

MIDWIVES' EXPERIENCES OF WORKING DURING THE COVID-19 PANDEMIC:
A THEMATIC SYNTHESIS OF THE EVIDENCE

by

SOPHIE-ANNA DANN

A thesis submitted to the University of Birmingham for the degree of
MASTER OF RESEARCH (MRes)

Institute of Clinical Sciences
College of Medical and Dental Sciences
University of Birmingham

April 2022

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Abstract

Background

During the COVID-19 pandemic, already short-staffed and over-stretched maternity care provision continued with midwives at the forefront. As the service adapted due to the pandemic, evidence demonstrating the impact on midwives started evolving, although there was no attempt to collate and synthesise it.

Aims

The aim of this thesis was to collate, appraise and synthesise the evidence exploring midwives' experiences of the COVID-19 pandemic, and provide recommendations on ways to support midwives during the current and future pandemics.

Methods

A rapid review was conducted with papers retrieved from nine bibliographic databases and nine grey literature sources, from January 2020 to May 2021, in English language. Critical assessment graded the quality of the papers (high, medium and low). Inductive analysis was performed on the high and medium quality papers, supported by the low quality papers, to identify themes.

Results

181 papers were included from a range of countries worldwide, spread throughout the time-period of January 2020 to May 2021, comprising 21 high-quality papers, 119 medium-quality papers, and 41 low-quality papers. Four main themes were identified (Rapid Service Change, Professional Impact on Midwives, Personal Impact on Midwives, and Midwives' Perception of Impact on Women) with two additional cross-cutting themes (Tension, and Potential for the Future).

Conclusion

The COVID-19 pandemic had a profound effect on midwives worldwide, both physically and emotionally. An already-challenging profession was made more difficult during the pandemic, and midwives reported both short- and long-term effects. This suggests midwives need increased support both during and after a pandemic, and a number of recommendations have been made for how to facilitate this, such as maintaining clear communication, providing extra support for redeployed staff, implementing health-promoting programmes to reduce the emotional toll, ensuring the physiological needs of midwives are met, and creating a systematic crisis management plan for future pandemics.

Acknowledgements

I wish to thank Professor Sara Kenyon, for being my supervisor, my friend and my role model as an inspirational midwifery researcher.

I also wish to extend my deepest gratitude to Nikolaos Efstathiou and Alistair Hewison for being my co-supervisors, and for their invaluable advice and support throughout this project.

I wish to show my gratitude to Fiona Cross-Sudworth, for her hard work supporting this research, and her friendship supporting this researcher.

I am deeply appreciative of the Applied Research Collaborative (ARC), particularly the Maternity Theme of the West Midlands ARC. I started my research journey under the first iteration (CLAHRC) and have been fortunate enough to be funded by the ARC and supported by the whole Maternity Team to continue my work.

Finally I am forever grateful to my husband, who has supported me unwaveringly throughout my undergraduate degree, my career, and this postgraduate project – I could not have done it without him.

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Key Definitions

Midwife	A person who is trained to be the competent and responsible professional providing care during pregnancy, intrapartum and postnatally (ICM, 2018).
COVID-19	A highly contagious respiratory disease caused by coronavirus SARS-CoV-2, first identified in Wuhan, China in December 2019 (WHO, 2020b). <i>Common synonyms: COVID, corona, coronavirus, 2019-nCoV</i>
Pandemic	A worldwide epidemic, where a particular disease simultaneously infects a large number of people (Kelly, 2011). The World Health Organization (WHO) deemed COVID-19 a pandemic on 11 th March 2020 (WHO, 2020c); at time of writing (April 2022) the pandemic is ongoing with over 505 million confirmed cases and over 6.2 million deaths worldwide (WHO, 2021).
Lockdown	A term describing widespread restrictions on movement and social contact, with the aim of reducing the transmission of a disease (WHO, 2020a). During the COVID-19 pandemic, specific lockdown measures vary by location, and are usually decided at government level (Onyeaka et al., 2021).
Shielding	A term used in numerous countries to describe the actions recommended to people considered extremely clinically vulnerable to COVID-19 (eg. immunocompromised individuals), which generally included staying indoors, at home all the time and limiting any non-essential contact with others (Hancock and Jenrick, 2020)
Long COVID	A condition experienced by some individuals where symptoms persist for more than 12 weeks beyond an initial COVID infection, which can be widespread throughout multiple body systems, and can vary and change over time (NHS, 2021) <i>Common synonyms: Post-COVID syndrome, Post-COVID-19 syndrome</i>

Key Acronyms

ICM International Confederation of Midwives

NHS National Health Service (UK)

NMC Nursing and Midwifery Council (UK)

PPE Personal protective equipment

RCM Royal College of Midwives (UK)

WHO World Health Organization

1 Introduction

1.1 Background

In the year 2020, the COVID-19 pandemic swept the world affecting many individuals and, especially, healthcare professionals. However there is a lack of research on the specific experiences of midwives, and the impact on their unique role. This review aims to explore the available literature on midwives' experiences of working during the COVID-19 pandemic. This chapter introduces the review by discussing the background and context, mapping the pandemic in the UK, identifying the aims and objectives of the review, and providing a roadmap to the structure of this thesis.

Midwives are experts in normal childbirth, and support women and their families throughout pregnancy, at birth, and postnatally (ICM, 2018). Midwives are a vital component of high-quality care, and proven to improve outcomes and reduce maternal and neonatal morbidity and mortality, when compared to both low-skilled and medical models of care (Renfrew et al., 2014). However, long-term staff shortages meant that by the end of 2019, UK maternity services were under severe pressure, with a shortfall of 2,500 full-time midwives in England (RCM, 2019) – a situation mirrored globally and predicted to be worsening (United Nations, 2020). Despite 2,000 student midwives being trained in 2019, the number of registered midwives only increased by 33 (RCM, 2019), while the 2019 Work, Health and Emotional Lives of Midwives (WHELM) survey identified significant levels of emotional distress, intense pressure, unmanageable workloads, a pervasive 'blame culture' (Cull et al., 2020), and 83% of UK midwives reporting personal burnout (Hunter et al., 2019).

The World Health Organization (WHO) designated 2020 the 'Year of the Nurse and Midwife', intending to celebrate these vital roles (Howard, 2019); however, plans were quickly downscaled as COVID-19 swept the world. In order to better understand the potential impact of the pandemic, analytical work was undertaken by the author to map the pandemic in the UK. Data from Public Health England (2021) was used to chart daily cases and deaths in the UK from 1st January 2020 to 31st May 2021, with key events added to give reference

points (BBC, 2021; World Health Organization, 2021). Text data were analysed from the England, Wales, Scotland and Ireland governments' websites to track lockdown measures in each country (BBC, 2021; Department of Health, 2021; GOV.UK, 2021; Scottish Government, 2021; Welsh Government, 2021). These events were rated using a numerical scale, based on the severity of lockdown measures (see Table 1).

Table 1: Numerical scale of lockdown restrictions in the UK

<i>Rating</i>	<i>Lockdown restrictions</i>
0	No restrictions whatsoever
1	Very minor restrictions (eg. recent COVID tests required to travel, self-isolation after positive PCR test result)
2	Concerts, nightclubs, theatres open
3	Tourism open, mixed-household holidays allowed
4	Indoor dining can open, same-household holidays allowed
5	Outdoor dining can open
6	More non-essential businesses can open (eg. florists)
7	Non-essential businesses can open (eg. hairdressers)
8	Essential businesses can open, places of worship can open, some schools open
9	Can leave home more often (must stay local), can mix households outdoors
10	Stay home, schools closed, do not leave home unless essential

Once rated, lockdown measures for each nation were charted using a colour gradient, with red representing the harshest levels of lockdown, and green representing the lowest levels.

The resulting timeline (Figure 1) shows a period of 17 months where there were fluctuations in the spread of COVID-19, accompanied by frequent changes to lockdown restrictions. There were also changes across the four nations in the UK, as policies varied from country to country. This timeline provides context to the pressures facing the UK and the NHS, particularly during periods of high daily cases and strict lockdown measures.

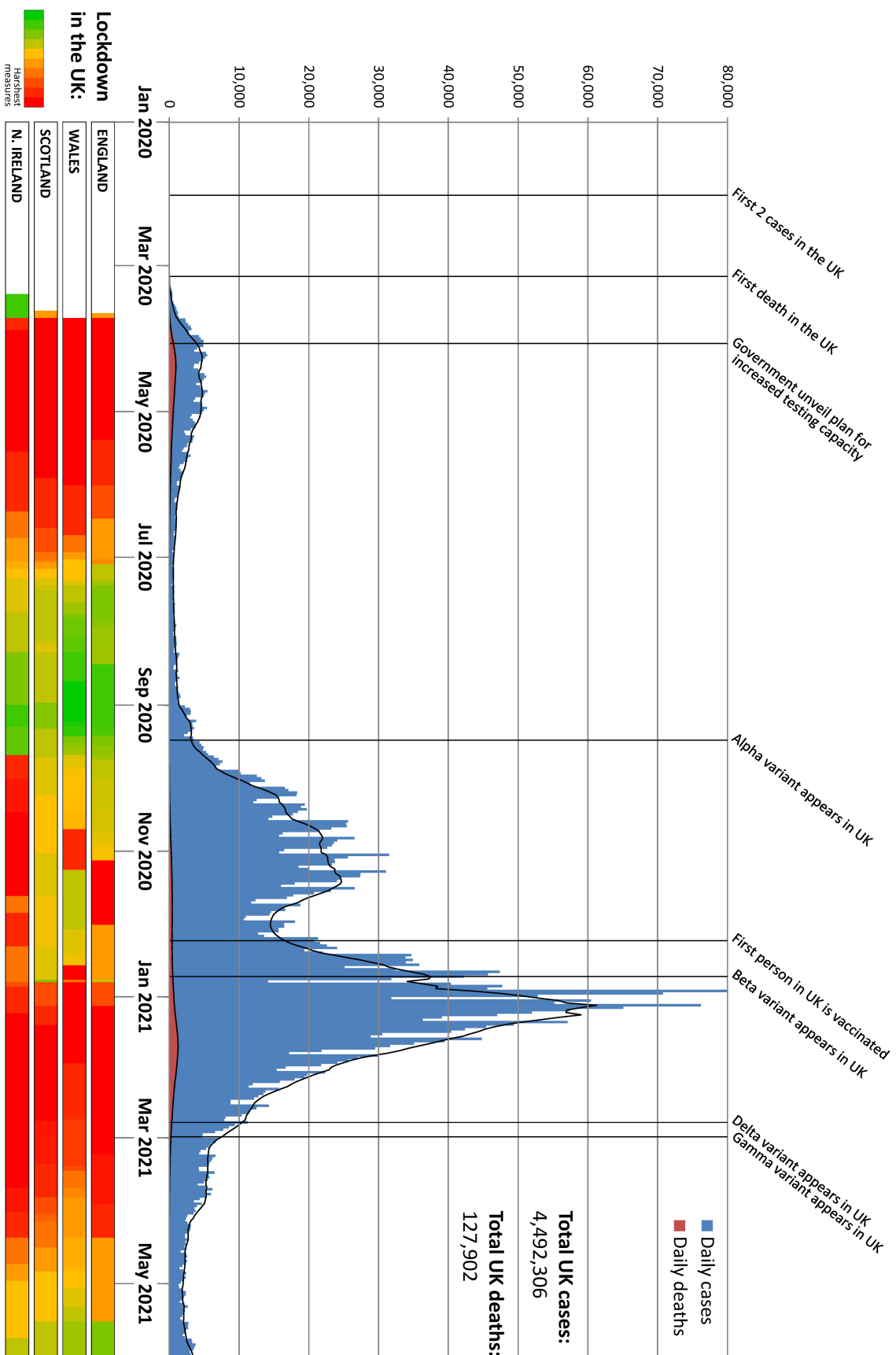
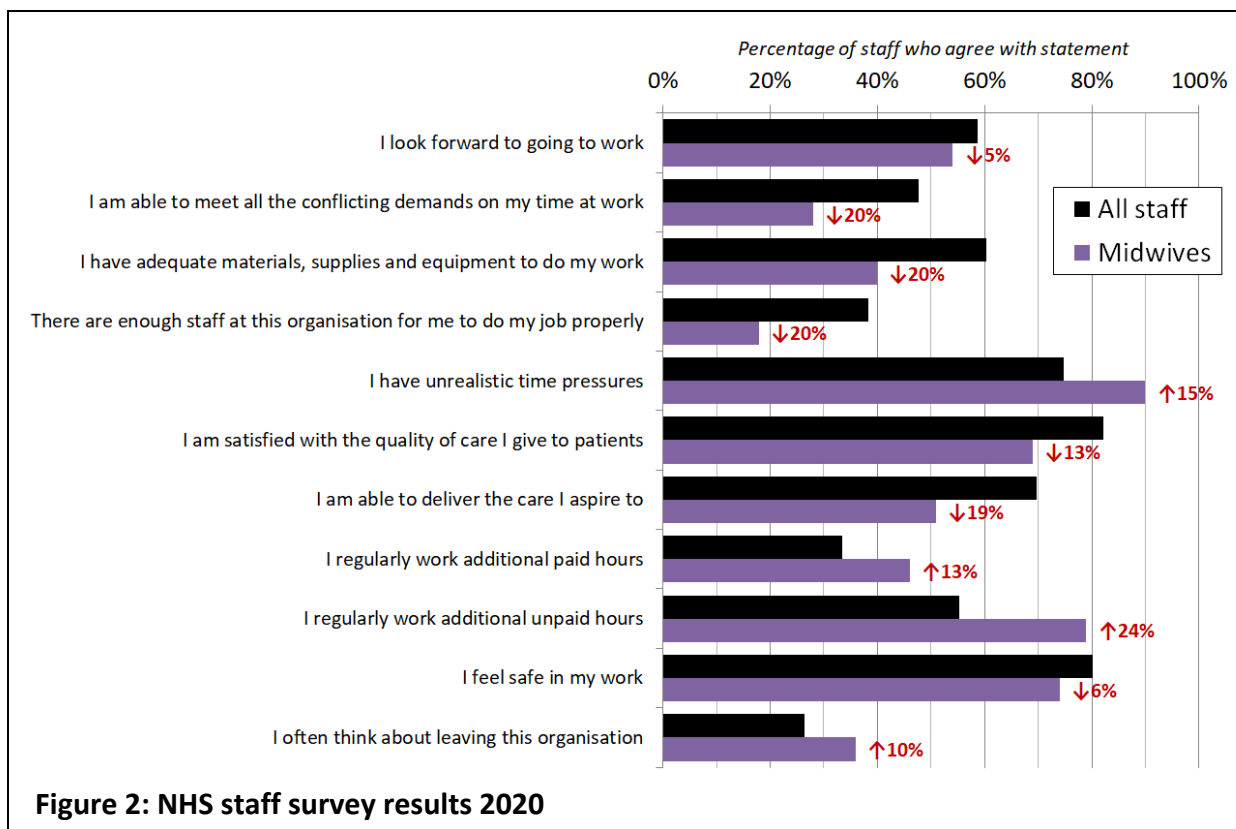


Figure 1: Timeline of COVID-19 pandemic in the UK from 1st January 2020 to 31st May

The NHS responded to the pandemic with the widespread cancellation of non-urgent services (Macdonald et al., 2020), staff redeployment to support critical care of COVID-19 patients (NHS, 2020), and remote appointments to facilitate social distancing (Barkai et al., 2021). Rapid changes to maternity service provision and guidelines were seen (Renfrew et al., 2020), and the Royal College of Midwives (RCM) appealed for maternity staff to be protected from redeployment, as staff shortages worsened and 1 in 5 midwifery posts sat vacant (RCM, 2020g).

