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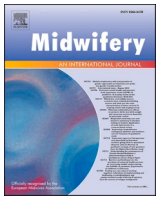

Review Article

Midwives' adaptation of their practice, role, and scope to ensure access to sexual and reproductive services during humanitarian crises: A scoping review

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ABSTRACT

Problem: Limited research has examined and synthesized the adaptation of midwives and midwife-led interventions during crises.
Background: Evidence suggests that midwives are essential to respond to sexual and reproductive health care needs during disruptive times, and that they adapt to continue to provide their services during those circumstances.
Aim: To map the adaptations of midwives when providing care during crises globally. Secondary objectives include identifying which midwives adapted, what services were adapted and how, and the demographic receiving care.
Study methods: Scoping review using Levac's modifications of Arksey and O'Malley's methods. Publications and grey literature, in English and Spanish, with no limitations based on study design or date were included. Data was extracted and mapped using Wheaton and Maciver's Adaptation framework.
Findings: We identified 3329 records, of which forty-two were included. Midwives' prior training impacted adaptation. Midwives adapted to the COVID-19 pandemic, epidemics, natural disasters, and World War II. They adapted in hospital and community settings around the provision of antenatal, labor and birth, postpartum, and contraceptive care. However, no specific data identified population demographics. Midwifery adaptations related to their practice, role, and scope of practice.
Conclusion: The limited available evidence identified the challenges, creativity, and mutual aid activities midwives have undertaken to ensure the provision of their services. Evidence is highly concentrated around maternal health services. Further high-quality research is needed to provide a deeper understanding of how midwifery-led care can adapt to guide sustainable responses to ensure access to sexual and reproductive health services during crises.

State of significance

Problem or Issue	Limited research has examined and synthesized the adaptation of midwives and midwife-led interventions during humanitarian crises.
What is already know	Midwives adapt to continue to respond to the sexual and reproductive health care needs during crises.
What this paper adds	Midwives' type of training has impacted the nature of the adaptation they have engaged in to continue to provide care during crises. Existing research focuses on hospital settings and maternity care and includes no specific data on the population demographics of those served by midwives during crises. Midwives' adaptations have involved their practice, role, and scope.

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Introduction

Humanitarian crises like pandemics, epidemics, natural disasters, forced migration, or human conflicts significantly impact health systems, causing different levels of disruption with mild to severe consequences to the population's health. Evidence suggests that sexual and reproductive health care services (SRHS) are one of the less prioritized health sectors during disruptive times (Azmat et al., 2021; Chaudhary et al., 2017; Singh et al., 2018). The midwifery workforce has been recognized as essential to respond to SRHS needs during humanitarian crises (Beek et al., 2019; Kutz, 2022; Lordfred et al., 2021; Yalahow et al., 2017). However, there is a lack of understanding of how midwives adjust their services to ensure the continuation of care during these circumstances. Hence, this scoping review aims to map the state of the literature on how midwives adapt globally to ensure access to SRHS during humanitarian crises.

For this scoping review we use the definition of a midwife from the International Confederation of Midwives (ICM), which defines a midwife as a health professional who is responsible for providing advice and care during pregnancy, labour, and the postpartum period as well as care to the newborn (International Confederation of Midwives, 2023). Universally, midwives' scope of practice is focused on gender-inclusive sexual and reproductive health care (i.e., maternal health, contraception, abortion, post-menopause). Midwives' regulation and legislation are unique in each country or region. In some countries, like Canada and Perú, midwives are autonomous care providers and work in partnership with other healthcare providers. However, in other countries, like in some states of the United States or India, midwives may work under physicians' orders. Midwifery care may be publicly funded, as in Canada, but in other settings, like in Peru, midwives can also provide their services privately. Moreover, midwives have different names worldwide: Obstetras in Perú, Matronx in Chile, Parterx in Mexico, Sage femme in French communities, and Nurse-Midwives in India. These name differences make it challenging to explore the full context of midwifery practice, particularly when its integration and/or relationship with the health system is not well defined.

Evidence supports that midwives have the potential to provide high-quality care for 90% of SRHS, including contraception and abortion care (United Nations Population Fund, 2021). If midwifery services were expanded and all midwives were educated and regulated to international standards, 61% of maternal deaths, 49% of fetal deaths, and 60% of newborn deaths could be prevented (United Nations Population Fund, 2014, 2011). Recently, the World Health Organization (WHO) highlighted the pivotal contribution of midwives as frontline workers to respond during the COVID-19 pandemic. (World Health Organization, 2021) While some current reviews have focused on the reconfiguration of obstetrical care (Bouchghoul et al., 2015; Dulfe et al., 2021; McDonnell et al., 2020), much less attention has been paid to midwifery-led responses and adaptations. Documenting the adaptations of midwifery services during crises is essential to understand how midwives can aid in maintaining accessible care with limited resources and when hospitals are overburdened.

We conducted a scoping review to determine the state of the literature examining how midwives respond to provide SRHS during humanitarian crises. The scoping review addresses the following research question: What is known, globally, about how midwives have adapted their services to ensure access to SRHS during humanitarian crises? Secondary objectives include identifying which midwives adapted, what services were adapted and how, and the demographic receiving care.

Methods

We conducted a scoping review using the methodology proposed by Arksey and O'Malley (2005) and further developed by Levac et al. (2010) A scoping review was appropriate because it was unclear whether there was sufficient evidence to address a more focused question through a systematic review. Therefore, the scoping review allowed us to map the scope and coverage of the literature on the topic. Also, this method allowed us to include a variety of forms of evidence that were not limited to peer-reviewed papers. The six stages of this process were: (1) identifying the research questions, (2) identifying relevant sources, (3) selecting sources, (4) extracting data, (5) collating, summarizing, and reporting, and (6) consulting interested stakeholders and developing a knowledge translation plan. The methods used in each of these stages are described below.

Conceptual framework

Drawing on *The Adaptation Cycle Through Space and Time framework* (Wheaton and Maciver, 1999), we conceptualized how midwives have adapted to humanitarian crises. This framework was developed in the context of adaptation to climate change; yet its theoretical content can be used in a wide variety of circumstances. We focused on the following elements of the framework: 1) 'Who and what systems adapt?', 2) 'What do they adapt to and to serve who?', and 3) 'How do they adapt?' See Fig. 1 for the reconfigured framework. The third question, "how do they adapt", was conceptualized to include three components: 1) *Practice*: The customary, habitual, or expected procedure or way of doing something (Oxford Advanced Learner's Dictionary, 2023a), 2) *Role:* the function or position that somebody has or is expected to have in an organization, in society, or in a relationship (Oxford Advanced Learner's Dictionary, 2023b), and 3) *Scope of practice:* The range of healthcare tasks, decisions or activities of a qualified, licensed healthcare professional allowed by law and the provincial/territorial licensing authority governing that profession (The Canadian Medical Protective Association, 2021).

Sources of evidence

We developed a comprehensive search strategy with a research librarian to identify potentially relevant documents. Concepts and key terms are described in Appendices I and II. The following bibliographic databases were searched without limiting publications by study design or by date: Global Health, CINAHL Plus, EMBASE, EMCARE, and MEDLINE. Second, we conducted purposive hand-searching, including snowball searching of reference lists and websites. Keywords and similar words were used in Google Scholar, Healthstar, and websites, e.g., WHO Reproductive Health Library, Global Health Workforce Alliance, UNFPA, ICM, and other ministries of health. Third, we conducted a thorough search of the grey literature to identify any non-indexed literature, including dissertation abstracts, government documents, and conference proceedings and reports, through searching sources such as Conference Proceedings Index, Web of Science, OECD library, UNi-Library and LILACS (Latin American and Caribbean Health Sciences Literature). Searches were limited to the English and Spanish languages. Citation information was imported and stored in the citation management software Mendeley.

Selection of literature

Inclusion and exclusion criteria

To be included in the review, documents needed to include care providers practicing within the scope of midwifery as defined by ICM (International Confederation of Midwives, 2023). We included peer-reviewed publication or documents from the grey literature, which described midwifery services during outbreaks, natural disasters, or other humanitarian crises, and were written in English or Spanish or had an English or Spanish abstract available. We did not limit publications by study design or by date.

