computing. BA in Autonomous. National Institute of Public Health. Mexico (MX). E-mail: celina.rueda@insp.mx http://orcid.org/0000-0001-6074-654X

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barreiras que as mulheres enfrentam ao acessar os cuidados. ***Conclusões****: existem ações muito limitadas no desenho de políticas públicas para redução da mortalidade materna lideradas pela equipe de enfermagem.*
Descritores*: Saúde da mulher; Política pública; Enfermagem; Cuidados de enfermagem*

RESUMEN

Objetivos*: identificar los dispositivos de política pública para reducir la mortalidad materna y analizar la participación del personal de enfermería en estas acciones.* ***Método****: estudio cualitativo con entrevistas semiestructuradas a personal directivo, enfermeras de servicios públicos de salud y mujeres embarazadas, en México. Las entrevistas fueron grabadas en audio, transcritas y analizadas temáticamente.* ***Resultados****: los dispositivos de política pública diseñados para reducir la mortalidad materna en Morelos incluyen el programa nacional "Arranque Parejo en la Vida", control prenatal por enfermería e información básica a mujeres para reducir mortalidad materna. Los principales obstáculos para la implementación de estas acciones incluyen la falta de coordinación general entre los comités responsables y las partes interesadas y las barreras que enfrentan las mujeres para el acceso a servicios de salud.* ***Conclusiones****: existen acciones muy limitadas en el diseño de políticas públicas para reducir la mortalidad materna lideradas por el personal de enfermería.*
Descriptores*: Salud de la mujer; Política pública; Enfermería; Atención de enfermería*

INTRODUCTION

Maternal mortality is the end result of inequities and insufficiencies in the health care system, as well as discriminatory practices that keep women at the lower margins of power.[1] Despite the fact that the last 15 years have shown a 45% decrease in the Maternal Mortality Ratio (MMR) globally, there is still alarming MMR data that serves as a reminder that we still have a way to go to reach the Millennium Development Goals (MDGs) number five.[2] To meet this goal, it is critical to identify strategic elements in each country and strengthen the actions that are underway, led both by civil society organizations as well as national and international agencies.[3]

The MMR in low-income regions is 19 times greater than in high-income regions. Only 40% of all pregnant women in low-income regions receive the minimum recommended prenatal care of four visits. Moreover, according to World Health organization (WHO) data, each day worldwide, around 810 women die from pregnancy complications during birth or postpartum. The majority of these deaths occur in low-income countries.[4]

In Mexico, 10.5% of maternal deaths registered in 2016 occurred at home and 9.4% were women with no type of health insurance coverage. The MMR was 36.7 per 100 000 live-births, with a total of 812 registered maternal deaths. The primary cause of death was indirect obstetric causes; other causes included hemorrhage occurring during or immediately after birth, eclampsia, sepsis, and complications from unsafe abortion.[5]

In Mexico, there is not a homogeneous distribution of maternal mortality, rather a pattern that reflects social inequality, with the southwest part of the country being the most affected.[6] To tackle this problem, the Mexican government has implemented diverse public policy mechanisms, including instruments for

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measurement, definitions, or institutional modifications, as well as programs and on-the-ground strategies such as legal guidelines, services, and financial resources with the goal of reducing maternal mortality. The "Even Start in Life" program (ESL) (in Spanish "Arranque Parejo en la Vida") is one such example,[7] and includes human resource development and community-based activities to facilitate the optimal life conditions for newborns and their mothers. In May 2008, a strategy called "Embarazo Saludable" or "Healthy Pregnancy" was implemented to provide medical care during pregnancy, birth, and postpartum for women who had no health insurance coverage, and enroll them into the health system.