Research on doctors and nurses working during the pandemic has shown clinical staff suffering stress, mental illness and PTSD (Vizheh et al., 2020), negative physical effects of wearing PPE (Swaminathan, Mukundadura and Prasad, 2020), ethical and moral burdens of providing care with limited staff and resources (Maben and Bridges, 2020), and fewer opportunities for support or team reflection (Veitch and Richardson, 2021). Community nurses reported feeling “invisible” and “exhausted” (Lintern, 2021) due to mounting pressures as increasingly-complex patients were discharged home for community care in order to free up hospital beds (Penfold, 2020).

However, it is unclear if these findings can also be transferred to midwives, who perform a unique role within maternity care. The student extracted raw data from the 2020 NHS Staff Survey (an annual survey issued to all NHS staff), and compared the answers given by midwives to those of all NHS staff. When compared to average scores across all NHS staff, midwives were more likely to report worse levels of conflicting demands, insufficient resources, unrealistic time pressures, working overtime, and feeling unable to provide a satisfactory level of care (see Figure 2) (NHS England, 2021). Therefore it appears the additional pressures caused by the pandemic may have impacted midwives differently (or more severely) than general NHS staff members.



Research exploring the experiences of midwives during the 2014/15 Ebola epidemic and 2015/16 Zika crisis found that midwives experienced increased fear and social stigma (Jones et al., 2017), high levels of uncertainty (Kelly et al., 2020), challenges to providing clinical care in line with strict infection control guidelines (Erland and Dahl, 2017), and a strong sense of duty to continue providing quality maternity care (Shorey and Chan, 2020). Even after the Ebola pandemic was declared officially over, midwives still reported ongoing fear, stigma, shortage of PPE, and altered cultural practices (Bell et al., 2017). Midwives found working through such challenging times easier with colleague support (Erland and Dahl, 2017), although many wanted more emotional support (Jones et al., 2017).

Midwives who experience dissatisfaction at work and poor support from management are more likely to leave the profession, and less likely to provide optimum care to pregnant people (Ball, Curtis and Kirkham, 2002). During the Ebola epidemic, the actions of local management and national government strongly influenced midwives' motivation (or lack of motivation) to continue working (Kollie et al., 2017). However, in order to appropriately support midwives during and after the COVID-19 pandemic, it is essential to first understand

their experiences of this unique crisis. Exploring staff experiences has been identified as a crucial step in understanding “organisational drivers of poor quality care” and reducing staff burnout (Montgomery et al., 2019, p.2). Additionally, where midwives have experienced positive experiences, good practice and innovation during the COVID-19 pandemic, this is vital information to share with other maternity care providers.

As a midwife who worked clinically throughout the pandemic, I am acutely aware of the impact on myself and my colleagues, and the experiences and challenges we faced. However, I cannot know whether these experiences are typical among midwives, without a thorough analysis of the available literature. Due to the sudden onset of the COVID-19 pandemic, little was known about this subject prior to December 2019, limiting the available literature. A scoping search in January 2021 showed little published research into the impact of the pandemic on midwives. In 2020, many universities closed according with local lockdowns (Sahu, 2020) and non-COVID research halted (van Dorn, 2020), changing the nature of published research dramatically. The rapidly evolving pandemic and widespread thirst for knowledge (Weston and Frieman, 2020) led to criticism of the lengthy peer-review process, and evidence becoming accessible via less conventional routes, including preprints, grey literature, editorials and blogposts (Vlasschaert, Topf and Hiremath, 2020). However, in bypassing peer-review, there were instances of poor quality or misleading information being published, and concerns over the lack of scientific integrity (Dinis-Oliveira, 2020). A literature search must therefore be broad to include various sources, including non-journal publications, but also systematic and robust, to maintain rigour.

As the UN predicts future pandemics will occur more often and be more damaging (IPBES, 2020), COVID-19 is unlikely to be a unique experience. In order to provide sustainable, high-quality maternity care, and increase midwife retention rates to be able to meet the needs of pregnant people and babies, it is vital to explore and understand midwives’ experiences. Conducting qualitative research to explore these experiences is very challenging in the midst of an ongoing pandemic; however, exploring the literature and self-reported experiences of midwives can not only facilitate understanding, but also identify gaps in knowledge and areas that would benefit from primary research, once this is more feasible. Such work will

facilitate better support by managers and governments for midwives to provide care in the ongoing COVID-19 pandemic, in a post-COVID-19 world, and in any future pandemics.

1.2 Aim and objectives

This thesis aims to deliver a meticulous summary of all the available literature in relation to midwives' experiences of working during the COVID-19 pandemic. This will be achieved by:

1. Performing a rapid review to identify the literature on midwives' experiences of the COVID-19 pandemic.
2. Conducting a thematic synthesis on the literature to explore common themes among midwives' experiences.
3. Discussing recommendations on ways to support midwives working during the current and future pandemics.

1.3 Structure of this thesis

Chapter 1 of this thesis explored the background to the COVID-19 pandemic and how it affected healthcare professionals, maternity services, and midwives. Chapter 1 also laid out the aims and objectives of the review, and a guide to the structure of the thesis. The second chapter focuses on the methodology used to complete the rapid review, and the reasoning behind the specific choices. The findings of the rapid review and thematic synthesis are presented in chapter 3, along with a range of direct quotations to support the findings. A discussion follows in chapter 4, including the strengths and limitations of the thesis, and recommendations for future research. Finally, a conclusion will be reached in chapter 5, followed by references and appendices at the end.



2 Review Methodology

This chapter will explore the specific review methodology used to address the aim of the thesis, including the reasoning behind any decisions. It will first lay out the chosen review method, followed by details of the framework used to conduct the review. Each stage in the framework will then be explored to show the full review methodology used in this thesis.

This review was undertaken from a 'pragmatic' approach. Pragmatism places less emphasis on specific ontological and epistemological positions, and presents an alternative paradigm that is more focused on developing a practical understanding of human experience (Morgan, 2014). Pragmatic research explores the knowledge, experiences and actions of individuals (Kelly and Cordeiro, 2020), believing reality to be context-dependent (Deering et al., 2021). To do this, pragmatic inquiry tends away from ranking research methods, such as the 'hierarchy of evidence' traditionally used in quantitative research (Yoon, 2021), or the aim for epistemological purity in qualitative research (Miles and Huberman, 1984), and instead recognises the value of different approaches to research (Onwuegbuzie and Leech, 2005). The aim of the pragmatic approach is to not only understand people's experiences, but to also identify practical, purposeful actions that can lead to improving these experiences (Kelly and Cordeiro, 2020). As this review aims to explore midwives' experiences and lead to recommendations for future pandemics, pragmatism was identified as the most appropriate approach, in addition to aligning with the student's personal stance.

2.1 Review method

Reviewing the existing literature to answer a research question has a number of benefits, including critiquing and synthesising evidence to increase understanding, identifying gaps in existing knowledge, and reduced duplication of research (Snyder, 2019). A variety of methods exist to perform a literature review, each possessing its own strengths and weaknesses.

Systematic reviews are a valuable method of data appraisal and synthesis, using systematic and rigorous methods (Garritty et al., 2021). However due to this methodological rigour,

systematic reviews can be resource-intensive, and may take 12-24 months to complete (Tricco, Langlois and Straus, 2017). This remains a major criticism of systematic reviews, as they are less suitable for time-sensitive or rapidly changing situations, where knowledge is needed more urgently (Garritty et al., 2021). A systematic review must be undertaken by an experienced team, and is not an appropriate choice for a single researcher (Lasserson, Thomas and Higgins, 2021).

Meta-analysis is a statistical review method that utilises the combined results of a number of quantitative studies to answer a research question (Grant and Booth, 2009). This type of review can only include quantitative data (excluding qualitative papers) and requires several high quality quantitative research papers to succeed (Grant and Booth, 2009). As an initial scoping search revealed few high quality research papers, and even fewer that were quantitative in nature, this proved an unsuitable method for this review.

Qualitative evidence synthesis, or meta-synthesis, combines data from qualitative studies to answer a research question (Flemming and Noyes, 2021). This method has been criticised by some (relativist) researchers who feel that aggregating qualitative data inappropriately removes it from its original context and theoretical stance (Mays and Pope, 2020). Although pragmatic researchers consider it a valid methodology when applied appropriately (Flemming and Noyes, 2021), this method has similar limitations to meta-analysis, as it is restricted to qualitative studies and requires existing qualitative research papers to exist.

Scoping reviews aim to identify the quantity and scope of existing research on a particular topic, and can identify the need for further research or a full systematic review (Sutton et al., 2019). However they typically lack a quality assessment component, and aim to identify the existence of research (not its quality) which means the results of a scoping review may not be appropriate to inform practice or change guidelines (Grant and Booth, 2009).

Rapid reviews are appropriate for a pragmatic approach, and generally comprise a systematic review where certain aspects are streamlined or accelerated (Khangura et al., 2012). Typically taking less than 6 months to complete (Watt et al., 2008a), rapid reviews can be used when time and resources are limited (Ganann, Ciliska and Thomas, 2010), or in

times of crisis or emergency, as they allow decision-makers to access knowledge more quickly (Tricco, Langlois and Straus, 2017). Rapid reviews can also identify gaps in knowledge, and identify where primary research should be directed (Tricco, Langlois and Straus, 2017). A review comparing rapid reviews with systematic reviews found that the essential conclusions reached did not differ across the two methods; however rapid reviews tended to have a narrower scope and were therefore less able to answer more complex questions (Watt et al., 2008b). As this review was a project for an academic research degree, with limited time and resources, and during a rapidly-evolving crisis situation, a rapid review was identified as the most appropriate method to identify and appraise the experiences of midwives during the pandemic.

Rapid reviews, like any systematised review, have the potential for several biases – particularly as certain elements may be limited or omitted entirely to speed up the process (Ganann, Ciliska and Thomas, 2010). Therefore, careful balance must be sought between speed and reliability of results. This review utilises the framework proposed by Plüddemann et al. (2018) to minimise the risk of bias (see Figure 3). The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were used to write-up the results of the review, to ensure transparency of methods and confidence in the findings (Page et al., 2021).

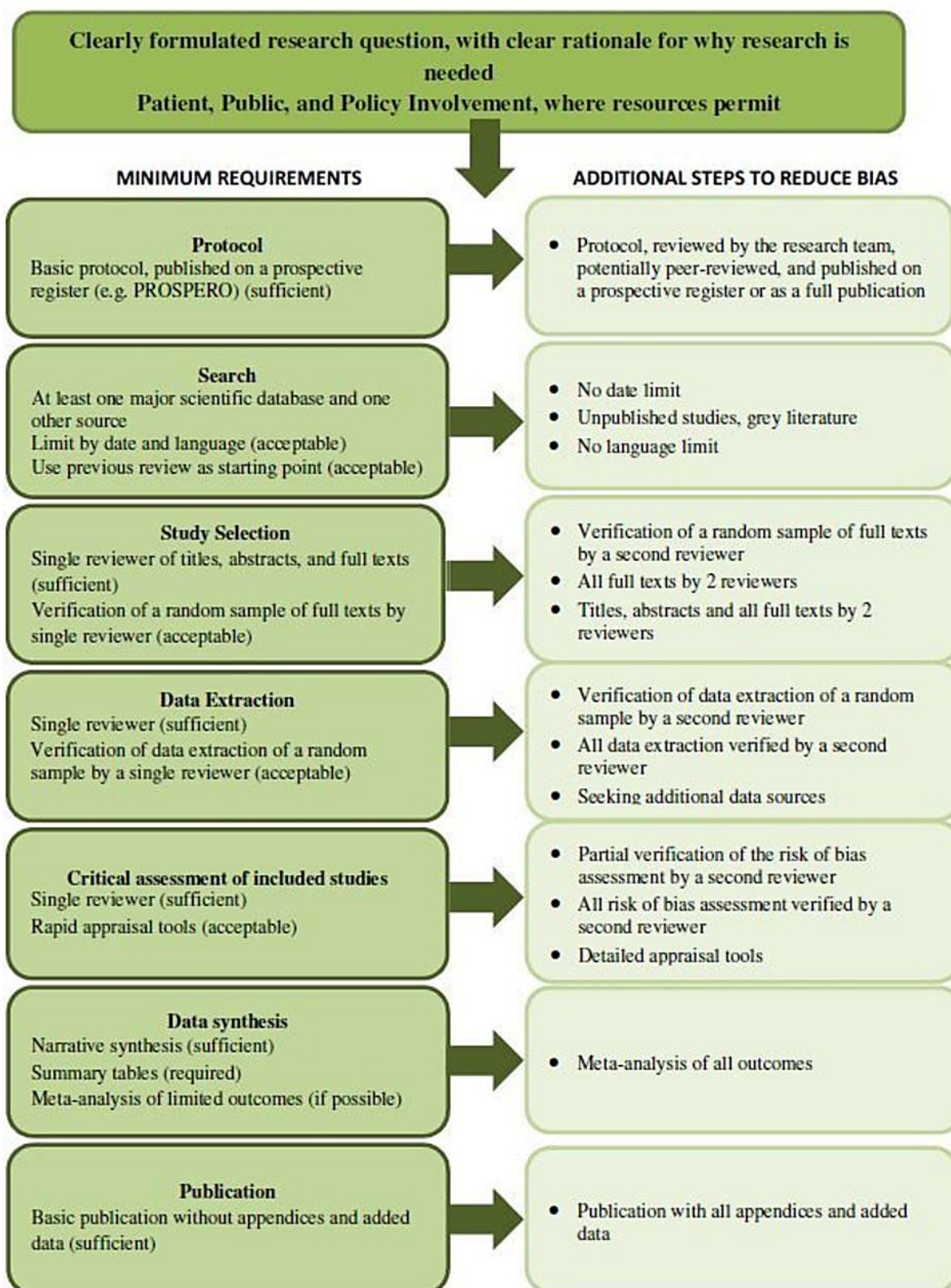


Figure 3: A flexible framework for conducting restricted systematic reviews by Plüddemann et al. (2018)

2.2 Protocol

A protocol was written prior to this work beginning, in line with the PRISMA-P (Preferred Reporting Items for Systematic reviews and Meta-Analyses Protocols) guidance (Shamseer et al., 2015). This protocol was reviewed by two senior researchers and registered on the PROSPERO register of systematic reviews, which can be accessed at www.crd.york.ac.uk/prospero/display_record.php?RecordID=281410.

2.3 Search

The PEO framework (Watson, 2020) was used to develop a specific research question, as this is particularly suited to formulating a broad qualitative-focussed research question (Khan, 2011):

Population	Midwives (including nurse-midwives)
Exposure	Working during the COVID-19 pandemic
Outcome	Midwives' experiences

This rapid review therefore aimed to address the following question:

What does the literature tell us about midwives' experiences of working during the COVID-19 pandemic?