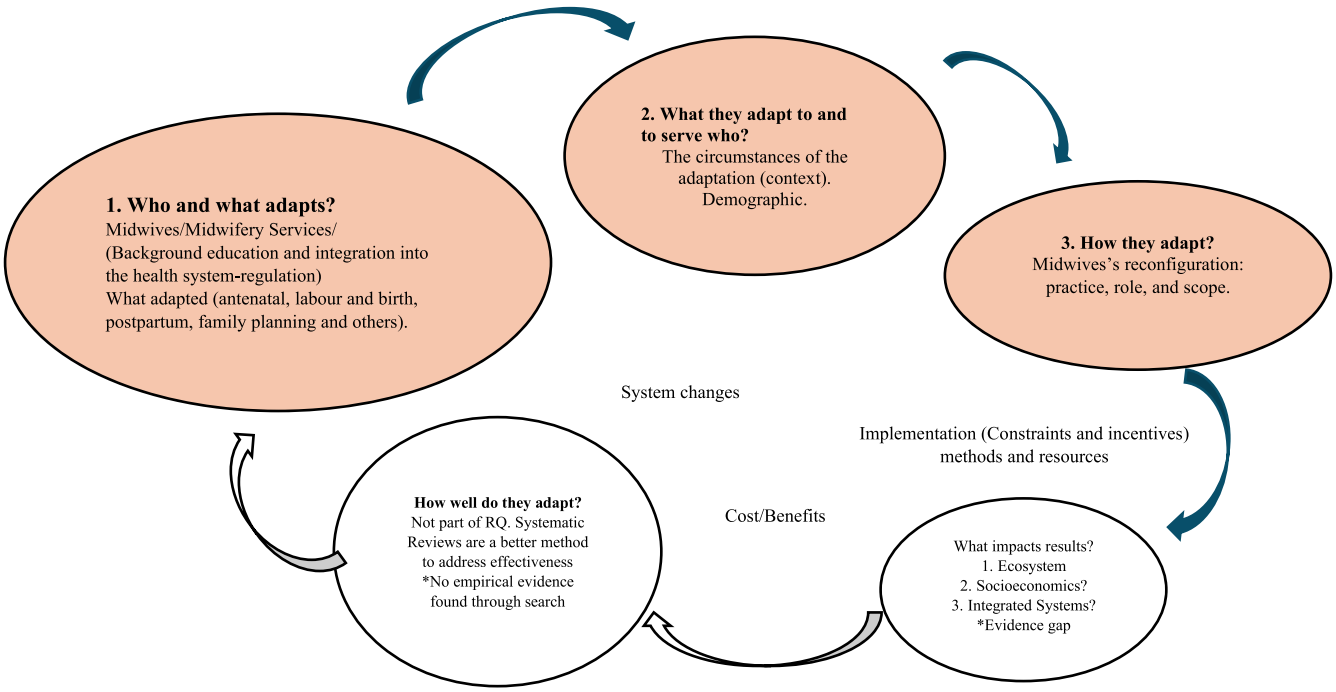

Fig. 1. Modified "Adaptation Cycle Through Space and Time Framework".

We excluded publications that only included birth attendants with an unspecified midwifery denomination and publications with insufficient data to confirm that the midwives met the definition of midwife according to ICM.

Retrieved search results were imported into Covidence software and screened for inclusion and exclusion in an iterative process. Two reviewers (SK and PO) screened the titles and abstracts based on inclusion criteria. All the relevant records were retrieved in full text, imported into Covidence, and reviewed against the inclusion criteria by the two reviewers. Disagreements regarding the inclusion of any publications were resolved by consensus.

Charting the data

A data-charting form was developed into an Excel 2013 spreadsheet by SK and LD to determine which variables to extract. The table was initially piloted to record the key information of the sources. SK charted the data and discussed the results with LD for final consensus. Data was organized within themes related to (1) who and what adapts, (2) what they adapt to, and (3) how they adapt. The data on article's characteristics included the study's author, publication year, title, the original country of publication, location of study, source/journal, language, document type, who and what systems and settings adapted, context of adaptation, and the reconfiguration of midwives' practices, roles, and scope.

Collation of findings

From the raw data extracted using the Excel 2013 spreadsheet, the findings were organized following the elements of the Adaptation Cycle Framework and presented in a narrative form.

Consultation and knowledge translation

For consultation, we shared the preliminary findings of this scoping review at the national conference of the Canadian Association of Midwives and ICM conference. This step facilitated the collection of expert perspectives and meaning and ensured the applicability of the scoping study.

Ethics approval

All data were publicly available; hence ethics approval was not required.

Results

Forty-two articles were included in this scoping review (see Fig. 2 for the PRISMA diagram showing the article selection process). The sources of evidence included 14 qualitative studies, one scoping review, 14 articles from grey literature, two commentaries, two editorials, seven quantitative studies and two mixed methods studies. Of the 42 articles included, 41 were available in English and one was available in Spanish. Most of the studies, 31, were conducted in the Global North, and the remaining 11 were conducted in the Global South although most were led by researchers affiliated with the Global North.

We present the main characteristics of each included publication in Table 1, featuring data that describes who and what systems adapted, why, and the kinds of adaptation. Table 2 displays a summary of how midwives adapted.

The synthesis of the evidence presented below is organized according to the elements of the reconfigured Adaptation Cycle Framework: 1) Who and what systems adapt? 2) What do they adapt to and to serve who? And 3) How do they adapt? See Fig. 3 depicting the framework and main findings.

1. Who and what systems adapt?
   a) **Who adapted?**

      Midwives are diverse in their training, ability to provide autonomous care in and out of hospital, and scope of practice. By asking this question we aimed to examine the background training and legislative context of included midwives and explore if that impacted their adaptation process. Globally, midwives can obtain their credentials by either completing a direct-entry program, meaning they are not required to complete a nursing degree (e.g., Canada, Peru, Denmark, New Zealand), or by completing a nursing degree and subsequently or simultaneously obtaining midwifery training (e.g., some US states, China), while others have a combination of direct entry programs and nurse-midwifery

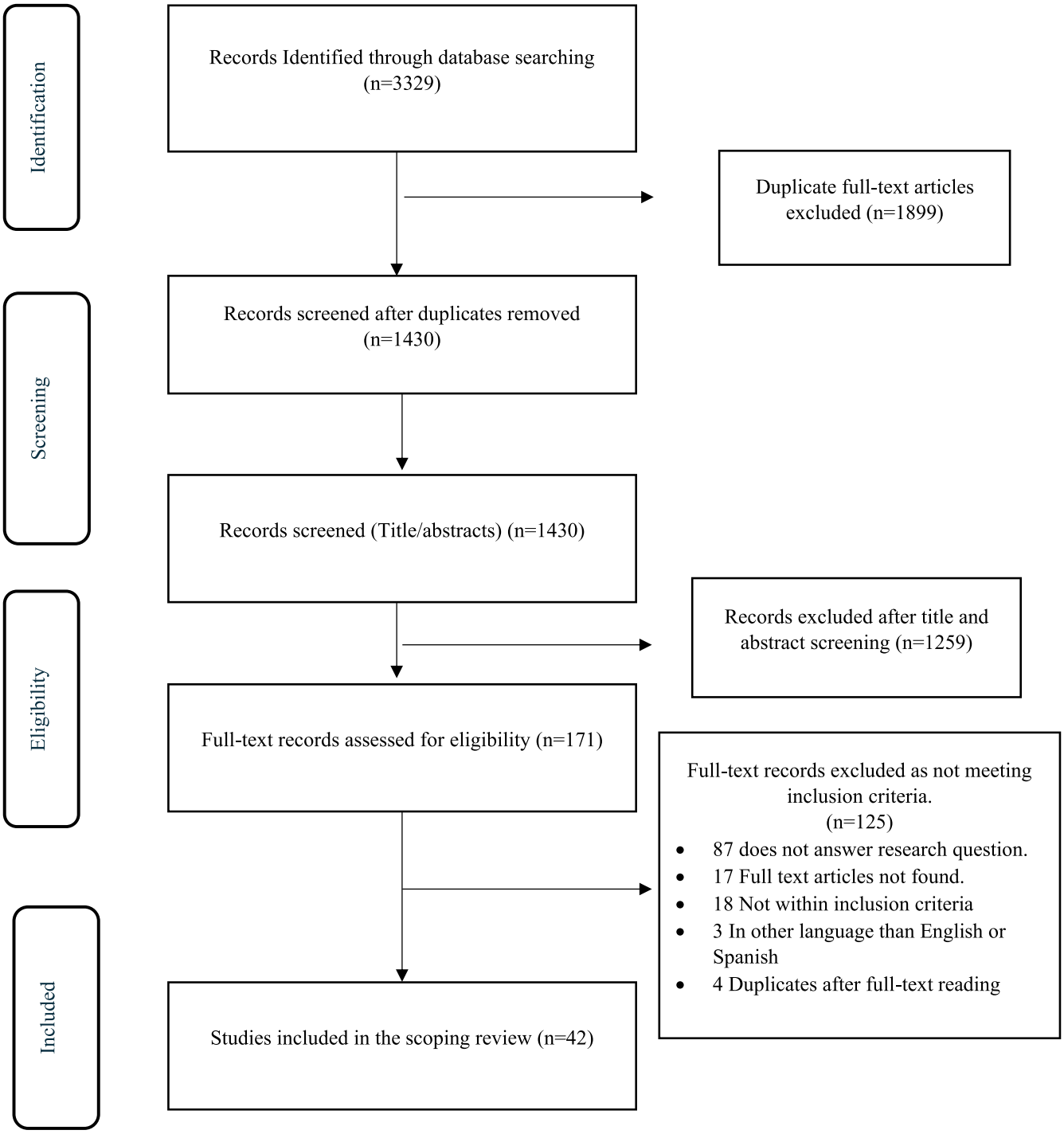

Fig. 2. PRISMA.

(e.g., Australia and UK) (Davis-Floyd, 1998). We found that variation in educational models, scope of practice, and integration into the health systems impacted the way midwives responded to events. For instance, community midwives in Puerto Rico and Mexico, typically direct-entry community midwives, reported no support from the health system or government, resulting in no access to medical supplies and hospital referrals (Alonso et al., 2021; Reyes, 2021). They could not attend hospital births with their service users because they were not considered part of the health team. In contrast, in countries where direct-entry midwifery regulation and legislation are stronger, as in the case of New Zealand, midwives found support from their community and health system to continue to provide their services, including choice of birthplace (Scott, 2020a). Midwives' educational model also played a role in how governments utilized midwifery services. For instance, in countries where nursing and midwifery professions are blended, and maternity units were closed or transformed into other facilities, midwives were redeployed to other hospital departments, where they had to be trained and re-trained in managing infectious diseases or other medical procedures (Goberna-Tricas et al., 2021). On the other hand, midwives from direct entry programs were designated to provide health education activities in community settings, as in

Table 1
Source of evidence characteristics.