The current government stated as a goal to decrease by five percentage points the MMR in six years.[8]

Nonetheless, despite policies and programs to improve reproductive health services and reduce maternal mortality, we have not reached the set goals. The reasons for this are complex, but one important element for these outcomes is the role of medical personnel. Nurses are of particular importance because they are the human resource that is in contact with women at all stages of pregnancy, birth, and postpartum. Nursing personnel are responsible for critical care activities such as measuring weight and height, blood pressure, delivering tetanus toxoid, providing nutritional consultation, facilitating social support, promoting breastfeeding and providing family planning services. Therefore, they are key actors in strategic risk identification, who have a specific and opportune role that can make a significant impact on reducing maternal mortality.[9-10]

The Official Mexican Regulation "NOM 007-SSA2-2016" on care for women and newborns during pregnancy, birth, and postpartum, has as its primary objective to establish the criteria for care and oversight of women's health during pregnancy, birth, and postpartum, as well as the health of newborns.[11] These guidelines consider the role of nurses as pertinent and necessary during women's reproductive process. However, the magnitude of documented adverse outcomes signals significant deficiencies in the implementation of this regulation. In order for nursing personnel to be capable and systematic in their response, with the highest adherence to the regulations and standards of care for women's health during pregnancy, birth, and postpartum, all personnel must be qualified and able to deliver quality care at each stage of the reproductive process. This includes knowledge of formal guidelines and regulations, as well as the policies, actions, and strategies that are being promoted as part of the implementation of such guidelines.

This study aimed to identify the public policy mechanisms for reducing maternal mortality and to analyze the participation of nursing personnel on this process.

METHOD

A qualitative study was carried out, using semi-structured interviews as the primary data collection

approach in Mexico. This design was particularly useful because we wanted to explore nurses' perceptions and other perspectives about governmental initiatives in a site, as the state of Morelos, where MMR is a relevant public health matter. During 2013, Morelos was one of the states with the highest MMR of the country at 38.2. Compared to MMR at the national level, Morelos' MMR have increased (see Table 1 in Supporting Information), which makes Morelos an instrumental case of interest.

The state of Morelos is located in the Southern-Central region of Mexico, with Mexico City to the North, Guerrero to the South, Puebla to the Southeast. The Western border includes both Guerrero and the State of Mexico. The capital of Morelos is Cuernavaca, with a municipality by the same name. The state has 33 municipalities in total, and a population of 1.903,811. Of these, 51.9% are women and 48.1% are men. The geographic distribution is 84% urban and 16% rural.[12] In terms of health care infrastructure, Morelos has 305 public healthcare centers, with 3,296 doctors; 66 private centers with 154 doctors.[13] Morelos' health services report to one state-level administrative headquarter, which oversees all 33 municipalities.

In this study was recruited voices and experiences from key informants linked to the MMR policies. During June 2013 the participants were recruited based on criteria that deemed the following attributes relevant to the study, were selected the follow profiles: administrative staff at a health care institution in Morelos, nursing personnel at a primary care facility in Morelos, and pregnant women without health care coverage. Through the Head of Health Services of Morelos, sentinel services were located; the PI moved to them and invited all available nurses and stakeholders; pregnant women were those who came to counseling in that health services. In total, there were 32 participants: 20 health care staff participants (six administrative and 14 nursing personnel), as well as 12 pregnant women. With this number was reached the theoretical saturation point.[14]

The interviews were conducted by the PI, which did not have any link with healthcare services, and exploring the participant's perceptions of the public policy mechanisms for reducing maternal death; the implementation of said mechanisms, and the actions of nursing personnel. The interviews lasted in average 40 minutes, were conducted in a private space into the health services without the presence of any person more than interviewer and interviewee. After, were transcribed and manually organized into categories based on the salient themes, following qualitative content analysis.[15] We also analyzed key documents related to public policies aimed at reducing maternal deaths in Mexico. Data was broken down into themes and categorized.[16]

The research conformed to the provisions of the Declaration of Helsinki. All participants gave informed consent for the research, and their anonymity was preserved.

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RESULTS AND DISCUSSION

The profiles of participants can be seen in Table 1. The findings are organized and presented by three analytical categories.