While quantitative and qualitative research methods both have their own inherent advantages and disadvantages, integrating both types of research in this review utilises the strengths of both methodologies. Therefore, in keeping with a pragmatic approach, this review included any relevant quantitative, qualitative and mixed-methods studies. To maintain breadth, no study design or theoretical limits were applied, and unpublished (pre-print) studies, editorials, and expert opinion, were included, along with any relevant reports, findings, or blog posts published by specific organisations and charities. Only English-language publications were included, due to limited resources for translation. The first laboratory-confirmed cases of COVID-19 occurred on 2nd January 2020, and spread beyond China by mid-January (Huang et al., 2020); therefore this search was limited to papers published in 2020 and 2021.

2.3.1 Inclusion/Exclusion criteria

Inclusion: English-language; Jan 2020 – May 2021; experiences of midwives working during COVID-19; published and preprint papers; primary research, grey literature, editorials, reports and blog posts from pre-specified relevant organisations (see Section 2.3.2).

Exclusion: Non-English-language papers; pre-2020; non-midwifery healthcare professionals (eg. student midwives, obstetric nurses, obstetricians, doulas)

2.3.2 Search terms

Search terms: (“midwife” OR “midwives”) AND (“covid” OR “coronavirus”)

Limited to: English-language, published in 2020-2021

The guidance of a research librarian was sought in designing the search strategy, and where databases utilised MeSH terms, these were used for more accurate results. The search terms were kept deliberately general to identify the breadth of available literature. While this ensured all relevant articles would be included, it also potentially meant a large number of results, some of which may have little relevance to the research question. However as the terms midwife and COVID are relatively unambiguous (at least in the year 2020/21), it was intended that the search terms would include all relevant papers. On the advice of the research librarian and to maintain breadth, a variety of sources were identified.

The following bibliographic databases were chosen to include a variety of relevant publications: MEDLINE, Pubmed, Scopus, CINAHL, Web of Science, EMBASE, ProQuest, HMIC, and PsychINFO. The full search strategy for each database can be seen in Appendix A.

The following grey literature sources were identified as having results most relevant to midwifery: Department of Health, NHS England, King’s Fund, Royal College of Midwives (RCM), Nursing and Midwifery Council (NMC), International Confederation of Midwives (ICM), All4maternity, Preprints, Research Gate. The search of these sources involved entering the terms “midwives” and “covid” into the websites of these organisations.

2.4 Study selection

The study selection was conducted using the PRISMA 2020 guidance (Page et al., 2021). All papers being screened were imported into EndNote (Clarivate Analytics, 2013) for management, and automatically allocated a unique identifier. The search results were screened by the student using a screening tool designed according to the inclusion/exclusion criteria (Appendix B) and piloted on the first 10 papers. In the event of uncertainty, papers were initially marked for inclusion. All papers marked for inclusion were retrieved in full, and reviewed again using the screening tool.

For publications marked for inclusion, a retrospective reference search was performed, by hand-searching the reference lists of all included research papers. A prospective reference search was also completed by entering the details of all included research papers into the Web of Science Cited Reference Search, to identify any publications that cited them.

To reduce bias, a random sample of 25% of papers retrieved by the database searches were read by an experienced researcher (FCS) and independently marked for inclusion or exclusion, using the screening tool. The student and researcher met for discussion, and a third senior researcher consulted where agreement could not be reached over whether a paper should be included or excluded.

2.5 Data extraction

The following data were extracted from all research papers by two researchers (the student and FCS) to minimise potential errors and bias: title, authors, date published, journal, country, study aims, dates of study, methodology (including study design, theoretical assumptions, data collection and data analysis), sample size, participant demographics, type of midwives, and results addressing the review question. A data extraction tool was developed and piloted on the first 5 papers (Appendix C), before being used on the remaining research papers. For non-research papers, the following data were extracted by the student: title, authors, date published, publisher, country, publication type.

2.6 Critical assessment of included studies

It is vital to perform a critical quality assessment of any included studies in a review, to provide confidence in the findings (Noyes et al., 2018). However, where a review includes both quantitative and qualitative papers, the aims of any quality assessment will vary – assessing risk of bias in quantitative studies, and rigour or trustworthiness in qualitative studies (Noyes et al., 2018). A number of tools exist to critically assess quantitative research, such as the Critical Assessment Skills Programme (CASP) Checklists (Critical Appraisal Skills Programme, 2019), although the use of such checklists has been criticised as being too restrictive for the appraisal of qualitative research (Williams, Boylan and Nunan, 2020). Furthermore, within qualitative research there has historically been disagreement over whether critical assessment is required, what should be done with the findings of such assessments, and whether papers should be excluded, whether partially or fully, if they are deemed to be of ‘low quality’ (Garside, 2013).

The Cochrane Qualitative and Implementation Methods Group (Noyes et al., 2018) strongly recommend performing a critical quality assessment, suggesting a number of ways to do so. This review utilised the pragmatic approach proposed by Long, French and Brooks (2020) as this method not only guides the critical assessment, but also provides a way to incorporate the findings of the assessment into the data synthesis. This approach is summarised in Figure 4 and explained more fully below.



Figure 4: Method for evidence appraisal and synthesis proposed by Long, French and Brooks (2020)

A quality assessment was performed independently by two researchers (the student and FCS) on all included papers, designating each paper to be of high, medium or low quality. The quantitative papers were assessed using the relevant CASP tool for each paper’s methodology (Critical Appraisal Skills Programme, 2019). The qualitative research papers

were assessed using the modified CASP tool proposed by Long, French and Brooks (2020), which was adapted to facilitate more nuance in the assessment and an additional question relating to the paper's theoretical position (Appendix D). Non-research papers were assessed with direct regard to their contribution to the research question, using a broad criteria of medium quality papers constituting first person accounts either written by midwives or providing direct quotations, and low quality papers comprising 3rd person accounts (such as news reports) and 'hearsay'. These criteria were agreed by the two researchers and piloted on the first 20 papers reviewed, which included a variety of methodologies. The two researchers then assessed all papers, compared assessments and discussed any discrepancies to reach a consensus. Where a consensus could not be reached, a third senior researcher was consulted.

2.7 Data synthesis

There are many different methodologies that can be employed for data synthesis, and several options were considered that are compatible with a pragmatic stance or exist independently of a particular theoretical viewpoint (Erickson, 2018).

Framework analysis is a systematic, highly-structured and versatile tool that identifies similarities and differences across data, and organises identified themes in a matrix (Gale et al., 2013). However when applied inappropriately, it can result in data that is forced into a pre-defined framework, rather than themes that truly originate in the data itself (King, Horrocks and Brooks, 2019). To ensure correct usage, it is advisable for a novice researcher to only use framework analysis as part of a wider team of experienced researchers (Gale et al., 2013). It was therefore not deemed appropriate for this review.

Grounded theory is based on pragmatism and interactionism (although it has been adapted to various epistemologies) (Charmaz, 2006). It can produce a thick description of social phenomena, avoiding assumptions, and acknowledging areas of conflict (Milliken, 2010). However it requires consecutive, inter-related data collection and analysis, enabling analysis of early data to feed into subsequent data collection and analysis to develop theory (Corbin

and Strauss, 2015). As this review utilised a pre-set, designated question and process to identify relevant papers, it would not be possible to perform true grounded theory analysis.

Thematic analysis is a highly flexible approach, which is not tied to any particular epistemological theory and is suitable for novice researchers (Braun and Clarke, 2013). Using an inductive approach allows codes and themes to be rooted in the data, rather than trying to fit data into a pre-conceived theory (Braun and Clarke, 2013). A key disadvantage of thematic analysis is that data interpretation risks lacking depth if the analysis is not grounded in a theoretical framework. Additionally, thematic analysis does not facilitate analysis of language use and linguistic elements (as in discourse analysis or narrative analysis) (Braun and Clarke, 2013). However there are a number of suggested methods to undertake thematic analysis that provide structure to the data analysis.

Inductive thematic analysis was identified as the most appropriate way to identify themes within and across papers to explain, explore and synthesise the data. The method described by Thomas and Harden (2008) was used for a systematic approach, which uses three distinct stages to complete thematic analysis. Also used were the modifications proposed by Long, French and Brooks (2020), which sub-divide the first step of analysis into 3 parts to fully integrate the findings of the critical assessment.

2.7.1 Stage one: coding text

The full text of all included papers was imported into NVivo 12 (QSR International Pty Ltd, 2018). Each paper was coded with the aim of identifying as many different meanings/concepts as possible, using several codes per data item where necessary, and coded inclusively to retain some context. The coding was performed in three parts:

1. The papers assessed to be high quality were coded first, to form an initial codebook.
2. The medium quality papers were coded next, using the codebook devised from the high quality papers, and creating new codes where necessary, which were incorporated into the codebook.

3. Finally the low quality papers were coded according to the codebook although no new codes were created at this point. Therefore, low quality papers were used to support the findings of the high and medium quality papers, but did not result in any new codes.

2.7.2 Stage two: developing descriptive themes

The codes identified in the first stage were examined to explore any similarities and differences, and organised into descriptive themes.

2.7.3 Stage three: generating analytical themes

The descriptive themes were explored to identify over-arching analytical themes. This required the student to consider the data at a higher level and identify themes that addressed the original research question.

This thematic analysis process was completed individually by the student. Once the process was complete and the themes and sub-themes identified, the findings were agreed with the second researcher (FCS) who had read all of the included papers and contributed to the critical assessment.

2.8 Publication

The report of this rapid review will be completed as part of the MRes dissertation and submitted for examination. Findings will be published in peer-reviewed journals, presented at conferences and published on the University of Birmingham NIHR West Midlands Applied Research Collaboration (ARC) Maternity Theme webpage.

3 Results

A search of the bibliographic databases performed on 3rd May 2021 retrieved 1,669 relevant papers (once duplicates were removed). Once titles and abstracts were screened against the inclusion/exclusion criteria, 777 publications were retrieved and read in full, with 145 identified for inclusion in the review. The retrospective and prospective reference search identified a further 3 papers for inclusion.

A search of the grey literature performed on 4th and 6th May 2021 identified an additional 109 papers. Once retrieved and read in full, 33 papers were included in the review.

A total of 181 papers were ultimately marked for inclusion in the review – see PRISMA flow diagram of results (**Figure 5**).

A random sample of 25% of papers retrieved from bibliographic databases (195 papers) were screened by a second researcher (FCS) and independently marked for inclusion or exclusion. Following discussion, agreement was reached on 96% of papers. The remaining 4% (8 papers) were reviewed independently by a third senior researcher, who felt that they were highly subjective when considered against the inclusion/exclusion criteria. They were ultimately excluded, as it was felt they contributed minimally to the review topic, and the limited areas they addressed had been covered by other included papers.