Author, Year, Country (Region)	Title	Context (Why)	System adapted (What)	Adaptation (Who and How)
Alnuaimi, 2021 Iran	Understanding Jordanian Midwives' Experiences of Providing Care during the COVID-19 Pandemic Crisis: A Phenomenological Study	COVID-19	Labor and birth	• Hospital Midwives (Full ICM scope) • Practice: Full PPE, worked with less than 50% of staff. Increased infection control steps. Close of essential ambulatory care. • Role: Care providers, screening • Scope: Not change reported
Alonso et al., 2021 Mexico	Emergent Change in a Mexican Midwifery Center Organization Amidst the COVID-19 Crisis	COVID-19	Antenatal, labor, birth and postpartum	• Midwives (Full ICM scope) • Practice: Full PPE. Increased infection control steps and had overcome lack of quality water due to previous earthquake. Added cloth and linen washing tasks (maintain clothes and linen in plastic bags for 72 h prior to washing) allocate extra time for linen-drying which was challenging during raining season. Provided clean slippers at the clinic entrance for service users, who were now instructed to leave their shoes at the entrance. Midwives had to wear different shoes when entering the clinic. Despite unknown evidence of virus survival on surfaces. Increased demand for out-of-hospital births. Teleconference consultation. Lessened companionship restrictions to make it culturally appropriate. • Role: Care providers, researchers, adapt hospital-based protocols to community services, logistic managers, administrators, accountants, screening service users, financial support to service users • Scope: Not change reported, but restrictions when providing post-partum services (pelvis physiotherapy)
Bailey and Nightingale, 2020 United Kingdom	Navigating maternity service redesign in a global pandemic: A report from the field.	COVID-19	Antenatal, labor, birth and postpartum	• Hospital midwives and community midwives (scope not fully specified) • Practice: Hospital physical environment changed (arrows and colors to separate those infected, suspicious, or non-infected). Community midwives relocated to conduct telephone consultations because medical practices or children centers closed. Wear full PPE for full shift (mask, visor, and aprons). Antenatal visits over the phone until up to 28 weeks gestation, with exception to in person ultrasound. Offering a minimum of 8 antenatal visits as per WHO recommendations. • Role: Care providers, researchers, adapted hospital-based protocols to community needs, logistic managers, administrators, accountants, financial support to service users. Fast-track trainers for midwifery students moved into paid clinical practice placement to support the workforce in April. Support person. gate keepers* • Scope: Not change reported.
Banks and Normand, 1941 United Kingdom	Emergency Maternity Homes	World War II	Antenatal, birth and postpartum	• Nurse-midwives (scope not specified) • Practice: Adapted all care to community context (maternity home, hostels, and houses) • Role: Care provider. Escorted pregnant people who were sent by buses to the Emergency maternity homes. Trainers of medical students. Human resources managers. Responsible for the confinement of service users - no less than 14 days. District midwives were responsible for antenatal care for those not admitted into the EMH. There is a note that one midwife adapted her house to host 4 beds for service users. • Scope: Not changes reported
Bauman et al. 2021 France	Adaptation of independent midwives to the COVID-19 pandemic: A national descriptive survey	COVID-19	Antenatal, birth and postpartum	• Nurse-Midwives limited scope (antenatal, labour/birth and postnatal) • Practice: Use of PPE (only six mask per week was available for midwives at the French pharmacies). Had to cancel postpartum pelvic rehabilitation, postpartum visits and gynecological screening, pap smears and breast cancer screening. • Role: Care provider, gate keeper* • Scope: Midwives unable to provide their full scope of practice. Not authorized to conduct telemedicine consultations until an alert was sent by the French National College of Midwives by March 20th, 2020
Benaglia and Canzini, 2021 Italy	"They Would Have Stopped Births, if They Only Could have": Short-and Long-Term Impacts of the COVID-19 Pandemic-a Case Study from Bologna, Italy	COVID-19	Antenatal, labor and birth	• Nurse-Midwives limited scope (antenatal, labour/birth and postnatal) • Practice: Use of PPE, banned support person.

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Table 1 (*continued*)

Author, Year, Country (Region)	Title	Context (Why)	System adapted (What)	Adaptation (Who and How)
				• Role: Care provider, gate keeper*, advocators of birth rights, denouncing the worrisome of re-medicalizing birth, leaving birthing people more isolated, discourse of risk and safety, and re-producing obstetrical violence. • Scope: No changes reported.
Carter, 2020 United Kingdom	Running maternity services during the coronavirus pandemic: keep calm and don't forget the woman!	COVID-19	Antenatal, labor and postpartum	• Nurse-Midwives and community midwives with limited scope (antenatal, labour/birth and postnatal care) • Practice: Use of PPE. Increased demand for out-of-hospital births. • Role: Advocators for service user's rights and option: hired a private ambulance to respond to the announcement that London Ambulance Service could not guarantee services for transferring from homebirth, ensured all service users were accompanied by a support person during active labor, not determined by cervical dilation, but by the sense of need of the service user. In special circumstances, advocated for a second support person when there were significant physical and mental health concerns. • Scope: Provided extended outpatient induction with the mechanical balloon.
Chowdhury et al., 2020 Bangladesh	Maternity Care Amid Covid-19 Outbreak: Story of midwives from a remote rural area in Bangladesh	COVID-19	Antenatal, labor, birth, postpartum	• Unspecified if direct entry midwives (full scope) • Practice: Use of PPE. Extended infection control steps (placed a pail of water and soap at the entrance of clinic and service users were obligated to wash their hands). Support person prohibited. Screen temperature for every service user, if high had to be transported to hospital after counselling. • Role: Care providers, adapted hospital-based protocols to community needs, logistic managers, gate keepers* • Scope: Midwives managed severe obstetrical and neonatal complications because there were no referrals available due to COVID (treat PPH and kept the women until transfer for blood transfusion and treat birth asphyxia on her own)
Conroy, 2020 New Zealand	The impact of covid-19 on hospital midwives	COVID-19	Labor and birth	• Direct entry midwives (limited scope) • Practice: Use of PPE. Screening for COVID-19. Maternity services reconfigured in "red" and "green zones". • Role: Care providers, gate keepers*, support person. • Scope: No changes reported
Coxon et al., 2020 Europe	The impact of the coronavirus (COVID-19) pandemic on maternity care in Europe	COVID-19	Antenatal, labor and birth	• Nurse-midwives and community midwives (scope not specified) • Practice: Antenatal care changes: Netherlands, initial appointments were virtual or over the phone, followed by in person appointments at 11–12 weeks when the person will attend to do bloodwork and ultrasound. In some areas of the UK, pregnant people were given BP machines and urinalysis sticks to self-monitor. People with pre-existing hypertension had a specific app that would inform their providers about their readings. In Italy and Spain, guidelines varied and some reduced antenatal appointments and used phone consultations. Others continued face to face consultations. Some areas restricted or reduced access to out of hospital births due to lack of personnel or lack of ambulance transportation. Most countries in the UK restricted attendance of partners or support person to only one, and present only during labor. In Netherland partners with COVID-19 symptoms were permitted when using appropriate PPE. In Italy, in the most affected areas medical analgesia was restricted because anesthetists were redeployed to urgent care. Skin to Skin was a subject of debate, but overall, not affected. In some Spanish countries COVID-19 positive people were isolated from their newborns but recommended to pump to provide breastmilk. Use of PPE. Community midwives had to compile their own PPE packages and receive supplies from community, nail salons and veterinarians. • Role: Care providers, gate keepers*, support person, advocators of midwifery profession, counselors. • Scope: No changes reported.

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Table 1 (*continued*)