Table 1: Participants profiles and characteristics, Morelos, Mexico, 2013

ID	Gender	Age	Marital Status	Education	Occupation and/or current position	Time in current position
	Administrative Staff					
A1	F	42	Married	Bachelors in Medicine	Health Center Director	1 year
A2	M	34	Married	Masters in Planning & Administration	Health Care Coordinator	8 months
A3	F	64	Married	Masters in Administration	Women's Hospital Director	7 years
A4	M	40	Married	Trauma Specialist	ER and Intensive Care Department Head	5 years
A5	M	38	Married	Masters in Health Service Administration	Health Center Director	9 months
	Nursing personnel					
N1	F	52	Married	Bachelors in OB Nursing	Health Center Chief of Nursing	21 years
N2	F	31	Married	Bachelors in OB Nursing	Nurse and head of prenatal care	9 years
N3	F	46	Married	Nursing Tech	Nurse	15 years
N4	F	52	Married	Bachelors in Nursing Administration	Nurse	32 years
N5	F	40	Married	Bachelors in Nursing	Nurse and head of night shift	7 years
	Pregnant Women					
W1	F	23	Common law marriage	Secondary School	Homemaker	38 years
W2	F	29	Common law marriage	Primary School	Homemaker	20 years
W3	F	24	Single	Missing data	Homemaker	19 years
W4	F	26	Married	Secondary School	Homemaker	23 years
W5	F	30	Common law marriage	Primary School	Homemaker	40 yeras

F, female; M, male.
Source: elaborated by the authors, 2020.

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Public policy mechanisms for reducing maternal mortality in Morelos

The primary mechanism identified was NOM 007-SSA2-1993 which provides the guidelines, criteria, and procedures for providing and monitoring care for women and newborns during pregnancy, birth, and postpartum. It states that all health care personnel in the public and private sector providing care for women and newborns follow these guidelines. There are specific indications of how to reduce maternal-infant mortality and morbidity, to be followed by providers and institutions. Participants were aware of the guidelines, but did not express comprehensive knowledge (Table 2).

Table 2: Participant testimonials, Morelos, Mexico, 2013

1. Public policy mechanisms to reduce maternal mortality in Morelos
What mechanisms are we talking about? Training, capacity building, patient transfers or what? I'm not sure how to answer. There are a lot of policies, one from the World Health Organization. (A5)
We are basically working on the programs we currently have for maternity care, prenatal care, birth and postpartum care. We are aiming to guarantee prenatal care, at least five visits, as the norm, and zero turning away of pregnancy women from care. Nursing personnel do the home visits. External doctors provide information to the head of nursing, as well as clinical notes about prenatal patients who have not attended their appointments and nursing makes sure they receive a home visit. They ask what the reasons are for not attending their appointment and request that the patient go to the health center to reschedule their appointment. They aim to reestablish continuity of care. (A1)
I'm ignorant as to what they might be, I don't know. What do you mean? (N2)
Guideline 007 specifies the correct way to fill out the patient history, the perinatal page, the correct information. Then as nurses we evaluate it, we review it and make sure that the lab results are there and that the file is completed correctly. (N4)
I don't know any. (W2)
1.1. Lack of home-based prenatal care delivered by nurses
Pregnant women always come see us starting in the second trimester and so that is when we do the prenatal care. The programs say that a woman should have five visits minimum to know how the pregnancy is progressing, but sometimes they don't come like that. Sometimes they come in the last trimester or sometimes they come once their contractions have started, and those are the women that have problems, with no prior prenatal care visit. (N3)
The first things we do is ask the pregnant woman to come to the health center to get her prenatal care records established, so that we can monitor the growth and development of her baby. (N5)
Well, we are working in the health center, but we don't attend births. Normally, we provide care all during pregnancy, and patients are transferred the women's hospital closest to us. They always arrive [to us] during the second trimester and that's when we begin prenatal care… (N2)
I come to my appointment, they give me the medicine I need when they have it. When they don't have it, I have to buy it. The don't come to my home. I have to go to my appointment once a month. (W4)