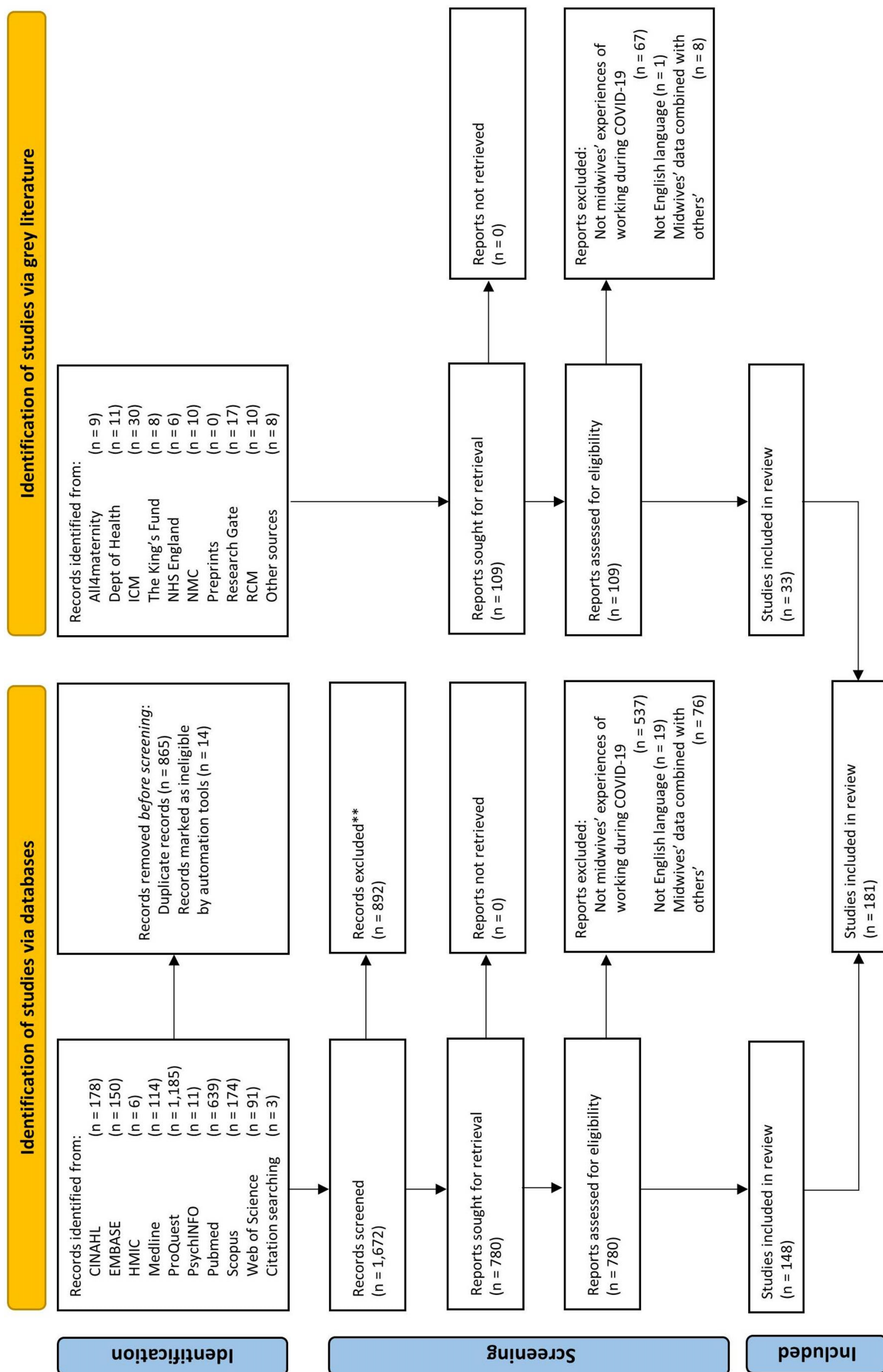
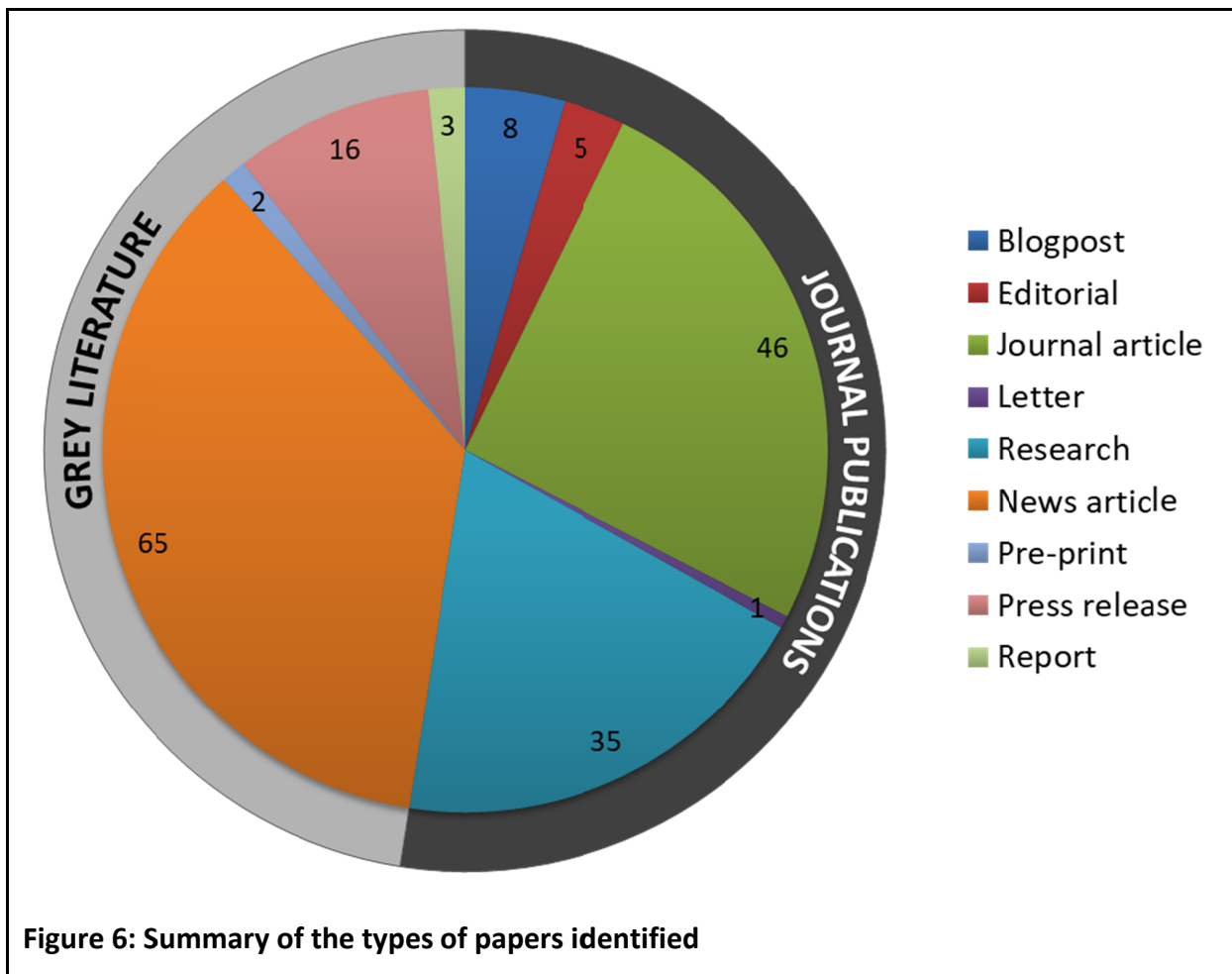
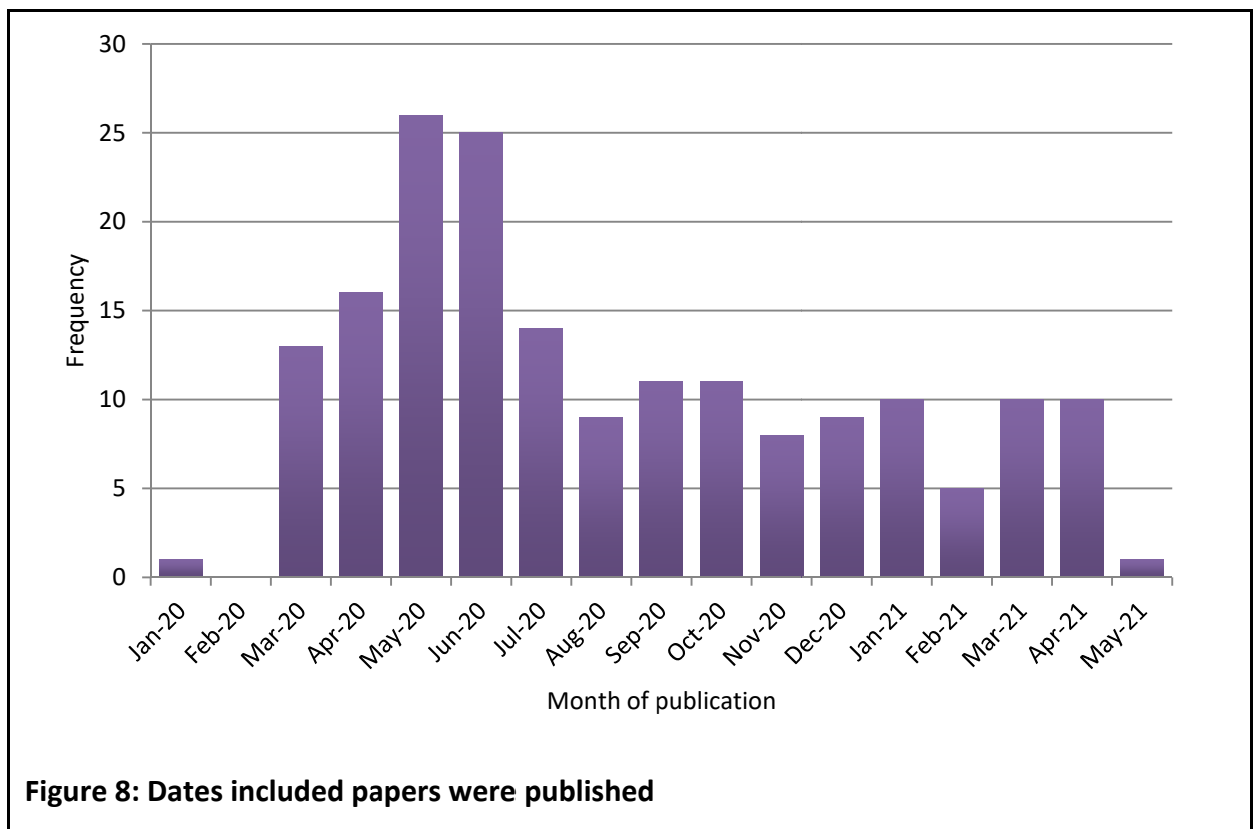
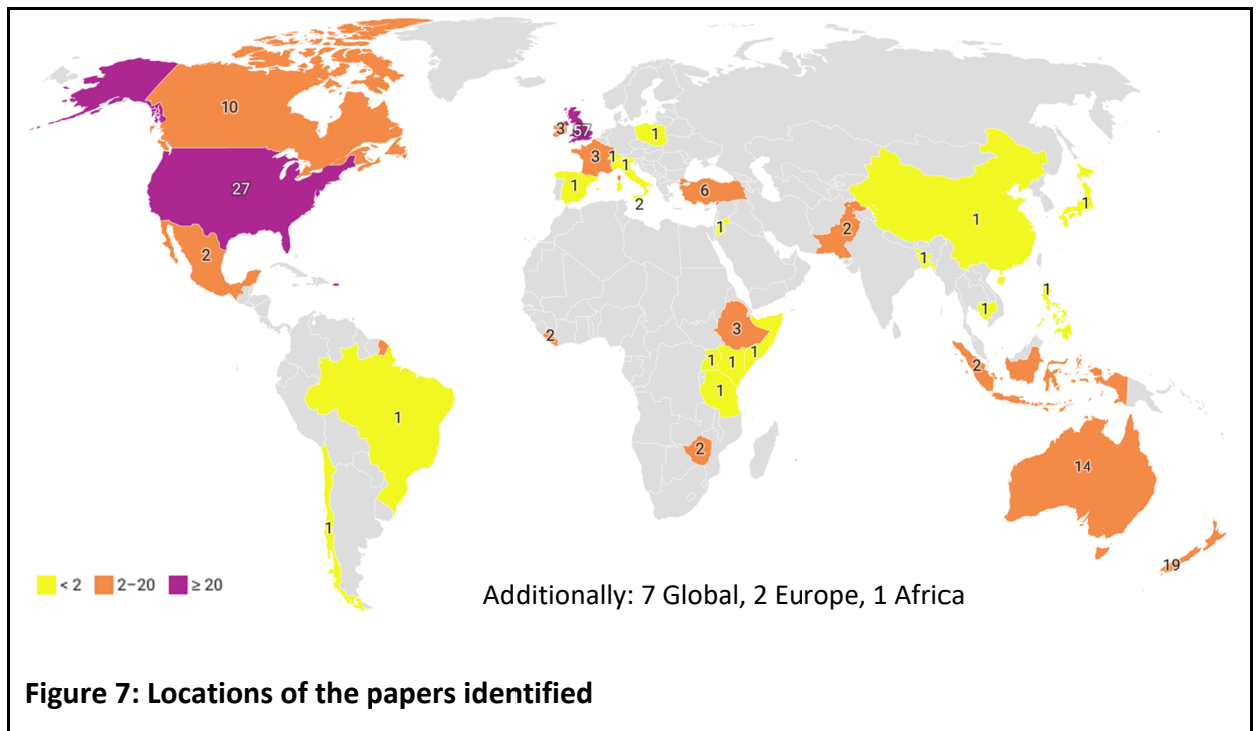


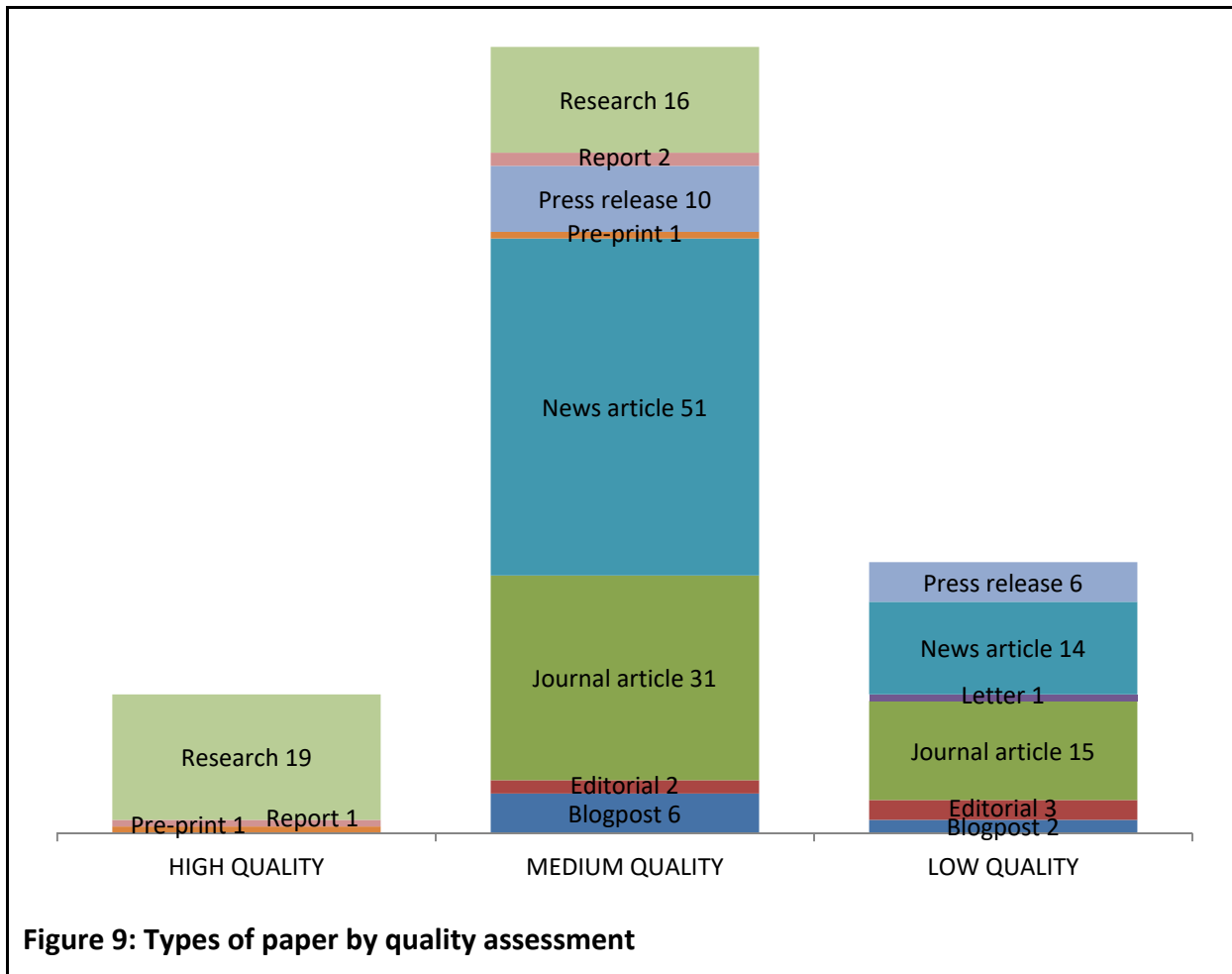
Figure 5: PRISMA flow diagram (Page et al., 2021)

The 181 included papers comprised 95 journal publications (of which 35 were primary research) and 86 papers from grey literature (see Figure 6 for a breakdown of the types of publications). The papers originated in a variety of countries worldwide (see Figure 7), with the majority (n=57) coming from the UK. There was a flurry of publications at the start of the pandemic from March to July 2020, after which the included papers were reasonably distributed across the remaining months included in the search (see Figure 8).





The quality assessment yielded 21 high quality papers, 119 medium quality papers, and 41 low quality papers (see Figure 9 for a breakdown of the types of papers for each quality level). Half the results (90/181) were individual first-person accounts, deemed to be of medium quality. The details and quality assessment of all 181 papers is available in Appendix E, and a summary of the high quality papers has been provided in Appendix F.



3.1 Thematic analysis findings

Four main themes were identified from the thematic analysis: Rapid Service Change, Professional Impact on Midwives, Personal Impact on Midwives, and Midwives' Perception of Impact on Women. An additional two cross-cutting themes were identified, that wove among the main themes: Tension between the primary themes, and Potential for Change. A number of sub-themes were also identified (see Table 2).

Table 2: Themes and sub-themes

<i>Main Themes</i>	<i>Sub-themes</i>
Rapid Service Change	Changes to Guidelines and Policies Changes to Antenatal Care Changes to Intrapartum Care Changes to Postnatal Care Use of Telehealth
Professional Impact on Midwives	Sense of Professional Responsibility Use of Personal Protective Equipment (PPE) Increased Workload Change of Role Impact on Team
Personal Impact on Midwives	Fear Emotional Toll Impact on Home-Life Value of Job
Midwives' Perception of Impact on Women	Clinical Impact Emotional Impact Personal Impact
Cross-Cutting Themes	Tension Potential for the Future

Due to the number of papers included in this analysis, it has not been possible to reference every paper that informed each theme. Table 3 shows the number of high, medium and low quality papers that contributed to each theme and sub-theme. Additionally, each main theme is accompanied by a table showing which papers contributed to the theme and its sub-themes. Within the text itself, each point has been accompanied by at least one reference.