Author, Year, Country (Region)	Title	Context (Why)	System adapted (What)	Adaptation (Who and How)
Crowther et al., 2021 New Zealand	New Zealand maternity and midwifery services and the COVID-19 response: A systematic scoping review	COVID-19	Antenatal, labor, birth and postpartum	• Direct entry midwives limited scope to antenatal, labour, birth, and postnatal care. • Practice: USE of PPE. Limited option for home visits, changed to telehealth and phone visits. Restrict members present at home visits. At the national level there was strong support to provide community-based birth, including home births. Some District Health Boards provided home birth equipment to mitigate te demand from community midwives. • Role: Care provider, gatekeeper*, logistic and managers, profession, and childbearing rights advocators. • Scope: No changes reported.
Crowther et al., 2021 New Zealand	When Maintaining Relationships and Social Connectivity Matter: The Case of New Zealand Midwives and COVID-19.	COVID-19	Antenatal, labor, birth and postnatal care.	• Direct entry midwives limited scope to antenatal, labour, birth and postnatal care. • Practice: Use of PPE (lack of PPE supplies for community midwives). Anecdotal increased demand of out of hospital births. Dental clinic adapted as a community birth center. Limited number of support people. • Role: Care provider, gatekeeper*, logistic and managers, profession, and childbearing rights advocators, financial supporter. • Scope: No changes reported.
Davis-Floyd and Gutschow, 2021 Global	Editorial: The Global Impacts of COVID-19 on Maternity Care Practices and Childbearing Experiences.	COVID-19	Antenatal, labor and birth	• Midwives (variation in training background) • Practice: Use of PPE. Blended antenatal care in New Zealand (portion of the appointment was done virtually and 15 min were allotted to conduct in person meeting). • Roles: Care provider. Childbirth rights advocator (presence of support person, skin to skin contact, not wear a mask during labor and delivery). Community outreach using social media (Chilean midwives, with support and in response to hospital demands, created an Instagram account that would aid service users 24/7. They also implemented virtual tours using this account. • Scope: In Puerto Rico, Guatemala and Mexico community-based midwives were banned to accompany their service users to the hospital.
Davis-Floyd et al., 2020 United States	Pregnancy, Birth and the COVID-19 Pandemic in the United States	COVID-19	Antenatal, labor and birth	• Midwives (variation in scope) • Practice: Use of PPE. Telehealth or virtual appointments. Short in person visits. Extended infection control measures. Wore improvised home-made gowns. Constantly washing physical location. Switch to disposable instrument/tray. • Role: Care provider, gate keeper*, sanitation responsibilities, knowledge translators, advocators for childbearing rights. • Scope: No changes reported.
Dixon, 2020 New Zealand	College survey confirms the impact of covid response on midwives.	COVID-19	Antenatal, labor and birth, postpartum	• Direct entry midwives (scope limited to antenatal, labour, birth and postnatal care) • Practice: Use of PPE. Extended infection control measures. Screening service users before each appointment. • Role: Care provider, support person, knowledge translators, first line counselors, administrators (non-clinical work), fast learners of new technology to provide virtual care and this increased their cost expenses. • Scope: Provided care beyond 6–8 weeks post-partum because Well Child services discontinued face-to-face appointments.
Feijoo'Iglesias, 2021 Spain	Early discharge and postpartum home visit during the COVID-19 pandemic at the HULP (Madrid) / Alta precoz y visita domiciliaria puerperal durante la pandemia por la COVID-19 en el Hospital Universitario La Paz (Madrid)	COVID-19	Postpartum	• Nurse-midwife (scope not specified) • Practice: Full PPE, Maternity services reconfigured physical environment (postpartum beds reduced and transferred to COVID-10 designated areas). • Roles: Care provider, support person, counselor, knowledge translator, administrator. Breastfeeding support at home. Three hospital midwives relocated as community midwives to provide post partum home visits during the first 42 and 54 h after birth to people who opted for early discharge - before 36 h postpartum. • Scope: Expanded to perform newborn screening, and hyperbilirubinemia assessments.

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Table 1 (*continued*)

Author, Year, Country (Region)	Title	Context (Why)	System adapted (What)	Adaptation (Who and How)
Ghanchi, 2020 France	Adaptation of Coronavirus Disease (COVID-19) Protocols to a Parisian Maternity Unit During the 2020 Pandemic: A Managerial Perspective	COVID-19	Antenatal	• Nurse-midwife (scope not specified) • Practice: Full PPE. • Roles: Two midwives relocated to a field tent diagnostic clinic. • Scope: No changes specified
Goberna-Tricas et al., 2020 Spain	The COVID-19 pandemic in Spain: experiences of midwives on the healthcare frontline.	COVID-19	Antenatal, labor, birth and postpartum	• Nurse-midwife (limited scope) • Practice: Adapted to virtual tools, phone appointments, online group meetings with service users. Midwives reported that care felt dehumanized. • Role: Adapted hospital-based protocols to community context, managers, service users' advocators (this created tension with other professionals who thought it was the midwives bringing this "issues"). Created their own support system. Trainee to update or gain rapid knowledge on treating infectious diseases. • Scope: Midwives who worked on closed maternity units were obliged to transfer to wards with COVID-19 service users and work withing nurses' scope - providing medications not within their scope (treating elders with chronic conditions). Discontinued in-person visits, childbirth preparation classes and pap smears. Hospital midwives that also offered out of hospital births interrupted services due to potential "vector" risk.
González-Timoneda et al., 2020 Spain	Experiences and attitudes of midwives during the birth of a pregnant woman with COVID-19 infection: A qualitative study	COVID-19	Antenatal, labor and birth	• Nurse-midwife (scope not specified) • Practice: Physical environment changed to reorganize unit. Equipment prepared outside the rooms. Had to screen all service users with PCR during active labor. Full PPE. Midwives reported that practice felt dehumanized and opposite to midwifery philosophy. • Role: Care providers, service users' advocators, support person, • Scope: OR assistant
Gutschow and Davis-Floyd, 2021 United Sates	The Impacts of COVID-19 on US Maternity Care Practices: A Follow-up Study	COVID-19	Labor and birth	• Nurse-midwives and community midwives (scope not specified) • Practice: Use of PPE varied according to settings. A midwifery practice in Virginia only wore masks as per service users' request and midwives did not use them when attending labor. Difficult to find PPE, so had to connect with other clinics to purchase them. Increased infection control steps. Provided isopropyl alcohol wipes to service users to wipe down their phones. Some practices asked service users to test for COVID at 36 weeks (performed during antenatal visits, adding more time into an already busy schedule. Service users without insurance had difficulties to access test). Virtual and telephone appointments. Midwives had to follow protocols to separate mothers from newborns. • Roles: Care provider. • Scope: Midwives identified as support person and not as care provider when transferred to hospital, so they were not permitted to enter hospital.
Herawati et al. 2020 Indonesia	Family Planning Services by Midwifery of Private Midwifery Practice in Yogyakarta During the Pandemic Period of Covid-19	COVID-19	Family planning	• Midwives (full scope) • Practice: Online and phone appointments. Service users had to book in advance their appointments to ensure the midwives had enough PPE supplies. All service users to wash their hands on arrival and departure. • Role: Care provider and first line counselor. • Scope: No changes reported.
Homer et al., 2021 Australia	The impact of planning for COVID-19 on private practising midwives in Australia.	COVID-19	Antenatal, labor, birth and postpartum	• Direct entry midwives (limited scope to antenatal, labour, birth and postnatal care) • Practice: Increased demand of home births. PPE (difficulty to access and some midwives with hospital privileges were denied help with accessing PPE). Conflicting information about water birth interrupted its offer. Support person not allowed. Limited antenatal appointments, no face to face until 24 weeks. Intakes by phone. Screening all service users prior to entering for in person consult. • Role: Care provider, donation collector, manager, self supplier of PPE (sewing PPE, making their own hand sanitizer). • Scope: No changes reported.
Iguiñiz-Romero and Guerra-Reyes,	On the front line: Health professionals and system preparedness for Zika virus in Peru	Zika	Antenatal and contraceptive care	• Direct entry midwives (Full scope) • Practice: Midwives in this area of Piura had to spray repellent in their centers daily. Wear long sleeves and

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Table 1 (*continued*)

Author, Year, Country (Region)	Title	Context (Why)	System adapted (What)	Adaptation (Who and How)
2020 Peru				pants even though is very warm and humid. Provided service users with repellent, mosquito nets and condoms after each visit. • Because of the flood and endemic of dengue had to work in outside tents. • Role: Care provider, community outreach (searched for pregnant women in the streets, markets, provided counseling and condoms). "Ten-minute home visit" Midwives visited homes to assess physical environment, heck water containers, disposable areas, ensure the water containers had lids and mosquito nets. They searched for larvae, to finally provide repellents, mosquito nets and condoms. • Scope: Extended because not other health care providers (mostly midwives, nurses and newly qualified doctor who only stay for a year rotation)
Turan et al., 2008 Kenya	Effects of HIV/AIDS on maternity care providers in Kenya	HIV	Labor and birth	• Midwives (full scope) • Practice: Use of PPE, screen unknown HIV service users on arrival. Provide antiviral medication to service users. Provided 30 min pre and post screening counseling. • Role: Trainee (attended several training sessions that could last up to 1 week). Care provider, childcare provider for those newborns whose mothers were severely ill. • Scope: Extended to provide treatment to newborns
Jones et al., 2017 Sierra Leon	'Even when you are afraid, you stay': Provision of maternity care during the Ebola virus epidemic: A qualitative study	Ebola	Labor and birth	• Midwives and nurse-midwives (scope not specified) • Practice: Midwives provided care even when lack of PPE. Midwives had to provide care with minimum medicine and equipment supplies. • Role: Care provider, midwives redeployed to Ebola treatment centers. Community outreach because community was afraid to attend hospitals. • Scope: Not changes specified.
Leiva et al., 2021 Chile	Protecting Women's and Newborns' Rights in a Public Maternity Unit During the COVID-19 Outbreak: The Case of Dra. Eloisa Diaz - La Florida Hospital in Santiago, Chile.	COVID-19	Antenatal, labor, birth and postpartum	• Direct entry midwives (full scope) • Practice: Full PPE. Mandatory use of N95 mask during whole shift. Uniform changing in hospital. No kiss greeting. Change in shift hours (24x4). Less HCP per shift. • Role: Care provider, service users' advocators, community outreach through social media platforms. • Scope: No changes specified.
Mahase, 2020 United Kingdom	Midwives and paramedics can deliver flu and covid vaccines after new laws come into force	COVID-19	Antenatal	• Nurse-midwife, community midwife (scope not specified) • Practice: Not specified • Role: Care provider • Scope: Legal changes allowed midwives to deliver flu and covid vaccines.
Pallangyo et al., 2020 Kenya, Uganda, and Tanzania	The impact of covid-19 on midwives' practice in Kenya, Uganda, and Tanzania: A reflective account	COVID-19	Labor, birth and family councelling.	• Midwife (full scope) • Practice: Use of PPE. Antenatal care demand decreased because service users were afraid of health facilities. Virtual and phone appointments (impossible in rural areas). A midwife responsible to provide sexual and reproductive counseling to young women kept in contact with service users by phone calls and texts, those at higher risk were unable to contact. • Role: Care provider, counselors. • Scope: No changes specified.
Penwell, 2014 Philippines	Mercy in action midwives form disaster response to deadly super typhoon	Typhoon	Labor and birth	• Direct entry midwife (full scope) • Practice: Provided care in outdoor tents. • Role: Care provider, disaster responder, water providers for community, labor supporter. Implementing kangaroo care. • Scope: Extended scope, cared medical service users, managed complicated pregnancies (undiagnosed twins, footling breech, and premature babies), cleaned and sutured wounds, treated infections, provided tetanus shots, and buried babies and conducted funerals.
Reyes 2021 Puerto Rico	Born in Captivity: The Experiences of Puerto Rican Birth Workers and Their Service users in Quarantine.	COVID-19	Labor, birth and postpartum	• Midwives (limited scope) • Practice: Increase demand for out of hospital births. Wear PPE. Increased infection processes, screened service users prior to in person visits. Used telehealth (taught service users to take blood pressure and symphysis fundal height.