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1.2. Basic information and reporting for reducing maternal mortality
I don't know of any programs to protect my health. (W2)
They told us about preeclampsia, how we should care for ourselves, the symptoms, swelling of the feet, headache, ringing ears, that's why I have had prenatal care since the beginning. Thank God that since the start of my pregnancy I have never had a problem, they had already told us about the problems we could have. (W5)
It's about immediately bringing in the pregnant woman, giving her care, informing her about warning signs, giving her material. We have a big magazine where we give certain information, I think a lot is missing in terms of health promotion, and we also have to make sure that when [the women] arrive we send them to the appropriate area. (N1)
We provide orientation and counseling, in addition to what the doctor does, about healthy prenatal care and avoiding complications. We show them the warning signs, and where they should go if they experience these. As nurses, we also know how to watch and check, and in my opinion, we know have many more tools than 15, 20 years ago to attend births. Nursing will follow what the doctor recommends, it's a medical issue and the doctor gives the instructions. (N4)
2. The implementation of public policy mechanisms for reducing maternal mortality
We have certain set meetings specifically about maternal mortality where we intervene. Furthermore, we have maternal mortality committees, which we recently combined with infant mortality. (A3)
2.1. Coordination of relevant committees and stakeholders
Once a month we have the maternal mortality committee where all the members meet. We are mostly department heads, but then there are some people from outside the hospital, from the central administrative offices, from the Women's Hospital. We study the cases we have had and if there has been no mortality case, we look at high-risk case studies or 'red lights' that did not result in death. (A2)
The [contraceptive care following an obstetric event] rate in our hospital is at 96%, that's why we have sustained and promoted intrauterine devices, the tubal ligation process, and at the end of the day, all pregnancy prevention methods. We have 34.5% pregnant adolescents, last year we had 5,200 pregnancies and 4,200 births. (A3)
2.2. Lack of nursing personal in the APV program
Nursing primarily does prevention, since we are a primary care center, we focus on preventing problems that could present later on. (N2)
I think that death can happen after birth, and that's where maybe we forget to educate [women] and strengthen that self-care, you have to educate them about self-care, with their baby, there are things you have to monitor after birth. (N1)
We have four obstetric nurses and our administrators said that they were going to see what those nurses do. (N2)

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2.3. Barriers to access health services
It's easy to access, they always see me when I come. My finances right now are scarce and accessing private care is difficult. Here, they don't have lab services and sometimes I have to do my ultrasounds elsewhere. (W3)
Financially, things are tough, I came to the health center because of Seguro Popular. Finances are hard because of my pregnancy, bills at home, and I'm not working right now. (W5)
If we don't have money, we still get care, if we are with Seguro Popular, we get the services available. Almost all the services are covered, it's completely free. I want a natural birth, doing the exercises that we learned, I'm liking that idea. My husband is a little bit scared, because the first time was cesarean, so we are saving for anything unpredictable. (W4)
3. Nursing personnel roles in the implementation of public policy mechanisms for reducing maternal mortality
3.1. Lack of leadership in the implementation of public policy mechanisms for reducing maternal mortality
I find myself alone on the evening shift and it's not like in the morning when there is more staff, I have to take care of all medical care and something people say it's not good service. (N5)
3.2. Weak presence of the nursing profession at the operational level for reducing maternal mortality
What is unclear to patients is what quite of facility we are. As a primary care facility, we can attend a birth as long as it's normal and without surprises, because we don't have the capacity for an obstetric emergency. Sometimes patients come in a more critical state, and they stop here instead of going directly to the hospital. That stop here takes away response time and our ability to prevent a situation like fetal distress or things like that that could present themselves. We are lacking communication with patients about how far our services as a health center go and when they are better off going to a hospital. (N1)
Well, they provide good care. I've actually had to go in several times for checkups and they are always willing to see me, but they limit the visit to specifically what you ask about. They have never introduced another topic related to my pregnancy. The only person that asks about how we are doing over time and how we are feeling is the doctor and the person in charge of chi kung. Apart from them, no one bothers to ask about any other topics related to pregnancy. (W1)

Source: elaborated by the authors, 2020.