Table 3: Number of papers coded by theme and quality assessment

	HIGH n=21	MEDIUM n=119	LOW n=41
Rapid Service Change	16	82	28
Changes to Guidelines and Policies	8	35	12
Changes to Antenatal Care	7	55	15
Changes to Intrapartum Care	12	44	15
Changes to Postnatal Care	6	34	10
Use of Telehealth	9	51	11
Professional Impact on Midwives	16	109	36
Sense of Professional Responsibility	6	54	16
Use of Personal Protective Equipment (PPE)	13	62	18
Increased Workload	9	61	18
Change of Role	12	64	22
Impact on Team	8	35	9
Personal Impact on Midwives	15	93	28
Fear	11	59	18
Emotional Toll	8	58	9
Impact on Home-Life	6	56	17
Value of Job	6	42	8
Midwives' Perception of Impact on Women	12	90	24
Clinical impact	10	69	18
Emotional impact	10	84	18
Personal impact	4	36	12

3.1.1 Rapid Service Change

A common theme was the rapid changes made to maternity services during the pandemic. This theme is presented with a number of sub-themes: changes to guidelines, changes to antenatal, intrapartum and postnatal care, and the introduction of remote telephone and video healthcare, dubbed “telehealth”. For a list of which high and medium papers contributed to this theme and its sub-themes, see Table 4 (a full version of this table including the details of contributing low quality papers is provided in Appendix G).

Table 4: Rapid Service Change – Papers contributing to each sub-theme

COLOUR KEY:

High quality paper

Medium quality paper

Low quality paper

Total number of papers in review n=181						
Rapid Service Change Number of papers contributing to theme: n=126 (70%)		SUB-THEMES:				
		Changes to Guidelines and Policies n=59 (33%)	Changes to Antenatal care n=77 (43%)	Changes to Intrapartum Care n=71 (39%)	Changes to Postnatal Care n=50 (28%)	Use of Telehealth n=71 (39%)
No	Reference					
1	Alnuaimi (2021)	✓	✓	✓		
2	Baumann et al. (2021)	✓	✓			✓
3	Bradfield et al. (2021a)	✓	✓	✓	✓	✓
4	Bradfield et al. (2021b)	✓				
5	Galle et al. (2021)		✓		✓	✓
6	Gonzalez-Timoneda et al. (2020)	✓		✓		
7	Harkness et al. (2021)			✓		
8	Homer et al. (2021)	✓	✓	✓	✓	✓
10	Jardine et al. (2021)		✓	✓	✓	✓
12	Klamroth et al. (2020)					✓
14	Ombere (2021)			✓		
15	Oparah et al. (2021)	✓		✓	✓	✓
16	Ozhiganova (2021)			✓		✓
18	Semaan et al. (2020)	✓	✓	✓	✓	✓
20	Umazume et al. (2020)			✓		
21	West, Bailey & Williams (2020)			✓		
22	'A new style of midwifery' (2020)	✓	✓		✓	✓
23	'Birth and midwifery in a time of COVID' (2020)	✓				
24	COVID-19 Survey (2020)	✓	✓	✓	✓	✓
25	'Homebirth vs the pandemic' (2021)	✓	✓	✓		✓
26	'Midwives ensuring safe delivery under COVID-19' (2020)		✓	✓		
28	'Stronger Together' (2021)		✓			
29	'The midwife's story rescued from media's COVID crisis' (2020)		✓			
30	'The Mother of Invention' (2020)		✓		✓	✓
31	Akoorie (2020)					✓
33	Alonso et al. (2021)	✓	✓		✓	✓

Total number of papers in review n=181						
Rapid Service Change Number of papers contributing to theme: n=126 (70%)		SUB-THEMES:				
		Changes to Guidelines and Policies n=59 (33%)	Changes to Antenatal care n=77 (43%)	Changes to Intrapartum Care n=71 (39%)	Changes to Postnatal Care n=50 (28%)	Use of Telehealth n=71 (39%)
No	Reference					
34	Ayres-Brown (2020)			✓		
35	Bailey & Nightingale (2020)	✓	✓	✓	✓	✓
36	BAME Maternity Workforce (2020)	✓	✓	✓		✓
37	Benaglia & Canzini (2021)	✓		✓		✓
39	Caron & Shannon (2020)		✓			
40	Carter (2020)	✓	✓	✓		✓
41	Chimbwanda (2020)	✓				
42	Chowdhury et al. (2020)		✓			
43	Coxon et al. (2020)	✓	✓	✓	✓	✓
44	Crowther et al. (2021)	✓	✓	✓	✓	✓
45	Dahlen, Kumar-Hazard & Chiarella (2020)		✓	✓		
46	Davis-Floyd, Gutschow & Schwartz (2020a)	✓	✓	✓	✓	✓
47	Davis-Floyd, Gutschow & Schwartz (2020b)	✓	✓	✓	✓	✓
48	Dinsdale (2020)		✓		✓	
49	Dixon (2020)	✓			✓	✓
50	Dulfe et al. (2021)	✓		✓	✓	
51	Eddy (2020)	✓	✓			✓
52	Einion-Waller, Lord & Regan (2020)	✓	✓	✓		✓
55	Gammon (2020)			✓	✓	
56	Gee (2020)		✓		✓	✓
57	Ghanchi (2020)	✓	✓	✓	✓	✓
58	Godfrey-Isaacs (2020)	✓	✓		✓	✓
59	Halauafu (2020)	✓	✓	✓	✓	✓
60	Hayes (2020a)		✓			
62	Hemming (2020)		✓	✓	✓	
63	Henderson (2020)		✓	✓		✓
64	Hughes, Dunne & Moyles (2020)		✓		✓	✓
66	Johariyah et al. (2020)		✓	✓	✓	✓
67	Johnson (2020)	✓		✓	✓	✓
69	de Freytas-Tamura (2020)	✓		✓		
71	Langlois (2020)	✓				
72	Leiva et al. (2021)	✓		✓	✓	✓
73	Lewin (2020)		✓	✓		✓
75	Lewis (2021)	✓				
77	McCann (2020)		✓			✓
78	McDonald (2020)		✓		✓	✓
79	Melendez (2020)					✓
80	Millar (2020)	✓		✓	✓	✓
81	Moore (2020)	✓				
82	Moyles (2020)	✓	✓		✓	✓
84	Nahorniak (2020)		✓	✓		✓
85	Nguyen et al. (2020)	✓		✓		✓
86	NMC (2021)	✓	✓			✓
87	Nugget Staff (2020)		✓			
88	Oppenheim (2020)				✓	
89	Oppenheim (2021)			✓		
90	Ostlere (2020)				✓	✓
92	Perry (2020)					✓
93	Queensland Government (2020)		✓			
100	RCM (2020f)	✓				
101	RCM (2020g)		✓	✓	✓	✓
102	RCM (2020h)	✓				✓

Total number of papers in review n=181						
Rapid Service Change Number of papers contributing to theme: n=126 (70%)		SUB-THEMES:				
		Changes to Guidelines and Policies	Changes to Antenatal care	Changes to Intrapartum Care	Changes to Postnatal Care	Use of Telehealth
No	Reference	n=59 (33%)	n=77 (43%)	n=71 (39%)	n=50 (28%)	n=71 (39%)
103	Renfrew et al. (2020)	✓	✓	✓	✓	✓
104	Renfrew et al. (2021)	✓				
105	Retka (2020)		✓	✓		✓
106	Reyes (2021)		✓	✓	✓	✓
110	Salaudeen (2020)	✓	✓	✓		
111	Samara Kalk (2020)			✓		
112	Scheier (2020)		✓			✓
113	Schipani (2020)	✓	✓	✓	✓	✓
114	Scott (2020a)		✓			✓
115	Scott (2020b)		✓	✓		
116	Scott (2020c)	✓	✓	✓	✓	✓
118	Semu-Banda (2020)		✓			
119	Sherwood (2020)		✓	✓	✓	
120	Sibonney (2020a)			✓		✓
122	Smith (2020b)		✓	✓	✓	✓
125	Stewart (2020)			✓		
129	Tugores & Wiseman (2020)	✓	✓	✓		
130	Turley (2020)		✓			✓
132	Vinaver (2020)		✓	✓		✓
137	Wu (2020)		✓			✓
LOW-QUALITY PAPERS		12 papers	15 papers	15 papers	10 papers	11 papers

3.1.1.1 Changes to Guidelines and Policies

Midwives reported rapidly changing and evolving guidelines ('Standing Up For Community Midwives', 2020), often decided at a governmental (Bailey and Nightingale, 2020) or managerial (Crowther et al., 2021) level and filtered down to midwives, many of whom felt frustrated at a perceived loss of autonomy (Oparah et al., 2021). A common concern was the speed with which policies were changed (Gonzalez-Timoneda et al., 2020) and a lack of evidence for some of these changes (Bradfield et al., 2021a). Some viewed maternity services as taking a step back from the progress of autonomous midwifery and evidence-based healthcare, and reverting to hospital-based obstetric autocratic care models:

“In a situation of epidemic danger, health officials immediately reverted back to the old Soviet practice based on the principles of prohibition and separation, the dominance of bureaucratic logic, paternalism, and neglect of patient rights, when maternity hospitals were completely closed institutions with strict and prohibitive rules, separation of mothers

and newborns, and severe sanitary and infection control measures.” Russia (Ozhiganova, 2021)

Inconsistent guidelines across different managers, departments and hospitals also posed a problem, and caused widespread uncertainty (Coxon et al., 2020). Some midwives found new guidelines did not translate to clinical practice or were difficult to implement, particularly policies around PPE (BAME Maternity Workforce, 2020) and recommendations to maintain social distancing whilst providing maternity care (Salaudeen, 2020).

3.1.1.2 Changes to Antenatal Care

Changes to antenatal services included reduced attendance (Johariyah et al., 2020), shorter appointments (Gee, 2020), spacing appointments to minimise crowded waiting rooms (Smith, 2020b), and phoning women to screen for COVID-19 prior to attendance (Homer et al., 2021). Some units changed or cancelled aspects of care, particularly around infertility (Semaan et al., 2020), contraception (ICM, 2020b), abortion care (Dahlen, Kumar-Hazard and Chiarella, 2020), antenatal screening (Jardine et al., 2021), scans (Jardine et al., 2021), birth preparation classes (Calleja, 2020), and ‘continuity of carer’ models (NMC, 2021). Some midwives moved birth preparation activities to online settings, and subsequently preferred these to face-to-face classes, as they enabled connection with more parents via social media, and the potential to send information digitally following classes (Galle et al., 2021). Some midwives provided women with equipment and taught them to self-perform checks such as blood pressure monitoring (Henderson, 2020). Many community and independent midwives were affected by the closure of buildings such as GP surgeries and community clinics, and were forced to relocate their care ('COVID-19 Survey', 2020b).

“We have given numbers to pregnant women so that if they have any problem, they can call us. It's not like before where they (could) come in at any time” Midwife, Ghana (Salaudeen, 2020)

3.1.1.3 Changes to Intrapartum Care

Midwives discussed many changes made to intrapartum care, particularly to accommodate COVID-positive women in labour (Conroy, 2020). COVID-19 testing became widespread in labour (Davis-Floyd, Gutschow and Schwartz, 2020a). In the UK, many midwives reported midwifery-led centres being closed (Sherwood, 2020) or repurposed as COVID-specific facilities (Byrom, 2020). Personnel at birth were changed as non-essential staff were kept outside the labour room, with sometimes just the midwife in the labour room (Gonzalez-Timoneda et al., 2020), and in some places birth partners were limited or banned (Benaglia and Canzini, 2021). Some midwives reported an increase in medical intervention (Leiva et al., 2021), particularly as a method of limiting the length of labour of COVID-positive women by inducing labour, augmenting labour, or performing elective caesareans (Reyes, 2021).

“The performance of more inductions and cesareans [sic] is being reported, with the justification that these move women more quickly through the system, thereby limiting potential viral exposure” Puerto Rico (Reyes, 2021)

Birth choices were severely impacted, with reports of hospitals and midwives in the UK ('Homebirth vs the pandemic', 2021), USA (Retka, 2020), Canada (Sibonney, 2020b) and Australia (Dahlen, Kumar-Hazard and Chiarella, 2020) withdrawing homebirth services and waterbirth provision, and some hospitals no longer providing nitrous oxide for analgesia (Bradfield et al., 2021a). Midwives in the USA (Davis-Floyd, Gutschow and Schwartz, 2020b), China (Renfrew et al., 2020), Spain (Coxon et al., 2020), Russia (Ozhiganova, 2021), Chile (Leiva et al., 2021), Puerto Rico (Reyes, 2021) and Ghana (Salaudeen, 2020) reported cases of mothers and babies being separated immediately following birth, due to concerns of COVID transmission to the newborn.

A handful of papers reported no significant differences to intrapartum care (Gonzalez-Timoneda et al., 2020), with some observing less intervention than pre-pandemic (Bradfield et al., 2021a), and some hospitals actively encouraging homebirth (Byrom, 2020).

3.1.1.4 Changes to Postnatal Care

The limited reports on postnatal care suggest that fewer or no home visits became more common (RCM, 2020g). Some midwives reported women being discharged home earlier from hospital (Wiltshire, 2020). For hospitals that provided breastfeeding support, these services were frequently stopped (Alonso et al., 2021) or moved to phone/video support ('The Digital Revolution', 2020). Increased readmission rates for mothers and babies were also observed (Oppenheim, 2020).

“Postnatal visits are also gone, so instead we phone new parents every day. We have started video-conferencing for breastfeeding support.” Midwife, Ireland (Hughes, Dunne and Moyles, 2020)

Despite these changes to care, midwives in the UK ('Working for you', 2021), Australia (Bradfield et al., 2021a) and New Zealand (Crowther et al., 2021) felt the pandemic facilitated a better postnatal experience for women. Midwives described postnatal wards with visitor bans as being more relaxing environments, where new mothers supported each other (rather than sitting behind closed bed-curtains) (Johnson, 2020), and women were able to focus on rest, recuperation and bonding with their baby (RCM, 2020h). Many felt prolonged skin-to-skin and breastfeeding rates had increased (Scott, 2020c) (despite the lack of breastfeeding support services) as women had more time and felt less self-conscious about doing so without men on the ward (Thomson, 2020).

“The postnatal ward is a lovely place to be at the moment. The curtains are open, and women are helping each other and bonding in a way that we thought was a thing of the past...there is a spirit of female empowerment and togetherness. Those who have had babies before are helping first-timers with breastfeeding, for example. There is also the ability to share stories and to come to terms with your birth experience.” Midwife, UK (Johnson, 2020)

Midwives also perceived these benefits as extending to postnatal recovery at home, where women no longer needed to entertain visitors eager to meet the new baby (Bradfield et al., 2021a).