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Table 1 (*continued*)

Author, Year, Country (Region)	Title	Context (Why)	System adapted (What)	Adaptation (Who and How)
				• Role: Care provider, first line responders, profession advocators, service users' advocator. • Scope: Nor recognized as health care providers by health institutions.
Rocca-Ihenacho and Alonso, 2020 Globa	Where do women birth during a pandemic? Changing perspectives on Safe Motherhood during the COVID-19 pandemic	COVID-19	Labor and birth	• Midwives (variation in scope of practice) • Practice: Telemedicine, offered care in community settings (hotels close to Obstetrical Units). Only one support person and in some countries none. Limited options for place of birth. • Role: Care providers. Nurse-midwives deployed to medical areas. • Scope: Not specified.
Rodriguez, 2021 Spain	COVID-19 changes to the pregnancy and birth assistance: Catalan midwives' experience.	COVID-19	Antenatal, labor and birth	• Nurse-midwives (limited scope of practice) • Practice: First level maternity units closed, and midwives had to be redeployed to other centers, restricted support person, decreased in-person visits, unable to screen for domestic violence. • Role: Care provider, community outreach. • Scope: Midwives redeployed to medical areas (nursing scope)
Rudrum, 2021 Canada	Pregnancy During the Global COVID-19 Pandemic: Canadian Experiences of Care	COVID-19	Antenatal, labor, birth and postpartum	• Direct entry midwives (limited scope) • Practice: Antenatal appointments spread out, 8 antenatal appointments, telehealth consultations, face-to-face appointments varied among practices. Increased demand from late into care users (GP referred service users to other practitioners because they were working in acute COVID-19 settings). • Role: Care provider, service users' advocators. • Scope: Not specified.
Ryder et al. 2021 Republic of Ireland	Nursing and Midwifery Workforce Readiness during a Global Pandemic: A Survey of the Experience of one hospital group in the Republic of Ireland	COVID-19	Labor and birth	• Nurse-midwives (scope not specified) • Practice: 9–11% of nurse midwives were redeployed internally. • Role: Care provider. • Scope: Nurse-midwives redeployed to COVID-19 areas and had to be re-skilled in infection control and management in acute medical treatment and procedures. Outpatient midwives were redeployed to wards, so ward midwives could aid in acute COVID-19 areas.
Sanders and Blaylock, 2021 United Kingdom	"Anxious and traumatised": Users' experiences of maternity care in the UK during the COVID-19 pandemic	COVID-19	Labor, birth and postpartum	• Midwives, nurse-midwives (scope not specified) • Practice: Booking and 20-week appointments over the phone. In person appointment until 30 weeks. Restrictions for support person. Some hospitals partners not allowed until 4 or 7 cm dilation. Partners had to leave after c-section, and they could not return. • Role: Care provider. Service users' advocators (independent midwives experienced increased demand of their services because publicly funded midwives were not allowed to offer non-centralized care) • Scope: Not specified.
Scott 2020 New Zealand	New midwives rise to the challenges of practice in Pandemic	COVID-19	Labor and birth	• Direct entry midwives (limited scope) • Practice: Face mask during antenatal and postnatal appointments. Full PPE during second and third stage. Partners asked to leave hospital immediately after the birth. Midwives offering home births had more flexible restrictions for support people. Virtual and phone appointments. • Role: Care provider, fast track mentors for newly qualified midwives, service users' advocators. • Scope: No changes specified.
Scott, 2020 New Zealand	Queenstown midwives and mothers improvise as covid closes maternity unit	COVID-19	Labor and birth	• Direct entry midwives (limited scope) • Practice: Midwives attended births in dental clinic. • Role: Care provider, managers, logistic, service users' advocators, financial supporters. • Scope: Not specified.
Sheil and McAuliffe, 2021 Ireland	Reorganisation of obstetric services during the COVID pandemic – Experience from National Maternity Hospital Dublin Ireland	COVID-19	Labor and birth	• Direct entry midwives (limited scope) • Practice: Phoned service users prior to their appointments. Only three in person appointments, at 20, at 28 and at 36 weeks, the rest were virtual. GDM screening switched to HbA1c and fasting glucose for diagnostic. A group of midwives, designated as diabetes midwifery service and assigned to conduct weekly phone calls to service users submitting their glucose values on a smart phone application. Postpartum care mostly delivered virtually. Partners restricted to attend antenatal visits, unless specific circumstances, allowed

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Table 1 (*continued*)

Author, Year, Country (Region)	Title	Context (Why)	System adapted (What)	Adaptation (Who and How)
				2-hour visits during post partum, and not allowed on neonatal unit. • Role: Care provider. • Scope: Not specified.
Shorey and Chan, 2020 Global	Lessons from past epidemics and pandemics and a way forward for pregnant women, midwives and nurses during COVID-19 and beyond: A meta-synthesis	COVID-19, Ebola	Antenatal, labor, birth and postpartum	• Midwives (full scope) • Practice: Midwives worked with minimal supplies and medication. Created their own environments or reorganize them to meet the needs of their service users. • Lack of PPE. Showered when leaving their workplace and again at home. Improvised disposing placentas in sawdust buckets to avoid splashing of blood. • Role: Service users' advocates (midwife fired for allowing skin to skin contact in an Ebola center). Colleague supporters. Care provider. • Scope: Not specified.
Van Manen et al., 2021 Netherlands	Experiences of Dutch maternity care professionals during the first wave of COVID-19 in a community-based maternity care system	COVID-19	Labor and birth	• Direct entry midwives (limited scope) • Practice: Video consultations, requested service users to self monitor blood pressure and fetal heart rate. Telemedicine. • Role: Care provider • Scope Not specified.
Wainer, 2020 United States	Letter to My Soon-to-be Parents–As We Negotiate These Unusual Times	COVID-19	Antenatal, labor, birth and postpartum	• Nurse-midwife, community midwives (scope not specified) • Practice: Space out appointments. Virtual/phone appointments. Screening for COVID-19 symptom at beginning of appointment. Limited people present at appointments, and they also must be screened. • Role: Care provider, gate keeper* • Scope: Not specified
Węgrzynowska et al., 2020 Poland	Polish maternity services in times of crisis: in search of quality care for pregnant women and their babies	COVID-19	Labor and birth	• Midwives (scope not specified) • Practice: Independent midwives experienced three or fourfold more calls for HB. • Role: Care provider • Scope: Not specified

*See Table 2.

the case of Piura, Peru during the Zika endemic (Iguiñiz-Romero and Guerra-Reyes, 2020).

b) **What system(s) adapted?**

We defined 'system' as the health service area where a midwife provides care, such as antenatal care, birth, postpartum, contraceptive care, or abortion, among other essential SRHS. Across the globe, midwifery regulations vary, affecting the systems in which midwives can operate. For instance, midwives in Canada and Australia have limited abilities to provide contraceptive care, while in Peru, some states of USA, and New Zealand, midwives are legally entitled to provide this service. Most of the articles, 40 of the 42, were centered on contraceptive care (Herawati et al., 2020; Iguiñiz-Romero and Guerra-Reyes, 2020; Pallangyo et al., 2020). Most of the articles referred to adaptations within the hospital setting. Those that referred to outside hospital care reported the challenges of adapting public health regulations and guidance into the community context (Alonso et al., 2021; Jacobsen, 2021), unless the midwifery service was part of an early discharge program led by the hospital management (Feijoo-Iglesias et al., 2021). Despite these challenges, midwives were able to modify the provision of their out of hospital services by adapting hospital-based guidelines to their community context (Alonso et al., 2021; Banks and Norman, 1941; Feijoo-Iglesias et al., 2021; Scott, 2020a).

2. **What did they adapt to and to serve who?**

The articles included indicate that midwives have adapted to the conditions of World War II, HIV/AIDS, Ebola, Zika, and a natural disaster. Most of the included literature centered on the recent global pandemic caused by COVID-19 (Banks and Norman, 1941; Penwell, 2014; Riley et al., 2016; Turan et al., 2008). The evidence demonstrated that midwives provided care to women and gender-diverse people with uteruses, particularly during pregnancy, and to newborns. However, no specific data identified population demographics.

3. **How have midwives adapted?**

We classified how midwives adapted into three categories: a) *practice, b) role,* and *c) scope*, as defined in our methods.

a) **Practice adaptation**

Use of personal protective equipment (PPE)

The most common adaptation during the COVID-19 pandemic and Ebola epidemic was the use of PPE. Globally, within hospitals and communities, midwives implemented routinely wearing PPE, including eye protection equipment and gowns (Gutschow and Davis-Floyd, 2021).