Lack of home-based prenatal care delivered by nurses

Prenatal care should cover the detection and control of obstetric risk factors such as anemia, preeclampsia, cervical infection, vaginal infection, and urinary tract infections, bleeding, and other pathologies linked to pregnancy. Nursing personnel should be conducting the activities related to prenatal care, according to the Mexican guidelines.[11] However, we observed no prenatal care delivered at the pregnant woman's home; all care took place when women arrived to the location where health services where delivered.

Basic information and reporting for reducing maternal mortality

One of the strategies of the ESL program centers on the quality and utilization of key information in service provision. ESL calls for a formal social network where nursing personnel should be contributing to the dissemination of information about maternal and perinatal health, warning signs during pregnancy, birth and postpartum, as well as information on referrals, telephone numbers, and locations for emergency medical care.

The activities that are part of ESL are oriented towards quality improvement in information systems, as well as the analysis and utilization of such information in service provision. Nonetheless, we observed a lack of information, as well as underreported neonatal and maternal deaths in the ESL catchment area. These gaps in quality information systems may be due to an overall lack of human resources and materials, training of health professionals, and inadequate ambulance service. Moreover, there may be a cultural factor, given that information regarding risk factors and warning signs are in Spanish (main language in Mexico), while there is also a significant indigenous population in the state.

Women expressed a range of knowledge about what the state was implementing to reduce maternal mortality. On one side of the spectrum, there was no knowledge about any of the mechanisms, and on the other side, there were pregnant women who had utilized the information about risk factors to avoid complications in their pregnancies. Nursing personnel did not participate in any information or promotional activities that were within their scope of work.

The implementation of public policy mechanisms for reducing maternal mortality

Coordination of the relevant committees and stakeholders

The state-level reports from the Maternal Mortality Committees link outcome to specific problems such as quality of care in hospitals and specifically the inadequate management of obstetric complications such as lack of active management of oxytocin, three out of every 10 maternal deaths due to preeclampsia-eclampsia had inadequate medicines administered, one out of every 10 maternal deaths due to post-surgical hemorrhage were due to surgical imprecision, of maternal deaths that occurred at home, it is unknown what percentage was released from the hospital without being identified as high risk, lack of supervision of affiliated doctors, doctors in residency, and students, and lack of human resources to cover shifts, which is correlated with deaths occurring during summer, winter vacations and weekends.

To reduce maternal mortality and improve women's health, the State of Morelos Secretariat of Health collaborates with the Department of Reproductive Health, where the Maternal and Perinatal Health program is housed.[17] This is a federal program overseen by the National Center for

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Equity and Gender (the acronym CNEGySR in Spanish) and the adjunct Office of Maternal and Perinatal Health. CNEGySR held the responsibility of policy development for all federal programs related to reproductive health, family planning, and maternal-infant health. Getting the information to hospitals goes directly from CNEGySR to hospital administration, including the chief of staff in obstetrics-gynecology and hospital directors. At the State Women's Hospital, an institution that serves high risk obstetric (OB) patients, one of the mechanisms used is a strategy known as APEO in Spanish, acronym for contraceptives post-obstetric event. At the Women's Hospital, tubal ligations, of the preferred contraceptive method are offered to postpartum women as a routine protocol. Contraceptive services are a priority for all patients and typically crucial given the high-risk profile of patients this hospital serves. While this strategy is an important step in pregnancy prevention, it is not always effective, given the socioeconomic conditions and obstacles the population faces to access formal health services.

Lack of nursing personnel in the "Even Start in Life" program

The ESL program was designed in 2001 to include a package of activities to promote planned and desired pregnancies with adequate prenatal care, with the long-term aim of low risk births and rigorous early childhood development through two years of age. Starting in 2002, program activities related to human development and community participation were also integrated. It began obligatory for health institutions across the country, public and private, to incorporate both the substantive and strategic components of ESL, and actively monitor epidemiologic outcomes and immediately report maternal mortality.[7]

Furthermore, ESL proposed to extend coverage and quality of prenatal care, birth, and postpartum care with an emphasis on improving the capacity of the medical units to attend obstetric emergencies. This was carried out through training, provision of adequate equipment, strengthening the network of care and referral services, as well as the timely transfer of patients with complications. Community and institutional buy-in were critical.[7] When analyzing ESL in the state of Morelos, we identified deficiencies related to human resources, infrastructure, and funding that prevented successful implementation. Moreover, there was a complete lack of knowledge from nursing personnel, and personnel in general about the very existence, management, and operations of ESL.