3.1.1.5 Use of Telehealth

A common area of service change was the widespread introduction of telehealth: healthcare conducted via telephone or video-call. Common uses included virtual antenatal appointments ('The Digital Revolution', 2020), telephone booking appointments (Godfrey-Isaacs, 2020), calling prior to appointments to reduce in-person contact (Homer et al., 2021), discussing birth preferences and choices (Carter, 2020), and for information giving ('Adapting to change', 2020). Social media was identified as a useful tool to inform women ('Homebirth vs the pandemic', 2021), connect midwives (Rivers, 2020), and support both groups. Many midwives felt telehealth was not appropriate as a full substitution for face-to-face appointments (Ghanchi, 2020), but could be used to complement in-person care ('COVID-19 Survey', 2020a) and allow care to continue under extraordinary circumstances (Klamroth-Marganska et al., 2021). Some midwives felt telehealth benefitted families by reducing the time women spent waiting to be seen ('COVID-19 Survey', 2020a), saving travel costs ('The Mother of Invention', 2020), helping women to be more relaxed at appointments (Halauafu, 2020), including partners in care ('The Digital Revolution', 2020), facilitating multiple specialists to work collaboratively ('The Digital Revolution', 2020), and improving access for some women, including those needing childcare (Einion-Waller, Lord and Regan, 2020) or women in countries under lockdown, as public transport options were limited:

“Through phone calls to postnatal mothers on breastfeeding, cord care, and thermal care, babies have survived although they were not able to access the health facilities for postnatal care.” Nurse-midwife, Uganda (Galle et al., 2021)

Challenges of telehealth included technical issues (Millar, 2020), lack of confidence with technology (Galle et al., 2021), inability to perform a full clinical assessment (Galle et al., 2021), difficulties accessing care (for example, women who do not own a smartphone or lack a stable connection) ('The Mother of Invention', 2020), difficulty establishing a close midwife-women relationship (Schipani, 2020), and the lack of non-verbal cues. Several midwives from English-speaking countries felt that use of telehealth disproportionately disadvantaged women with language barriers, and made gauging understanding and using interpreting services more challenging (BAME Maternity Workforce, 2020). Another

particular concern involved midwives enquiring about domestic abuse, not knowing if it was safe to do so, or if women were comfortable disclosing abuse over the phone (Bailey and Nightingale, 2020).

“Here I am, sitting in my home office, having a disembodied conversation with a pregnant person, asking the most intimate questions, without the ability to read body language, expression or even accurately, tone of voice.” Midwife, UK (Godfrey-Isaacs, 2020)

3.1.2 Professional Impact on Midwives

The second main theme identified was the impact of the pandemic on the professional role of midwives. The sub-themes identified include a sense of professional responsibility, use of personal protective equipment (PPE), increased workload, a change of role, and the impact on the team. For a list of which high and medium papers contributed to this theme and its sub-themes, see Table 5 (a full version of this table including the details of contributing low quality papers is provided in Appendix H).

Table 5: Professional Impact on Midwives – Papers contributing to each sub-theme

COLOUR KEY: High quality paper Medium quality paper Low quality paper

Total number of papers in review n=181						
Professional Impact on Midwives Number of papers contributing to theme: n=161 (89%)		SUB-THEMES:				
		Sense of Professional Responsibility	Use of PPE	Increased Workload	Change of Role	Impact on Team
No	Reference	n=88 (49%)	n=93 (51%)	n=76 (42%)	n=98 (54%)	n=52 (29%)
1	Alnuaimi (2021)	✓	✓	✓	✓	✓
2	Baumann et al. (2021)		✓		✓	
3	Bradfield et al. (2021a)	✓	✓	✓	✓	✓
4	Bradfield et al. (2021b)	✓			✓	✓
5	Galle et al. (2021)				✓	✓
6	Gonzalez-Timoneda et al. (2020)	✓	✓	✓	✓	✓
8	Homer et al. (2021)	✓	✓	✓	✓	
9	Izhar et al. (2021)		✓		✓	
14	Ombere (2021)		✓	✓	✓	
15	Oparah et al. (2021)	✓		✓	✓	✓
16	Ozhiganova (2021)		✓	✓		✓
17	Regasa et al. (2021)		✓			
18	Semaan et al. (2020)		✓	✓	✓	
19	Tadesse et al. (2020)		✓			
20	Umazume et al. (2020)		✓			

Total number of papers in review n=181						
Professional Impact on Midwives Number of papers contributing to theme: n=161 (89%)		SUB-THEMES:				
No	Reference	Sense of Professional Responsibility n=88 (49%)	Use of PPE n=93 (51%)	Increased Workload n=76 (42%)	Change of Role n=98 (54%)	Impact on Team n=52 (29%)
21	West, Bailey & Williams (2020)		✓	✓	✓	✓
22	'A new style of midwifery' (2020)		✓	✓	✓	
23	'Birth and midwifery in a time of COVID' (2020)		✓			
24	COVID-19 Survey (2020)	✓	✓	✓	✓	✓
25	'Homebirth vs the pandemic' (2021)				✓	✓
26	'Midwives ensuring safe delivery under COVID-19' (2020)	✓	✓	✓	✓	
27	Ripe for rebirth (2020)			✓		
28	'Stronger Together' (2021)	✓		✓		
29	'The midwife's story rescued from media's COVID crisis' (2020)				✓	
31	Akooie (2020)		✓			
33	Alonso et al. (2021)		✓	✓	✓	
34	Ayres-Brown (2020)	✓		✓	✓	
35	Bailey & Nightingale (2020)	✓	✓	✓	✓	✓
36	BAME Maternity Workforce (2020)		✓	✓	✓	✓
37	Benaglia & Canzini (2021)	✓	✓		✓	✓
38	Boyden (2020)	✓				✓
39	Caron & Shannon (2020)	✓		✓	✓	
40	Carter (2020)		✓	✓	✓	✓
41	Chimbwanda (2020)	✓	✓	✓	✓	
42	Chowdhury et al. (2020)	✓	✓			
43	Coxon et al. (2020)	✓	✓	✓	✓	✓
44	Crowther et al. (2021)	✓	✓	✓	✓	✓
45	Dahlen, Kumar-Hazard & Chiarella (2020)		✓	✓	✓	
46	Davis-Floyd, Gutschow & Schwartz (2020a)		✓	✓	✓	
47	Davis-Floyd, Gutschow & Schwartz (2020b)	✓	✓	✓	✓	
48	Dinsdale (2020)			✓	✓	✓
49	Dixon (2020)		✓	✓	✓	✓
50	Dulfe et al. (2021)	✓	✓	✓		✓
51	Eddy (2020)	✓	✓	✓	✓	✓
52	Einion-Waller, Lord & Regan (2020)				✓	
54	Flemming (2020)		✓			
56	Gee (2020)			✓	✓	
57	Ghanchi (2020)		✓	✓		
58	Godfrey-Isaacs (2020)	✓		✓	✓	✓
59	Halauafu (2020)	✓	✓	✓	✓	✓
60	Hayes (2020a)	✓	✓		✓	✓
61	Hayes (2020b)	✓	✓		✓	
63	Henderson (2020)	✓	✓	✓	✓	
64	Hughes, Dunne & Moyles (2020)	✓	✓	✓	✓	✓
65	Hunter, Renfrew & Downe (2020)	✓	✓		✓	✓
66	Johariyah et al. (2020)		✓			
67	Johnson (2020)	✓	✓	✓	✓	
68	Khan & Socheata (2021)				✓	
69	de Freytas-Tamura (2020)		✓			
70	Kotowska & Gawlik (2020)	✓	✓			
71	Langlois (2020)		✓			
72	Leiva et al. (2021)	✓	✓		✓	✓
73	Lewin (2020)	✓	✓			
74	Lewis (2020)	✓				✓
75	Lewis (2021)		✓	✓		

Total number of papers in review n=181						
Professional Impact on Midwives Number of papers contributing to theme: n=161 (89%)		SUB-THEMES:				
		Sense of Professional Responsibility n=88 (49%)	Use of PPE n=93 (51%)	Increased Workload n=76 (42%)	Change of Role n=98 (54%)	Impact on Team n=52 (29%)
No	Reference					
76	Sole De La Llere (2021)					✓
77	McCann (2020)	✓			✓	
78	McDonald (2020)				✓	
79	Melendez (2020)		✓	✓	✓	
80	Millar (2020)	✓	✓	✓	✓	✓
81	Moore (2020)			✓		
82	Moyles (2020)	✓		✓	✓	✓
83	Murphy (2020)		✓		✓	
84	Nahorniak (2020)			✓	✓	✓
85	Nguyen et al. (2020)	✓			✓	
86	NMC (2021)	✓	✓	✓		✓
87	Nugget Staff (2020)		✓			
88	Oppenheim (2020)	✓	✓	✓		
89	Oppenheim (2021)			✓		
90	Ostlere (2020)		✓	✓		
92	Perry (2020)		✓		✓	
93	Queensland Government (2020)				✓	
94	Rankin (2020)			✓		
95	RCM (2020a)			✓		
97	RCM (2020c)	✓		✓		
98	RCM (2020d)					✓
99	RCM (2020e)		✓			✓
100	RCM (2020f)					✓
101	RCM (2020g)			✓	✓	✓
102	RCM (2020h)			✓		
103	Renfrew et al. (2020)			✓	✓	
104	Renfrew et al. (2021)	✓				
105	Retka (2020)		✓	✓	✓	
106	Reyes (2021)		✓		✓	
107	Ribner (2020)				✓	
108	Rivers (2020)	✓				✓
109	Ryan (2020)		✓	✓		
110	Salaudeen (2020)	✓	✓		✓	
112	Scheier (2020)			✓		
113	Schipani (2020)	✓		✓	✓	
114	Scott (2020a)		✓	✓	✓	✓
115	Scott (2020b)	✓			✓	
116	Scott (2020c)	✓	✓	✓	✓	
118	Semu-Banda (2020)	✓		✓		
119	Sherwood (2020)	✓		✓	✓	
120	Sibonney (2020a)	✓	✓			
121	Smith (2020a)	✓	✓			
122	Smith (2020b)	✓			✓	✓
123	Smith (2020c)	✓	✓		✓	
124	Smith (2021)	✓		✓	✓	
125	Stewart (2020)	✓				
126	Talbot (2020)	✓	✓			
127	Terzon (2020)			✓		
128	Thomson (2020)	✓	✓	✓	✓	
129	Tugores & Wiseman (2020)	✓	✓		✓	✓
130	Turay (2020)	✓	✓			
131	Uzun et al. (2020)				✓	

Total number of papers in review n=181						
Professional Impact on Midwives Number of papers contributing to theme: n=161 (89%)		SUB-THEMES:				
No	Reference	Sense of Professional Responsibility n=88 (49%)	Use of PPE n=93 (51%)	Increased Workload n=76 (42%)	Change of Role n=98 (54%)	Impact on Team n=52 (29%)
132	Vinaver (2020)				✓	✓
133	Vinga (2021)		✓	✓		✓
134	Wade (2021)	✓				
135	Wainer (2020)			✓		
136	Williams (2020)	✓	✓	✓	✓	
137	Wu (2020)		✓	✓	✓	
138	Wyton (2020)		✓	✓		
140	Yulisman (2021)			✓	✓	
	LOW-QUALITY PAPERS	16 papers	18 papers	18 papers	22 papers	9 papers

3.1.2.1 Sense of Professional Responsibility

Many described the pandemic in the context of their professional responsibility, with midwives on all continents describing their duty to care for pregnant people despite the risk to themselves (Oparah et al., 2021). Many identified this as 'business as usual' despite the turmoil of the pandemic, lockdown, and many other services closing (Conroy, 2020). Some midwives acknowledged that they were afraid, but felt a responsibility to overcome their own fear and continue providing care ('Midwives ensuring safe delivery under COVID-19', 2020). A number expressed concern over maintaining the same quality of maternity care (Uytenbogaardt, 2020b), with many increasing their workload ('Standing Up For Community Midwives', 2020). This was often described as a duty and a challenge, and not perceived as unusual behaviour (Sherwood, 2020) despite other services being closed or cancelled. Some felt their professional responsibility increased, perceiving a need to support women more (Bradfield et al., 2021a), return to clinical practice (Boyden, 2020), or study emerging research to be able to provide information to women (Pallangyo et al., 2020) or the entire community (Chimbwanda, 2020). Midwives in the UK (Tugores and Wiseman, 2020), Italy (Benaglia and Canzini, 2021) and Chile (Leiva et al., 2021) described sometimes feeling a responsibility to go against or challenge guidelines where they perceived conflict between COVID restrictions and their duty of care, such as hospitals banning birth companions.

"My first concern is the mother and how she will be cared for" Midwife, Liberia
(Oppenheim, 2020)

A number of papers described midwives using creative solutions to continue providing care, such as converting a car boot to a “newborn weigh station” (Dinsdale, 2020, p.1), creating a drive-through clinic to reduce physical contact and proximity (Halauafu, 2020), and sharing instructions for home-made cleaning solution and facemasks (Smith, 2020b). Midwives in the Netherlands (Byrom, 2020), New Zealand (Scott, 2020b) and the USA (Caron and Shannon, 2020) described facilities closing, so moving to marquees or hotels to continue providing care.

3.1.2.2 Use of Personal Protective Equipment (PPE)

Many midwives discussed PPE as a challenge that became central within the pandemic (Davis-Floyd, Gutschow and Schwartz, 2020a). Initially there was much confusion over usage (NMC, 2021), with advice and guidelines varying greatly (Semaan et al., 2020). While several midwives felt PPE negatively impacted their job (Alnuaimi, 2021), impacting their ability to communicate with women (BAME Maternity Workforce, 2020) and provide their usual standard of care (Hunter, Renfrew and Downe, 2020), others felt safer for having PPE and appreciated its perceived protection (Millar, 2020). Numerous midwives discussed the physical discomfort of wearing PPE for long periods of time, with common issues including increased tiredness (Ostlere, 2020), perspiration (Bradfield et al., 2021a), sore throat (Alnuaimi, 2021), and bad skin (Millar, 2020). Midwives frequently cited overheating as a particular issue, given the environment of maternity wards, which are kept especially warm to support neonatal thermoregulation (Hayes, 2020b). However, the biggest issue with PPE appeared to be the shortage of stocks, with midwives worldwide struggling to acquire even basic items ('Ethiopia's Midwives Grapple With the COVID-19 While Ensuring Safe Delivery', 2020). Independent midwives in particular turned to unusual avenues, including appeals on social media (Akoorie, 2020), homemade hand sanitiser (Wyton, 2020), and sourcing PPE from other industries such as veterinary practices and nail salons (Coxon et al., 2020).

“Doing this behind a mask has created a whole new challenge. They can’t see us smile.

They can’t see our faces. It’s much more difficult to reassure them that everything they are going through is OK and normal when they can’t see our facial expressions.” Midwife, UK (Ostlere, 2020)

3.1.2.3 Increased Workload

Many midwives discussed an increased workload as a result of the pandemic (Williams, 2020), often within the context of an already stressed service (West, Bailey and Williams, 2020). The backdrop of pre-COVID midwifery was identified as under-funded (Scott, 2020c), under-appreciated (Crowther et al., 2021) and over-stretched (Oppenheim, 2021). The pandemic worsened the existing situation, and added new challenges. Frequently identified issues included staffing shortages (Rankin, 2020), and midwives working more hours (Dixon, 2020) and missing breaks (Ostlere, 2020), with insufficient time to eat, drink or use the toilet (RCM, 2020c). Some hospitals increased their reliance on agency staff (Daellenbach, 2020) or encouraged midwives to take on additional bank shifts to cover shortages (Dinsdale, 2020). Many midwives reported their usual work taking longer to complete, due to increased PPE (Conroy, 2020), cleaning and disinfecting clinical areas (Hayes, 2020a), technical issues (Dixon, 2020), and women's emotional needs ('A new style of midwifery', 2020).