Creative infection control measures

During the COVID-19 pandemic and Ebola epidemic, midwives had to modify and intensify their infection control procedures, investing considerable amount of time and resources in training, development, and implementing infection control protocols (Alonso et al., 2021; Jacobsen, 2021; Jones et al., 2017). As part of these measures, the physical environment, quantity of staff per shift, and the distribution of working areas, instruments, and equipment management were altered. Some hospital midwives experienced a reduction of 50% of personnel per shift, and/or the internal redeployment of approximately 9–11% of midwives to other medical areas, and some had to work 24 h shifts instead of the usual 12 h (Alnuaimi, 2021; Leiva et al., 2021; Ryder et al., 2022). Additionally, midwives increased the frequency of washing and cleaning of their physical location, clothes, linen, equipment, and instruments, and using plastic trays and disposable equipment (Alonso

Table 2
To respond to How do they adapt??

Changes in practice	*Use of PPE*	At all times when face to face encounters with service users Some midwifery practices only wore them as per service user's request, few midwives wore it when attending labor.
	Infection control steps	Constant sanitation of equipment redistribution, signalization of physical location, Changing equipment to plastic trays and disposable equipment Constant changing of clothes and gowns
	Clinical appointments	Implementing virtual and phone appointments Reducing number of appointments Reducing length of in-person appointments Teaching service users to check their own vitals and symphysis fundal height Screening service users on arrival
	Labor and delivery	Regular COVID-19 swab test among the staff, weekly, biweekly or when symptomatic Testing service users for COVID-19 routinely or regularly. Some starting from 36 weeks Banning skin to skin contact and separating mothers from babies Increased demand of out of hospital birth
Changes in roles	Care providers Gate keepers: screening, allowing, or banning people Fast learners to apply organizational and administration skills (adapting hospital-based guidelines to community) Community outreach: direct source of information for service users, out in the community for knowledge translation, active in social media platforms. Counselor: First line or only contact for service users, 24/7, provided support to service users and families Support person: If partner or other support person was not allowed to hospital midwife will attend. Financial support to service users Caring for oneself and colleges Professional advocators: Advocacy to include midwives in the decision-making team, found opportunities for long-term solutions within the health system. Advocators for childbearing and sexual and reproductive human rights.	
Changes in scope	Depends on Midwifery training	With previous nursing degree: redeployed to other medicine areas and trained and retrained on skills outside their midwifery scope. Direct entry midwives: Limited information. Not described as direct entry midwives or nurse midwives: When maternity units closed midwives were redeployed to do vaccination which is typically outside of midwives' scope of practice. Community midwives recruited to provide post partum home visits and newborn assessments in jurisdictions that midwives do not regularly provide newborn care.
	Midwives during the typhoon Haiyan in the Philippines went beyond midwifery scope: Seeing medical service users, suturing other than perineum repair, prescribed antibiotics, provided tetanus shots, transported medical service users to Doctors Without Borders, attended twin births, footling breech, premature babies (promoted kangaroo care), treated injured service users.	

et al., 2021; Davis-Floyd et al., 2020). Midwives improvised infection control protocols. For example, in places where there was limited or no access to quality water or hygiene supplies, midwives placed a pail of water and soap at the entrance of their clinic, and service users were obligated to wash their hands (Chowdhury et al., 2020). Midwives also provided isopropyl alcohol wipes to wipe down phones (Gutschow and Davis-Floyd, 2021), created their own detergent, and developed a linen washing protocol (Alonso et al., 2021). In hospitals, midwifery staff showered and changed their uniforms when entering or exiting the hospital (Shorey and Chan, 2020). In Chile, midwives were instructed to avoid kiss greetings (Leiva et al., 2021). Midwives in Piura, Peru, had to use mosquito repellent and wear long sleeves and pants despite the warm and humid weather (Iguiñiz-Romero and Guerra-Reyes, 2020). During Ebola, midwives improvised disposing placentas in sawdust buckets to avoid the splashing of the blood (Shorey and Chan, 2020). In Italy, community midwives interrupted the provision of pelvic rehabilitation care and gynecological screening to avoid physical contact as an infection control measurement (Benaglia and Canzini, 2021).

Clinical appointments

A common theme was the change in frequency, length, and mode of delivery of antenatal, postpartum, and contraception care during COVID-19. Generally, initial appointments were conducted over the phone or virtually, and the initiation of in-person visits varied. As an example, in Netherlands, midwives would follow up an initial phone/virtual intake with an in-person visit at 11–12 weeks pregnancy when the person would attend for their routine dating ultrasound and prenatal bloodwork (Coxon et al., 2020; Rocca-Ihenacho and Alonso, 2020; Rudrum, 2021). Australian midwives reported no face-to-face appointments until 24 weeks, (Homer et al., 2021) and other European countries did not start in person visits until 28 or 30 weeks (Bailey and Nightingale, 2020; Sanders and Blaylock, 2021; Wainer, 2020). Phone or virtual appointments (ZOOM, WhatsApp, Telehealth, Telemed) were the most common channels of communication (Alonso et al., 2021; Goberna-Tricas et al., 2021; Herawati et al., 2020). To support virtual appointments, some practices taught their service users to self monitor their blood pressure, perform rapid urinalysis test, assess FHR, and measure symphysis fundal height (Coxon et al., 2020). Some midwifery practice groups used a telephone application for service users with pre-existing hypertension and instructed them to document their readings (Coxon et al., 2020). Similarly, a group of midwives in Ireland were designated as a diabetes midwifery team and used an app to monitor their service users (Sheil and McAuliffe, 2021). In the context of HIV, service users with unknown HIV status were screened on arrival, and midwives did a 30-minute pre and post screening counseling, including treatment if necessary (Turan et al., 2008).

Labour, birth, and postpartum care

In the context of the COVID-19 pandemic, some European midwives with sufficient autonomy made decisions on case-by-case circumstances to determine when the birthing person needed labour support (Carter, 2020). In the Netherlands, partners infected with COVID-19 and stable were permitted to attend the birth wearing appropriate PPE (Coxon et al., 2020). Some community midwives were not permitted to attend hospital births, despite having privileges, because they were considered support persons and not health care providers (Homer et al., 2021). Routine skin to skin was subject to debate. For instance, midwives in Spain stated that COVID-19 positive people were isolated from their newborns but were recommended to pump and provide breastmilk (Coxon et al., 2020; Gutschow and Davis-Floyd, 2021). There was also conflicting information about safety of waterbirth, making midwives to reconfigure their service users' birth option (Homer et al., 2021).

The evidence suggests that midwives had to adapt to out of hospital births demands. Community Polish midwives experienced three or four times more calls for homebirths (Wegrzynowska et al., 2020). Similar experiences from Mexican and Puerto Rican community midwives were reported (Alonso et al., 2021; Reyes, 2021). Midwives who are integrated within the hospital system (i.e., Australia, Canada, Netherlands, New Zealand, and the UK) also experienced more public interest in community births (Beatti, 2020; McMahon et al., 2020). In New Zealand, there was strong support at the national level to provide community-based care, including homebirth (Crowther et al., 2021a). Evidence from 1941, during World War II, shows that hospital