The ESL has managed to enroll, at the national as well as the state level, a significant number of women of reproductive age in health services; nonetheless, the quality of these health services is not optimal as is showed in Table 3, where maternal death in Morelos increases over 2 consecutive years showing that problem continues.

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Table 3: Maternal Mortality Ratio and number of maternal deaths in Mexico (national and state of Morelos) from 2008 to 2015

Year	National MMR	(N) deaths national	Morelos MMR	(N) of deaths Morelos
2008	57.2	1,119	44.1	15
2009	62.2	1,207	80.7	23
2010	44.1	992	35.3	10
2011	43.0	971	37.9	13
2012	42.3	960	39.0	13
2013	38.2	861	44.5	15
2014	38.9	872	9.1	3
2015	34.6	778	36.6	12

Source: This table was created with information from the Secretariat of Health[18] and the Maternal Mortality Observatory,[19] 2020.
N= Number.
MMR, Maternal Mortality Ratio.

Barriers to access health services

Seguro Popular was the country's public insurance schema that was created to provide coverage to otherwise uninsured populations. In 2001, the federal Secretariat of Health piloted Seguro Popular, and it was written into law in 2003, with full implementation occurring gradually as of 2004. The goal was for the entire population to have coverage by 2010, this was not occurred and it was canceled in 2020. While Seguro Popular aimed to close the gap in health care coverage, it was not been a solution for the structural inequities inherent in the system.[20] The literature confirms that access to maternal health services for individuals without coverage is neither free nor effective, much less timely or high quality.[21]

Nursing personnel roles in the implementation of public policy mechanisms for reducing maternal mortality

Lack of leadership in the implementation of public policy mechanisms for *reducing* maternal mortality

Given the role of nursing personnel in health care, they are often the first point of contact between health services and the patient, community, or population at large. Nonetheless, factors such as lack of human resources, material resources, professional competencies, constant change in continuing education, technology, and multiple responsibilities all contribute to the lack of leadership on behalf of the nursing profession specifically in the implementation of activities aligned with decreasing maternal death.

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From the perspective of the nursing personnel interviewed, in order to improve health and contribute towards effective public health policy, they need experience and specialized knowledge that they simply do not feel they have. Unfortunately, at the Secretariat of Health level, nursing personnel have never been involved in the administrative side of maternal health. At the Mexican Social Security Institute (IMSS), a nurse-run department did exist, but was cut during restructuring. Currently, there is a general administrative body, and nursing has been left outside of this management structure and is considered support staff. This is linked to the changing curriculum at nursing schools, where content related to public health nursing and maternal-child health has been removed as well.

Weak presence of the nursing profession at the operational level for reducing maternal mortality

There are nursing departments and department heads at a general level, but there does not exist a nursing administration that is specifically responsible for realizing operational activities. An important aspect for pregnant women's care is receiving integrated preventive care prenatally, which has to do with vaccines, nutrition, rest, and disease prevention. Unfortunately, at the health center level of care, there is few nursing personnel who are specialized in maternal-infant health and public health. Their primary functions on paper are in fact related to prevention, promotion, and education for a healthy pregnancy, but given the lack of personnel these functions are often substituted with care for the general population, not specifically towards pregnant women. However, the activities not being realized are irreplaceable, given that the doctor, despite eight consultations during pregnancy, cannot cover all of the health education aspects. As a result, women are not receiving all the necessary information for the three trimesters of their pregnancies.