"I had to take extra time to offer reassurance, do lots of tender loving care talk, as well as screening to make sure that they were okay, and not needing referral." Midwife, New Zealand (Halauafu, 2020)

Midwives also felt they saw more women with complex needs than pre-pandemic ('Standing Up For Community Midwives', 2020), which was ascribed to reduced appointments ('Stronger Together', 2021), more women wanting community-based care (Scott, 2020c), and the closure of other care services ('Stronger Together', 2021). Due to the increased workload, mandatory training for hospital-employed midwives was widely suspended (Carter, 2020), despite a number of midwives wanting more training around infection prevention and control (Pallangyo et al., 2020). A few hospitals described running drills in providing care for COVID-positive women (Sole De La Llere, 2021).

3.1.2.4 Change of Role

Many midwives spoke of changes to their usual roles (O'Connell et al., 2020). For some this was due to redeployment to COVID-specific clinical areas (ICM, 2020b), non-clinical pandemic-related work (Azzopardi, 2020), providing COVID vaccinations (Yulisman, 2021), or

to other areas within maternity as a result of staff shortages ('COVID-19 Survey', 2020a). Some midwives performed their role from home, especially those in managerial or advisory roles (Eddy, 2020), or those who were shielding (Hayes, 2020b). Continuity of carer models were frequently cited as being closed to redeploy midwives to other areas (NMC, 2021). However for those midwives who were able to continue working within a continuity of carer model, they perceived greater ease in adapting their practice to the pandemic, compared to non-continuity models (Bradfield et al., 2021a).

For midwives who continued in clinical roles, some felt their physical behaviour had changed whether consciously (Uzun et al., 2020) or subconsciously (Gonzalez-Timoneda et al., 2020), with some midwives adapting their behaviour to minimise the amount of PPE used (Thomson, 2020). A common area discussed was the importance of touch: several midwives identified this as integral to being 'with woman' (Galle et al., 2021), and spoke of sadness, frustration and difficulty in limiting physical contact due to social distancing recommendations (Semaan et al., 2020).

"The safety measures are there to create a barrier and keep people at a distance ... to keep people out and they can be interpreted as a judgement. Midwifery is warmth, it's being with and close to women." Midwife, Mexico (Alonso et al., 2021)

3.1.2.5 Impact on Team

Many midwives described the challenge of reduced social interaction within teams (Hayes, 2020a), with some finding such changes counter-cultural (Alnuaimi, 2021). However, midwives in the UK (NMC, 2021), Ireland (Moyle, 2020), Australia (Bradfield et al., 2021a), New Zealand (Eddy, 2020) and Chile (Leiva et al., 2021) felt camaraderie within teams increased, as midwives supported each other or held team meetings more frequently online. Many midwives cited the support of their colleagues as vital during such challenging times (O'Connell et al., 2020), although fewer felt as well supported by managers. Despite some reports of supportive managers (BAME Maternity Workforce, 2020), more cases of poor management were discussed, in particular frequently changing policies (Dulfe et al., 2021), contradictory advice (Gonzalez-Timoneda et al., 2020), too little or too much communication

('COVID-19 Survey', 2020a; Gonzalez-Timoneda et al., 2020), midwives feeling ignored (Crowther et al., 2021) or unsupported (RCM, 2020d), and increased pressure placed on midwives to return from sick leave (BAME Maternity Workforce, 2020) or work in unsafe conditions (Coxon et al., 2020). A particular area of concern in the UK was that of risk assessments, which were meant to identify staff at most risk of COVID-19, but were sometimes perceived as unclear tick-box exercises (BAME Maternity Workforce, 2020). Reports from the UK (Bailey and Nightingale, 2020), Italy (Benaglia and Canzini, 2021), Chile (Leiva et al., 2021) and New Zealand (Halauafu, 2020) suggest managers felt overwhelmed by the lack of institutional guidance and evidence, and anxious about making complex decisions. Similar to midwives' responsibility to women, several managers described an increased sense of responsibility to provide staff with a 'buffer' from the stressors of the pandemic, despite a rapidly evolving situation, a lack of information, and a sense of powerlessness to make things better for the midwives they cared for (Halauafu, 2020).

“Nurses, midwives and maternity support workers have worked tirelessly through this pandemic and we've put our own safety on the line to help others. But it's brought us closer than ever before. This is something we'll never forget and I can't thank my colleagues enough for everything they've done.” Midwife, UK (Rivers, 2020)

3.1.3 Personal Impact on Midwives

The third main theme identified was the personal impact of the pandemic on midwives, with sub-themes of fear, emotional toll, impact on midwives' home lives, and value of job. For a list of which high and medium papers contributed to this theme and its sub-themes, see Table 6 (a full version of this table including the details of contributing low quality papers is provided in Appendix I).

Table 6: Personal Impact on Midwives – Papers contributing to each sub-theme

COLOUR KEY:	High quality paper	Medium quality paper	Low quality paper
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Total number of papers in review n=181					
Personal Impact on Midwives Number of papers contributing to theme: n=136 (75%)		SUB-THEMES:			
		Fear n=88 (49%)	Emotional Toll n=75 (41%)	Impact on Home-Life n=79 (44%)	Value of Job n=56 (31%)
Nº	Reference				
1	Alnuaimi (2021)	✓	✓	✓	✓
3	Bradfield et al. (2021a)	✓	✓	✓	
4	Bradfield et al. (2021b)	✓	✓		
5	Galle et al. (2021)	✓			
6	Gonzalez-Timoneda et al. (2020)	✓			✓
8	Homer et al. (2021)			✓	
9	Izhar et al. (2021)	✓			
11	Kabasakal et al. (2021)	✓			
13	Liu et al. (2020)		✓		
14	Ombere (2021)	✓	✓		
15	Oparah et al. (2021)	✓	✓	✓	✓
16	Ozhiganova (2021)			✓	✓
17	Regasa et al. (2021)				✓
18	Semaan et al. (2020)	✓	✓		
21	West, Bailey & Williams (2020)	✓	✓	✓	✓
22	'A new style of midwifery' (2020)			✓	✓
23	'Birth and midwifery in a time of COVID' (2020)	✓	✓	✓	
24	COVID-19 Survey (2020)		✓		
25	'Homebirth vs the pandemic' (2021)	✓	✓		
26	'Midwives ensuring safe delivery under COVID-19' (2020)	✓			✓
28	'Stronger Together' (2021)		✓		✓
29	'The midwife's story rescued from media's COVID crisis' (2020)	✓			
31	Akoorie (2020)	✓			
32	Aksoy & Kocak (2020)	✓	✓		
33	Alonso et al. (2021)	✓	✓	✓	
35	Bailey & Nightingale (2020)		✓	✓	
36	BAME Maternity Workforce (2020)	✓	✓	✓	✓
37	Benaglia & Canzini (2021)	✓	✓		✓
38	Boyden (2020)	✓			
39	Caron & Shannon (2020)	✓			
40	Carter (2020)	✓	✓	✓	✓
41	Chimbwanda (2020)	✓	✓	✓	✓
42	Chowdhury et al. (2020)	✓			
43	Coxon et al. (2020)	✓		✓	
44	Crowther et al. (2021)	✓	✓	✓	✓
46	Davis-Floyd, Gutschow & Schwartz (2020a)	✓		✓	✓
47	Davis-Floyd, Gutschow & Schwartz (2020b)	✓		✓	✓
49	Dixon (2020)		✓	✓	
50	Dulfe et al. (2021)	✓	✓		
51	Eddy (2020)	✓	✓	✓	
53	Ellingson (2020)			✓	✓
57	Ghanchi (2020)	✓	✓	✓	
58	Godfrey-Isaacs (2020)	✓	✓	✓	
59	Halauafu (2020)	✓	✓	✓	✓
60	Hayes (2020a)			✓	
61	Hayes (2020b)		✓	✓	✓
64	Hughes, Dunne & Moyles (2020)	✓	✓		✓
65	Hunter, Renfrew & Downe (2020)	✓	✓	✓	✓
67	Johnson (2020)		✓		
69	de Freytas-Tamura (2020)	✓			
70	Kotowska & Gawlik (2020)	✓			
71	Langlois (2020)	✓			

Total number of papers in review n=181					
Personal Impact on Midwives Number of papers contributing to theme: n=136 (75%)		SUB-THEMES:			
		Fear	Emotional Toll	Impact on Home-Life	Value of Job
No	Reference	n=88 (49%)	n=75 (41%)	n=79 (44%)	n=56 (31%)
72	Leiva et al. (2021)	✓	✓	✓	✓
73	Lewin (2020)		✓	✓	
74	Lewis (2020)	✓	✓	✓	✓
75	Lewis (2021)	✓	✓	✓	
77	McCann (2020)	✓			✓
79	Melendez (2020)	✓			
80	Millar (2020)	✓	✓	✓	✓
81	Moore (2020)	✓	✓		✓
82	Moyles (2020)	✓	✓	✓	
83	Murphy (2020)	✓		✓	
84	Nahorniak (2020)	✓			
86	NMC (2021)	✓	✓	✓	✓
88	Oppenheim (2020)	✓	✓	✓	
89	Oppenheim (2021)	✓	✓	✓	✓
90	Ostlere (2020)	✓	✓	✓	✓
91	Ozcevik Subasi et al. (2021)		✓	✓	
95	RCM (2020a)		✓		✓
96	RCM (2020b)				✓
97	RCM (2020c)			✓	
98	RCM (2020d)		✓		
99	RCM (2020e)	✓			
100	RCM (2020f)	✓			
101	RCM (2020g)			✓	
102	RCM (2020h)	✓	✓		✓
103	Renfrew et al. (2020)	✓	✓	✓	✓
104	Renfrew et al. (2021)			✓	
105	Retka (2020)		✓	✓	
106	Reyes (2021)	✓	✓	✓	✓
107	Ribner (2020)	✓	✓		✓
108	Rivers (2020)		✓	✓	✓
109	Ryan (2020)		✓	✓	✓
110	Salaudeen (2020)	✓	✓		✓
112	Scheier (2020)			✓	
113	Schipani (2020)	✓	✓	✓	
114	Scott (2020a)		✓	✓	
115	Scott (2020b)		✓	✓	
116	Scott (2020c)	✓		✓	✓
117	Selcuk Tosun, Akgul Gundogdu & Tas (2021)	✓	✓		
118	Semu-Banda (2020)	✓	✓	✓	
119	Sherwood (2020)			✓	
120	Sibonney (2020a)	✓			✓
121	Smith (2020a)				✓
122	Smith (2020b)	✓	✓	✓	
123	Smith (2020c)		✓		
124	Smith (2021)				✓
126	Talbot (2020)		✓		
128	Thomson (2020)	✓	✓	✓	✓
129	Tugores & Wiseman (2020)	✓		✓	
130	Turphy (2020)			✓	✓
131	Uzun et al. (2020)		✓	✓	
132	Vinaver (2020)		✓		
133	Vinga (2021)	✓		✓	✓

Total number of papers in review n=181					
Personal Impact on Midwives Number of papers contributing to theme: n=136 (75%)		SUB-THEMES:			
		Fear	Emotional Toll	Impact on Home-Life	Value of Job
Nº	Reference	n=88 (49%)	n=75 (41%)	n=79 (44%)	n=56 (31%)
134	Wade (2021)			✓	✓
136	Williams (2020)		✓	✓	✓
138	Wyton (2020)		✓	✓	✓
139	Yoruk & Guler (2021)	✓	✓		
LOW-QUALITY PAPERS		18 papers	9 papers	17 papers	8 papers

3.1.3.1 Fear

Many midwives globally spoke of constant fear (Aksoy and Kocak, 2020), primarily of getting COVID-19 (McCann, 2020). This was exacerbated by reports of COVID often being asymptomatic (Oppenheim, 2020), increasing the fear of catching COVID (Ostlere, 2020), or spreading it unknowingly to women (Akoorie, 2020) or to their own families ('Birth and midwifery in a time of COVID', 2020). Several midwives expressed increased fear due to women being unwilling or unable to follow social distancing recommendations (RCM, 2020h). Black, Asian and Minority Ethnic (BAME) midwives in particular expressed fear of getting COVID, especially given evidence of the increased risk of COVID to BAME people, and were more likely to report feeling unsupported by management or discriminated against (BAME Maternity Workforce, 2020).

“As midwives, we put our lives at risk to save the mother and the baby. That is what we always do but on this, it was not easy ... I’m always scared because I might get the virus. But I continue working so that I save the lives of the mothers and babies.” Midwife, Uganda ('Midwives ensuring safe delivery under COVID-19', 2020)

Fear of the unknown was another commonly cited concern (Oparah et al., 2021), with the start of the pandemic in particular characterised by uncertainty and panic (Alnuaimi, 2021). With the reduction in face-to-face appointments, and more care provided via telehealth, several midwives globally expressed the fear of ‘missing something’ (Godfrey-Isaacs, 2020), usually attributed to missing non-verbal cues (Galle et al., 2021). Midwives also voiced fears of doing something wrong clinically (O’Connell et al., 2020), particularly following a role change (ICM, 2020b). Midwives worldwide discussed increased fear of obstetric emergencies

(Bradfield et al., 2021a), with some fearing or perceiving an increase in complications (Alonso et al., 2021), and others fearing managing emergencies with the added challenge of PPE (Semaan et al., 2020) and COVID restrictions (Chowdhury et al., 2020).

Some midwives reported a fear of interacting with clients, as midwives in the UK (Lewis, 2021), Canada (Sibonney, 2020b), Mexico (Alonso et al., 2021) and Australia (Bradfield et al., 2021a) experienced increased abuse and aggression from women and their families, due to changes to care and hospital policies. A few midwives also discussed fear of their own safety within the context of widespread panic throughout the community (Alonso et al., 2021), with some experiencing social stigma as healthcare professionals, perceived as potential carriers of COVID-19 (Bar-Zeev et al., 2020).

“I’ve never been treated worse or received more abuse from patients and their families than during this time” Midwife, Australia (Bradfield et al., 2021a)

3.1.3.2 Emotional Toll

Many midwives globally described the emotional toll the pandemic had taken on them ('Homebirth vs the pandemic', 2021). Increased stress was the most commonly reported effect (Yoruk and Guler, 2021), however some midwives also suffered depression (Liu et al., 2020b), anxiety (Aksoy and Kocak, 2020), panic attacks (Alnuaimi, 2021), and disturbed sleep (Liu et al., 2020b). Midwives (Smith, 2020b) and managers (BAME Maternity Workforce, 2020) alike reported feeling overwhelmed by the entire situation. A few midwives described feeling isolated from colleagues, families and friends (Millar, 2020).

A sense of physical and emotional exhaustion was commonly expressed (Oppenheim, 2021), exacerbated by widespread reports of annual leave being cancelled due to staffing levels (Carter, 2020). Some midwives felt they or their colleagues were experiencing burnout (Benaglia and Canzini, 2021), with Canadian midwives describing being “stretched to breaking point” (Wyton, 2020).

“Being constantly run off my feet, stressed with high caseloads, working all hours, bringing work home, lack of encouragement and being fearful of missing something, not

being able to do a good job ... figured more or less constantly in my work.” Midwife, UK (West, Bailey and Williams, 2020)

A number of midwives described feelings of helplessness (NMC, 2021), particularly the moral distress of wanting to provide quality care but being impotent to do so (Hunter, Renfrew and Downe, 2020), and being unable to improve the situation for women (Halauafu, 2020) and colleagues (Lewis, 2020). Midwives in the UK (NMC, 2021), Ireland (Hughes, Dunne and Moyles, 2020), Chile (Leiva et al., 2021) and Jordan (Alnuaimi, 2021) described the guilt this caused – a feeling that was particularly reported by managers and midwives who were shielding (Hayes, 2020b). Some midwives explicitly stated not feeling guilty, recognising that they were not to blame for the situation (Halauafu, 2020), but expressed intense sympathy and concern for women (Semaan et al., 2020).