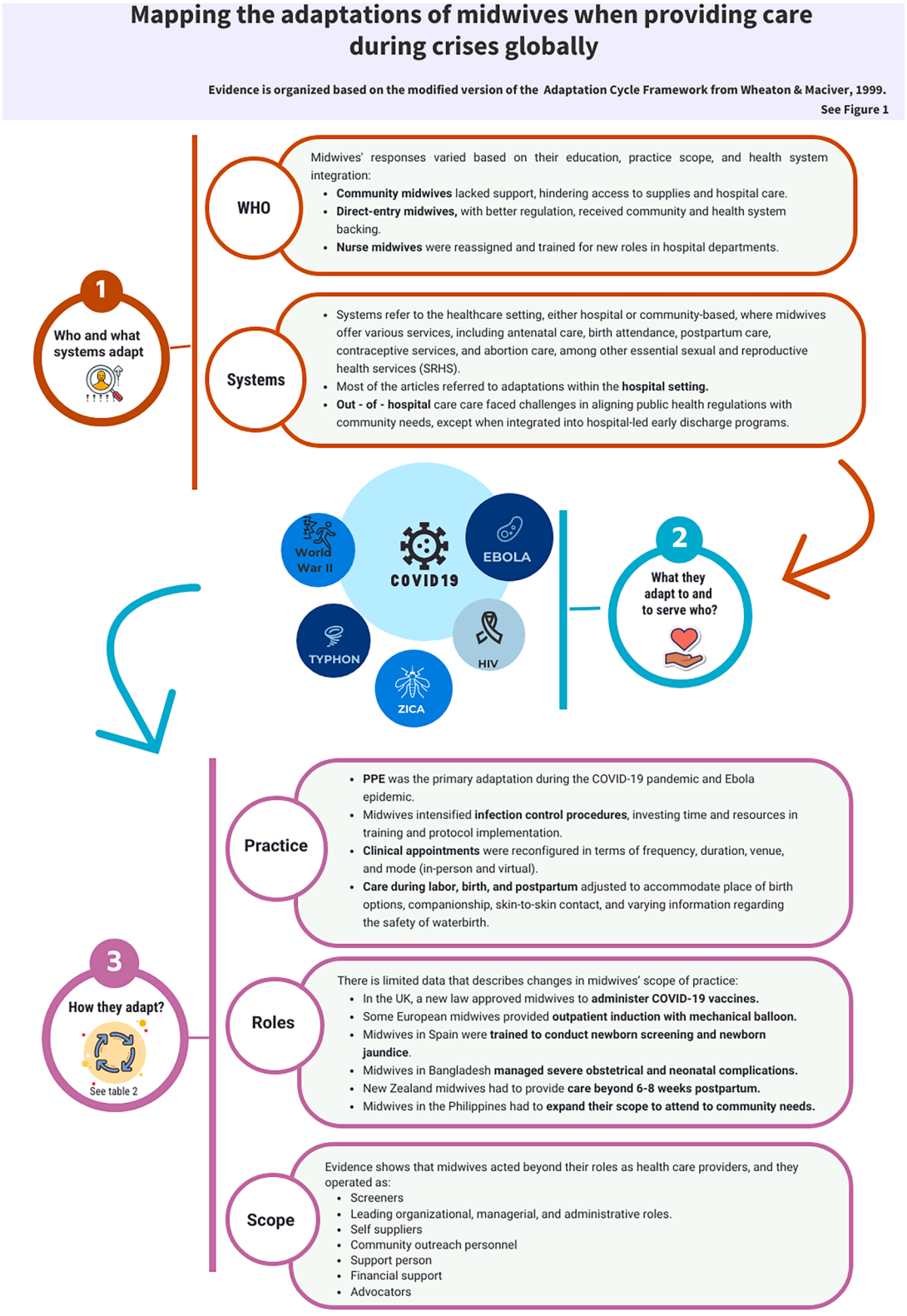

Fig. 3. Mapping the adaptations of midwives when providing care during crises globally.

nurse-midwives and community midwives were organized by the national ministry of health to implement emergency maternity homes as part of the evacuation plan for cities potentially affected by bombs. Midwives were responsible for antenatal care, birth, and postpartum care within the maternity homes (Banks and Norman, 1941). Evidence also suggests that even when midwives have been integrated into the health system, they have experienced challenges when advocating for service user's options and have had to respond to it by creating ways of

overcoming these barriers. For instance, the UK national health system restricted the offer of homebirths due to lack of personnel for ambulance transportation (Carter, 2020; Coxon et al., 2020). As a result, community midwives responded by hiring emergency transportation and trained emergency driver teams to mitigate the possible restrictions (Coxon et al., 2020).

a) **Role adaptations**

Evidence shows that midwives acted beyond their roles as health care providers. They operated as gatekeepers, screening people for COVID-19, HIV and Zika, permitting or banning a support person, and deciding when it was appropriate for service users to attend with a companion. Midwives were fast learners applying organizational, managerial, and administrative skills. They hired ambulances, booked hotel rooms, built tents (Davis--Floyd and Gutschow, 2021; Ghanchi, 2020; Kollie, 2016; Penwell, 2014), and became self suppliers of PPE (sewing PPE, making their own hand sanitizer, collecting PPE donations) (Homer et al., 2021). They increased their role in community outreach (Leiva et al., 2021). For instance, in one Peruvian region, midwives provided information and resources such as insect repellent and condoms in street markets to prevent Zika infection and avoid pregnancies during this time. They also assumed the role of a support person when no companion was allowed to enter the maternity units, extending this role to caring for newborns when the mother was severely ill from HIV (Riley et al., 2016). Midwives provided financial support for families who could not afford access to health care services (Alonso et al., 2021). Finally, they strengthened their advocacy for the midwifery profession and for reproductive and sexual health rights (Sanders and Blaylock, 2021; Scott, 2020a, 2020b; Shorey and Chan, 2020).

b) **Scope adaptations**

There is limited data that describes changes in midwives' scope of practice. After an alert sent by the French National College of Midwives on March 20th, 2020, independent midwives in France reported that they were not authorized to conduct telemedicine consultations until the revision of guidelines (Baumann et al., 2021). Some other midwives experienced a temporary expansion of their scope. For example, in the UK, a new law approved midwives to administer COVID-19 vaccines (Mahase, 2020). Other European midwives provided outpatient induction with mechanical balloon so women could spend the first part of labour at home and be called by the hospital for admission (Carter, 2020). A group of midwives in Spain were trained to conduct newborn screening and jaundice assessments after their hospital implemented an early discharge program as a measure to decrease hospital bed use (Feijoo-Iglesias et al., 2021). Midwives in Bangladesh had to manage severe obstetrical and neonatal complications because they were the only health personnel available, and transportation to higher facility was nonexistent (Chowdhury et al., 2020). New Zealand midwives had to provide care beyond 6–8 weeks postpartum because Well Child services discontinued face-to-face appointments (Dixon, 2020). Finally, midwives responding to a natural disaster in the Philippines described that their scope expanded to attending medical service users, managing complicated pregnancies (undiagnosed twins, footling breech, and premature babies), implementing kangaroo care, cleaning and suturing wounds, treating infections, providing tetanus shots, and burying babies and conducting funerals (Penwell, 2014). Midwives with previous nursing degrees were transferred to work with COVID-19 service users and had to administer medications not within their nurse-midwifery scope (Goberna-Tricas et al., 2021; Gonzalez-Timoneda et al., 2021; Rodriguez et al., 2021).

Overall, midwives' responses were dependent on creativity and mutual aid, occasionally performing beyond their jurisdiction's scope of practice to accommodate care during crises. Midwives relied on community donations to access PPE (Coxon et al., 2020; Homer et al., 2021), and one midwife lost her job for allowing a mother to practice skin-to-skin contact during the Ebola outbreak (Shorey and Chan, 2020). Finally, they also became the only liaison between families and the health system (Alonso et al., 2021; Penwell, 2014; Reyes, 2021).

Discussion

In this scoping review, we identified 42 primary articles addressing the type of adaptations and what crises midwives had to respond to when continuing to provide care. However, there was little information on how these adaptations occurred. The evidence described different ways in which, internationally, midwives adapted in response to a pandemic, epidemics, natural disaster, and war. The adaptation of midwives was impacted by their integration into the health system, training, and professional legislation.

Data shows that midwives had to follow hospital guidelines that challenged their philosophy of care. Some guidelines affected the provision of quality and respectful childbirth care. For example, restriction of companions during labour, and mode and place of birth were highly debated as part of childbirth rights, even though they are evidence-based practices (Center for Reproductive Rights, 2023; Jolivet et al., 2020; Reingold et al., 2020). Midwives in some settings confronted these restrictions by generating their own guidelines or reconfiguring their roles to ensure the lightening of rules to respect childbearing rights (Carter, 2020; Crowther et al., 2021a, 2021b; Scott, 2020b). One of the most common changes in practice for midwives was the implementation of PPE, which was perceived by some midwives as a barrier to midwife-service user interaction (Alnuaimi, 2021). Evidence suggests that the use of PPE acts as a barrier for human connection, causing, in some circumstances, fear and isolation (Molnar-Szakacs et al., 2021). The midwifery profession is centered on principles of human interaction, closeness, and non-verbal communication (Bradfield et al., 2019; Murphy, 2004), which was found to be affected by wearing PPE and by guidelines that emerged to mitigate the spread of infectious diseases (i.e., Ebola, COVID-19, HIV). The use of PPE portraits (name tags with a picture of the wearer's face) has been documented as a strategy to mitigate this effect (Reidy et al., 2020).

The ICM definition of midwives' scope reflects the broad expertise of midwives as an autonomous profession to provide SRHS (International Confederation of Midwives, 2023). Nevertheless, this recognition is dependent on the structural power dynamics within health systems, which have been historically based on a physician-dominant power dynamic (Ali et al., 2021) and on a technocratic paradigm of childbirth. Moreover, many midwives across the globe are restricted to center their care maternal health (Davis-Floyd, 1994). As a result, some midwives were required to adapt their services according to the autonomy or constraints they experienced (Carter, 2020). For instance, midwives with a broader scope of practice did not only need to focus on reconfiguring their routine practices within a hospital-level (Alnuaimi, 2021; Conroy, 2020; Coxon et al., 2020), but they also had to find creative ways to ensure the provision of other services, as in the case of midwives from Indonesia, where community midwives experienced a decline in the demand and provision of contraceptive care with likely consequences in unplanned pregnancies (Herawati et al., 2020).

The papers included in this scoping review did not provide evidence about the populations' demographics, and it is expected that some of the adaptations that midwives carried out may have contributed to increasing inequity in access to care. For instance, most data included, particularly those related to COVID-19, reported relying on virtual care. Evidence highlights that less than one-third of the population in Africa and the Middle East use the internet (Wu et al., 2020), and less than 50% of Latin America and the Caribbean had fixed broadband by 2021

(Drees-Gross and Zhang, 2021). The Global State of Mobile Internet Connectivity Report 2020 demonstrated that there are substantial rural-urban and gender gaps in mobile internet use, fewer adult women – 20% less in comparison to male counterparts – in LMICs using mobile internet (Global system for Mobile Communications Association (GSMA), 2020).

Our review found that midwives have a strong community presence, becoming in most cases the only connection between communities and the health system (Davis-Floyd et al., 2020). Despite this data, the papers synthesized in this review demonstrated that it was common for both hospital and community midwives to experience disconnection from and/or marginalization despite continuing to provide services. In all settings, midwives demonstrated creativity and resilience to respond to demands, working in conditions where they had to create their own guidelines and resources (Scott, 2020a; Shorey and Chan, 2020; van Manen et al., 2021).