On the other hand, home visits have been shown to be an effective strategy to identify women, educate them, and connect them to the health centers.[22] These visits are done, in theory, by nursing personnel when a woman does not show up to scheduled visits at the health center. On the ground, however, this has been found to be an unsustainable practice. At the secondary level of care, there exists a program called Code MATER (previously known as Code Red), where a multidisciplinary team provide integrated care to women who are admitted with an obstetric emergency.[23] However, there is not always strong coordination between the team members. Disagreements generate many problems and instead of minimizing risks for women, new complications arise. Sometimes, the woman ends up being transferred to the tertiary level of care, often times with fatal outcomes. Another important aspect in these cases is that, on some occasions, those who are responsible for overseeing that each member of the health care team collaborates to provide timely care, often delegate that oversight. Nursing personnel oftentimes are the ones who

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end up coordinating care, and while this is within their scope of capacity and knowledge, it is not their role to coordinate decision-making for urgent care.

The results from this study identify a multitude of challenges to the role of nursing personnel and their ability to contribute to reducing maternal mortality. Some of these challenges have to do with the training and competencies of personnel, while others are linked to the structure and organization of health services. We identified a low level of knowledge of the Federal Regulations, as other studies have also found.[24-25] Lack of knowledge of the primary public policy mechanism to reduce maternal mortality in Mexico, a policy that focuses on nursing care during prenatal care, translates to limited service-provision during pregnancy. Nursing personnel should receive continuing education and training to be able to successfully contribute to prenatal care and capable of recognizing risk factors and warning signs that allow them to make timely decisions regarding quality prenatal care. Provision of care, a key function of nursing personnel,[26] should be based on knowledge, experience, and critical thought. These skills should be evaluated regularly to guarantee the quality of care.

Nursing personnel does not undertake health promotion activities related to prenatal care, but this is likely due to not knowing how to deliver key information rather than purposeful omission. This may be linked to the low levels of knowledge about the causes and prevention of maternal death. In a research,[27] the author posits that information is an indispensable precursor to participation, and thus, nursing personnel cannot complete an activity they have not received the proper training in.

Despite nursing having an important presence in the Mexican National Health System, and bodies such as the Nursing Commission, the National Academy of Nurses and state affiliates, and the Secretariat of Health Nursing Services exist for advocacy, the role of nursing personnel in reducing maternal death in the state of Morelos is very limited. However, in a study[28] it was noted that Mexico is classified as one of the countries in which nursing typically does not participate, nor impact, the design, planning, implementation, or evaluation of health policy. Nursing has not had an active role in the decision-making process in the National Health System, and even less so at the state level. These are several reasons why this is the case,[29] including: 1) the scarcity of nursing professionals with graduate training, 2) the migration of qualified nursing professionals to other countries, 3) the high work-load, and 4) low wages, among other reasons.

Despite the efficacy of public health nursing evident in Mexican history, and the importance highlighted for the training of human resources,[26] the health sector does not actively promote nursing education.[29] Countries in Africa with the highest MMR in the world, have recognized that training of human resources and nursing research is a critical priority for reducing MMR.[30] Greater efforts

must be taken in Mexico to value the contribution of nursing personnel if we seek to address such important public health problems and meet our goals.

CONCLUSIONS

The public policy mechanisms for maternal health, such as ESL, are designed from the central level. This is to say they are rolled out from federal entities through public health care institutions that are under obligation to deliver these programs. Nonetheless, the results from this study show evidence of the difficulty in translating public policy mechanisms from the central Secretariat of Health to the local level. The role of nursing on strategies to reduce mortality death in Morelos is limited. The absence of nursing leadership in the design of public policy and the scarce role at the operational level, due to limited recognition of the capacity of nursing personnel, may contribute to these results.

This study provides information that can support strategies aimed at strengthening nursing training and practice, contributing to improving the integration and action of health personnel in maternal and perinatal health care. This research was a doctoral thesis that was carried out without a grant, the depth of the results is what could be obtained with the available resources. Initially two states were considered to conduct the study; however, it was not possible to cover the costs of fieldwork.

Administrative procedures for obtaining the permits required to access health services delayed the start of fieldwork. Interviews with pregnant women were also delayed, as women attended the health center once a week. Both facts shortened fieldwork.

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