The evidence included in this scoping review focused on midwives' adaptations to respond to disease outbreaks, but there is limited evidence referred to midwives' adaptations during natural disasters or human-led disasters. From the available data, when midwives responded to health crises, their adaptations were guided by governmental protocols, mandates, and regulations, and their scope of practice experienced minimum expansion. On the other hand, the article related to midwives' adaptation to natural disasters lacked information about where midwives looked for guidance regarding adaptation and expansion of their clinical skills, similar to other first emergency responders (Penwell, 2014). In the recent decade, organizations and scholars have highlighted the imperative need to include midwives in the disaster first responders' team, and to consider their potential to respond to the climate change crisis and its consequences (Beek et al., 2019; Churchill and Avery, 2023; Kutz, 2022; Monteblanco and Leyser-Whalen, 2019; Sloat, 2022; World Health Organization, 2021). Hence, further research has the potential to inform how the midwifery model of care can contribute to sustaining adequate care during crises, as well as identifying the specific needs of vulnerable communities, and how midwives can address them effectively. Moreover, data collection and evaluation can aid in establishing data-driven guidelines and protocols for midwives to follow during crises. Ultimately, research on this subject can lead to more effective and sustainable strategies for providing adequate SRHS during challenging times, benefiting communities worldwide.

Limitations

Our scoping review has some limitations. We only included papers in English and Spanish, and, therefore, may have missed evidence published in other languages. The review may have missed some relevant studies that did not clearly define midwives' or midwifery's roles.

Conclusion

The findings from this scoping review document how, globally, midwives adapted their work to ensure the provision of SRHS during humanitarian crises. We identified significant variations in midwives' adaptations based on their training background and level of integration within the health system. The existing evidence reveals that midwives respond to crises through adaptation, including changes to their practice, scope, and role. Notwithstanding, the existing evidence focuses on the global north, hospital settings, does not identify which demographics benefitted from the adaptation of midwifery care, and mainly targets maternal care. Hence, there is an opportunity for further high-quality research to provide a deeper understanding of how midwives can adapt their work and guide sustainable responses to ensure access to SRHS beyond maternal health during crises.

CRediT authorship contribution statement

Susana E Ku Carbonell: Writing – review & editing, Writing – original draft, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Patricia Ogba:** Data curation. **Meredith Vanstone:** Writing – review & editing. **Christy Gombay:** Writing – review & editing. **Elizabeth K Darling:** Writing – review & editing, Writing – original draft, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix I. Key definitions used in this review

Term	Definition
Midwife	A midwife is a person who has successfully completed a midwifery education programme that is based on the ICM Essential Competencies for Basic Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education and is recognized in the country where it is located; who has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title 'midwife'; and who demonstrates competency in the practice of midwifery (International Confederation of Midwives, 2023)
Midwifery Scope of Practice	The midwife is recognised as a responsible and accountable professional who works in partnership with women to give the necessary support, care and advice during pregnancy, labour, and the postpartum period, to conduct births on the midwife's own responsibility and to provide care for the newborn and the infant. This care includes preventative measures, the promotion of normal birth, the detection of complications in mother and child, the accessing of medical care or other appropriate assistance and the carrying out of emergency measures. The midwife has an important task in health counselling and education, not only for the woman, but also within the family and the community. This work should involve antenatal education and preparation for parenthood and may extend to women's health, sexual or reproductive health and childcare. A midwife may practise in any setting including the home, community, hospitals, clinics or health units (International Confederation of Midwives, 2023).
Midwifery	Midwifery is the profession of midwives, only midwives practise midwifery. It has a unique body of knowledge, skills and professional attitudes drawn from disciplines shared by other health professions such as science and sociology but practised by midwives within a professional framework of autonomy, partnership, ethics, and accountability. Midwifery is an approach to care of women and their newborn infants whereby midwives: • optimise the normal biological, psychological, social and cultural processes of childbirth and early life of the newborn; • work in partnership with women, respecting the individual circumstances and views of each woman • promote women's personal capabilities to care for themselves and their families • collaborate with midwives and other health professionals as necessary to provide holistic care that meets each woman's individual needs Midwifery care is provided by an autonomous midwife. Midwifery competencies (knowledge, skills and attitudes) are held and practised by midwives, educated through a pre-service/preregistration

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Term	Definition
	midwifery education programme that meets the ICM global standards for midwifery education. In some countries where the title 'midwife' is not yet protected, other health professionals (nurses and doctors) may be involved in providing sexual, reproductive, maternal, and newborn health care to women and newborns. As these health professionals are not midwives, they do not possess the competencies of a midwife and do not provide midwifery skills, but rather aspects of maternal and newborn care (International Confederation of Midwives, 2023)
Sexual Health	A state of physical, emotional, mental, and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction or infirmity. Sexual health requires a positive and respectful approach to sexuality and sexual relationships, as well as the possibility of having pleasurable and safe sexual experiences, free of coercion, discrimination, and violence. For sexual health to be attained and maintained, the sexual rights of all persons must be respected, protected, and fulfilled ("Sexual Health, Human Rights and the Law," 2015)
Reproductive Health	Reproductive health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in all matters relating to the reproductive system and to its functions and processes. Reproductive health implies that people can have a satisfying and safe sex life and that they have the capability to reproduce and the freedom to decide if, when and how often to do so (Sexual Health, Human Rights and the Law 2015).
Sexual Health Services	*Comprehensive education and information*: Provision of accurate, age-appropriate, and up-to-date information on physical, psychological and social aspects of sexuality and reproduction, as well as sexual and reproductive health and ill health. *Gender-based violence prevention, support and care:* Early identification through clinical inquiry; first-line support and response; treatment and care for intimate partner violence and sexual assault (e.g., emergency contraception, presumptive treatment for STIs, post-exposure prophylaxis for HIV, mental health care). Education for girls of secondary school age, economic empowerment of women, work on masculinities and changing social norms, and home visiting programmes to reduce child maltreatment are all important complementary intervention points outside the health sector. Freedom from violence supports safer sexual relationships, reduces the risk of STIs, enables access to contraception and maternal health care, and increases access to needed health care, including sexual health and reproductive health care (World Health Organization, 2023). *Prevention and control of HIV and other sexually transmissible infections:* early identification and treatment, appropriate case management, improving health care-seeking behaviour, partner notification, and preventing and managing complications (e.g., pelvic inflammatory disease).
Reproductive Health Services(Sexual Health, Human Rights and the Law, 2015)	*Antenatal, intrapartum, and postnatal care:* overall promotion of a healthy lifestyle and nutrition; risk identification, and prevention and management of pregnancy-related or pre-existing conditions; management of labour and childbirth; provision of respectful, dignified care, and effective communication between women and caregivers; care and support for GBV victims during and after pregnancy; postpartum contraception; diagnosis and treatment of STIs; and provision of mental health care. In addition to health promotion (e.g., tobacco and alcohol cessation), screening and diagnosis (e.g. diabetes, HIV, malaria, syphilis, tuberculosis), and disease prevention (e.g. vaccination). *Contraception counselling and provision:* Contraception is the intentional prevention of pregnancy by artificial or natural means. *Safe abortion care:* provision of information; counselling; provision of medical and/or surgical abortion; recognition and management of complications from unsafe abortion; provision of post abortion contraception, when desired; and having in place referral systems for all required higher-level care.
Epidemic	An epidemic is an outbreak that spreads over a larger geographical area. Examples include Zika virus, starting in Brazil in 2014 and spreading to most of Latin America and the Caribbean; the 2014- 2016 Ebola outbreak in West Africa, which was large enough to be considered an epidemic; and the US opioid crisis (Grennan, 2019).
Pandemic	An epidemic that spreads globally is a pandemic. The 1918 Spanish influenza, which infected more than one-third of the world's population and killed approximately 50 million people, is the most famous example. There have been several influenza pandemics since 1918—in 1957 and 1968, as well as H1N1 in 2009 (Grennan, 2019).
Endemic	Endemic refers to the constant presence and/or usual prevalence of a disease or infectious agent in a population within a geographic area (Grennan, 2019).
Humanitarian Crises	Armed conflicts, epidemics, famine, natural disasters, and other major emergencies may all involve or lead to a humanitarian disaster that extends beyond the mandate or capacity of any single agency. Regardless of the type of disaster, survivors are left in urgent of need of life-saving assistance such as shelter, food, water, and health care.Humanitarian crises can be grouped under the following headings: - Natural disasters, which can be geophysical (e.g. earthquakes, tsunamis and volcanic eruptions), hydrological (e.g. floods, avalanches), climatological (e.g. droughts), meteorological (e.g. storms, cyclones), or biological (e.g. epidemics, plagues). - Man-made emergencies, such as armed conflicts, plane and train crashes, fires, and industrial accidents. - Complex emergencies, which often have a combination of natural and man-made elements, and different causes of vulnerability and a combination of factors leads to a humanitarian crisis. Examples include food insecurity, armed conflicts, and displaced populations (Humanitarian Coalition, 2021).

Appendix II. Search Terms/Keywords

English	Spanish
Midwi*	NA
Midwife	Obstetra
	Partera/Partero
	Obstetriz
	Obstétrica
	Matrona
	Matrón
Midwifery	Obstetricia
	Partería
	Matronería
Midwives	Obstetras

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English	Spanish
	Parteras/ Parteros
	Obstetrices/Obstetras
	Obstétricas
	Matronas
	Matrónes
Pandemic	Pandemia
Epidemic	Epidemia
Endemic	Endemia
Humanitarian crises/crisis	Crisis humanitaria
Outbreak	Brote
Ebola	Ebola
Zika	Zika
COVID-19/Coronavirus/severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)	

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