“My eyes hold back the tears of frustration, I am sorry I can’t be the midwife you need, the midwife I want to be.” Midwife, UK (Hayes, 2020b)

Some midwives felt the pandemic increased their awareness of the importance of self-care (Semu-Banda, 2020), and American midwives in particular spoke of the value of faith during difficult times (Oparah et al., 2021). One positive outcome of the pandemic was identified by midwives from the UK (NMC, 2021), Ireland (Moyles, 2020), USA (Ribner, 2020), Puerto Rico (Reyes, 2021) and New Zealand (Pihema, 2020), who felt that it increased their self-awareness of strength and resilience that was not realised previously. Some midwives described working throughout the pandemic as being empowering (Scott, 2020b) and inspiring confidence for facing the future (Scott, 2020a).

3.1.3.3 Impact on Home-Life

Midwives found their home lives affected in a number of ways. Numerous midwives worldwide were infected with COVID whilst working (Jarman, 2020) and a number have died as a result (ICM, 2020c). This carried with it the impact of associated elements including needing to take sick leave (Oppenheim, 2021), transmitting the disease to family and friends (Alonso et al., 2021), and, for some, suffering the ongoing effects of Long COVID (Raveendran, Jayadevan and Sashidharan, 2021).

Many midwives reported changing their habits at home to reduce the risk to their families (Lewis, 2020). Most commonly mentioned measures related to clothing (changing out of uniforms and shoes before entering their homes ('A new style of midwifery', 2020), changing outfits throughout the workday (Alonso et al., 2021)) and cleaning (increased hand washing (Davis-Floyd, Gutschow and Schwartz, 2020b), showering when coming home ('Birth and midwifery in a time of COVID', 2020)). Some midwives made the difficult decision to socially distance themselves from family members by staying in hotels (Dixon, 2020), sending children away (Ellingson, 2020), or not seeing elderly parents (Bradfield et al., 2021a). Other midwives maintained self-imposed isolation (Homer et al., 2021) or avoided public places (Lewin, 2020).

"I am the only Black provider in the group space where I practice, I essentially live in complete isolation when I'm not with my clients because I know that if I get COVID-19 and get sick and even if I'm just gone for two weeks, who will care for them?" Midwife, USA (Oparah et al., 2021)

Midwives who were parents reported particular difficulties. Some described "sneaking" into their own homes to shower before seeing young children (Ostlere, 2020, p.1), while others discussed the challenge of schools closing, and difficulties with childcare at a time when they were being asked to work longer hours (Hunter, Renfrew and Downe, 2020).

"My ultimate challenge during the COVID-19 pandemic was trying to juggle being a midwife and a mother" Midwife, New Zealand (Halauafu, 2020)

A number of independent midwives reported financial difficulties due to the pandemic. This was attributed to the added expenses of PPE (Ryan, 2020), cleaning materials (Scott, 2020c) and telehealth costs (Dixon, 2020), reduced subsidies or grants from government sources (Alonso et al., 2021), and the loss of earnings from sick leave, quarantine or childcare requirements (Wyton, 2020). Some midwives described subsidising care given to women who were unable to afford it, due to their own financial difficulties caused by the pandemic (Schipani, 2020).

3.1.3.4 Value of Job

A number of midwives discussed the sense of value in their job, although this varied greatly in whether it was perceived positively or negatively. Some midwives reported feeling fortunate to have a job, when others were being laid off or furloughed due to the pandemic (McCann, 2020). A number reported a deep sense of pride in their job, and pride in their colleagues and profession for continuing to provide care despite the pandemic (Chimbwanda, 2020). A number of midwives felt their care was appreciated by women and families (RCM, 2020b).

"I am immensely proud to work in a service that maintained most services for women giving birth during the COVID-19 pandemic" Midwife, UK (Carter, 2020)

There were significantly more reports of midwives feeling negatively about the value of their profession (Bradfield et al., 2021b). For some midwives, their perceptions varied as their roles changed. For midwives who were forced to follow guidelines that they felt contradicted their professional values, a decrease in job satisfaction was reported, along with a sense of moral distress (Benaglia and Canzini, 2021).

There were widespread reports of midwives globally feeling unappreciated and disillusioned with the profession (RCM, 2020h), with reports from Canada (Ellingson, 2020), Puerto Rico (Reyes, 2021), Mexico (Alonso et al., 2021) and New Zealand ('Standing Up For Community Midwives', 2020) that midwives were not recognised by their governments as essential frontline health-workers, and were therefore not given the same access to PPE or protection as other healthcare professionals. In countries where bonus payments were made to reward healthcare workers for their service during the pandemic, midwives were often excluded (Wyton, 2020).

USA midwives reported an alternative experience: in some states where private midwifery practice had previously been illegal, laws were changed to facilitate their practice (Davis-Floyd, Gutschow and Schwartz, 2020b); where midwifery was legal, midwives had still felt excluded from mainstream maternity care (Nguyen et al., 2020). These American midwives reported feeling resentful that they had previously been overlooked and denigrated, until

they were suddenly vitally needed at the healthcare system's convenience (Davis-Floyd, Gutschow and Schwartz, 2020a).

As a result, there were numerous reports globally of midwives considering or intending to leave the profession (RCM, 2020a), with the pandemic perceived as the 'straw that broke the camel's back' (West, Bailey and Williams, 2020).

"More recently the anger has set in; the total lack of support from the government ... It has finally and irrevocably dawned on me just how undervalued the work I do is" Midwife, New Zealand (Halauafu, 2020)

3.1.4 Midwives' Perception of Impact on Women

Although this review aimed to identify papers that described midwives' experiences, midwives rarely discussed their own experiences without acknowledging the experience of women. The following theme explores the perception of midwives of the pandemic's impact on women and their families, with particular regards to the clinical, emotional and personal effects. For a full list of which papers contributed to this theme and its sub-themes, see Table 7 (Appendix J).

Table 7: Midwives' Perception of Impact on Women – Papers contributing to each sub-theme

COLOUR KEY: High quality paper Medium quality paper Low quality paper

Total number of papers in review n=181				
Midwives' Perception of Impact on Women		SUB-THEMES:		
Number of papers contributing to theme: n=126 (70%)		Clinical Impact	Emotional Impact	Personal Impact
No	Reference	n=97 (54%)	n=112 (62%)	n=52 (29%)
1	Alnuaimi (2021)	✓		✓
3	Bradfield et al. (2021a)	✓	✓	✓
5	Galle et al. (2021)	✓	✓	
6	Gonzalez-Timoneda et al. (2020)	✓	✓	
7	Harkness et al. (2021)	✓	✓	
8	Homer et al. (2021)	✓	✓	
10	Jardine et al. (2021)	✓		
14	Ombere (2021)	✓	✓	✓

Total number of papers in review n=181				
Midwives' Perception of Impact on Women		SUB-THEMES:		
Number of papers contributing to theme: n=126 (70%)		Clinical Impact	Emotional Impact	Personal Impact
Nº	Reference	n=97 (54%)	n=112 (62%)	n=52 (29%)
15	Oparah et al. (2021)	✓	✓	✓
16	Ozhiganova (2021)		✓	
18	Semaan et al. (2020)	✓	✓	
21	West, Bailey & Williams (2020)		✓	
22	'A new style of midwifery' (2020)	✓	✓	
23	'Birth and midwifery in a time of COVID' (2020)	✓	✓	
24	COVID-19 Survey (2020)	✓	✓	
25	'Homebirth vs the pandemic' (2021)	✓	✓	✓
26	'Midwives ensuring safe delivery under COVID-19' (2020)	✓		
27	Ripe for rebirth (2020)	✓	✓	
28	'Stronger Together' (2021)		✓	
29	'The midwife's story rescued from media's COVID crisis' (2020)		✓	
30	'The Mother of Invention' (2020)		✓	
33	Alonso et al. (2021)	✓	✓	✓
34	Ayres-Brown (2020)	✓	✓	
35	Bailey & Nightingale (2020)	✓	✓	✓
36	BAME Maternity Workforce (2020)	✓	✓	✓
37	Benaglia & Canzini (2021)	✓	✓	✓
39	Caron & Shannon (2020)	✓	✓	✓
40	Carter (2020)	✓	✓	
41	Chimbwanda (2020)		✓	
42	Chowdhury et al. (2020)		✓	
43	Coxon et al. (2020)	✓	✓	✓
44	Crowther et al. (2021)	✓	✓	
45	Dahlen, Kumar-Hazard & Chiarella (2020)	✓	✓	✓
46	Davis-Floyd, Gutschow & Schwartz (2020a)	✓	✓	✓
47	Davis-Floyd, Gutschow & Schwartz (2020b)	✓	✓	✓
48	Dinsdale (2020)	✓	✓	
49	Dixon (2020)	✓	✓	
50	Dulfe et al. (2021)		✓	
51	Eddy (2020)	✓	✓	
52	Einion-Waller, Lord & Regan (2020)	✓	✓	
53	Ellingson (2020)	✓	✓	
54	Flemming (2020)		✓	
55	Gammon (2020)	✓	✓	
56	Gee (2020)	✓	✓	
57	Ghanchi (2020)		✓	
58	Godfrey-Isaacs (2020)	✓	✓	✓
59	Halauafu (2020)		✓	
60	Hayes (2020a)		✓	✓
63	Henderson (2020)	✓	✓	
64	Hughes, Dunne & Moyles (2020)	✓	✓	
65	Hunter, Renfrew & Downe (2020)		✓	
66	Johariyah et al. (2020)		✓	✓
67	Johnson (2020)	✓	✓	
69	de Freytas-Tamura (2020)	✓	✓	
71	Langlois (2020)	✓	✓	
72	Leiva et al. (2021)	✓	✓	✓
73	Lewin (2020)	✓	✓	✓
75	Lewis (2021)	✓	✓	
77	McCann (2020)		✓	
78	McDonald (2020)	✓	✓	
79	Melendez (2020)	✓	✓	✓
80	Millar (2020)	✓	✓	✓

Total number of papers in review n=181				
Midwives' Perception of Impact on Women Number of papers contributing to theme: n=126 (70%)		SUB-THEMES:		
		Clinical Impact	Emotional Impact	Personal Impact
No	Reference	n=97 (54%)	n=112 (62%)	n=52 (29%)
81	Moore (2020)		✓	
82	Moyles (2020)		✓	
83	Murphy (2020)		✓	
84	Nahorniak (2020)	✓	✓	
85	Nguyen et al. (2020)	✓	✓	✓
86	NMC (2021)	✓		✓
87	Nugget Staff (2020)			✓
88	Oppenheim (2020)	✓	✓	
89	Oppenheim (2021)	✓	✓	
90	Ostlere (2020)	✓	✓	✓
92	Perry (2020)	✓	✓	✓
93	Queensland Government (2020)	✓	✓	
102	RCM (2020h)	✓	✓	
103	Renfrew et al. (2020)	✓	✓	
105	Retka (2020)	✓	✓	✓
106	Reyes (2021)	✓	✓	✓
107	Ribner (2020)	✓		
109	Ryan (2020)	✓	✓	
110	Salaudeen (2020)		✓	✓
111	Samara Kalk (2020)	✓	✓	
112	Scheier (2020)	✓	✓	✓
113	Schipani (2020)	✓	✓	✓
114	Scott (2020a)	✓	✓	
115	Scott (2020b)		✓	
116	Scott (2020c)	✓	✓	
119	Sherwood (2020)	✓		
120	Sibonney (2020a)	✓	✓	✓
122	Smith (2020b)	✓	✓	✓
123	Smith (2020c)	✓	✓	✓
125	Stewart (2020)	✓	✓	✓
126	Talbot (2020)		✓	
127	Terzon (2020)	✓	✓	✓
128	Thomson (2020)	✓	✓	
129	Tugores & Wiseman (2020)	✓		✓
130	Turley (2020)	✓	✓	✓
132	Vinaver (2020)	✓	✓	✓
135	Wainer (2020)	✓	✓	
136	Williams (2020)		✓	
137	Wu (2020)	✓	✓	✓
138	Wyton (2020)	✓	✓	
LOW-QUALITY PAPERS		18 papers	18 papers	12 papers

3.1.4.1 Clinical Impact

A number of papers globally mentioned the human and legal right of women to receive quality maternity care (ICM, 2020b), with much discussion around what this constituted (Romanis and Nelson, 2020). Some midwives felt personally accused by women of impinging on this right ('Homebirth vs the pandemic', 2021), whereas other midwives perceived this

right as being violated by hospital or government policy (Melendez, 2020), and felt their duty was to advocate for women's rights to birth choices, regardless of any other factors (Stewart, 2020).

Midwives globally reported that many women were afraid to attend hospital (Ayres-Brown, 2020) and were expressing more interest in giving birth at home (Ryan, 2020) or in birthing centres (Davis-Floyd, Gutschow and Schwartz, 2020b). Independent midwives on every continent reported an increase in enquiries about community-based midwifery-led care ('Ripe for rebirth', 2020). Where community midwifery was not available or not affordable, midwives reported more women accessing traditional birth attendants (Ombere, 2021) or, in the UK (Romanis and Nelson, 2020), USA (Ayres-Brown, 2020) and Australia (Bradfield et al., 2021a), choosing to freebirth (giving birth without professional assistance).

Midwives expressed concerns about women altering their birth plans at a late stage of pregnancy (Nahorniak, 2020), feeling that more women were choosing these options out of fear of attending hospital rather than because they genuinely wanted to give birth in an out-of-hospital setting (Alonso et al., 2021).

"When couples came to me and had decided on a homebirth because of Covid-19, it usually was not a long or well-thought-out process that was driving the decision. It was made out of fear. Decisions made out of fear are not really decisions at all, are they? They are forced reactions." Midwife, USA (Wainer, 2020)

This view was frequently cited alongside concerns around women choosing home- or freebirth who were clinically 'unsuitable' (Wainer, 2020), and the fear or perception of an increase in obstetric emergencies (Alonso et al., 2021). Many midwives reported women experiencing a loss of control, as hospitals suddenly changed guidelines on what or who was 'allowed' at a birth (Caron and Shannon, 2020), and perceived women accessing midwives positively as regaining control over their birth (Vinaver, 2020). Other midwives perceived women regaining control by requesting induction of labour or elective caesarean section (Johnson, 2020).

The majority of midwives felt attendance had decreased at clinical appointments ('Ethiopia's Midwives Grapple With the COVID-19 While Ensuring Safe Delivery', 2020), with women avoiding routine appointments at hospitals and clinics (Jardine et al., 2021), or declining home visits (Tugores and Wiseman, 2020). There were also global reports of reduced attendance for emergency care (Bailey and Nightingale, 2020), which was perceived as detrimental to maternal and neonatal health (Pallangyo et al., 2020). This reduction in triage attendance was often ascribed to fear of attending (Johnson, 2020), transportation difficulties ('Midwives ensuring safe delivery under COVID-19', 2020), and lack of childcare (Bailey and Nightingale, 2020).

“Strict night time curfews have confined women to their homes, and on one night in April 2020, four women died due to delays accessing emergency obstetric and newborn care because of these strict curfews” Midwife, Kenya (Bar-Zeev et al., 2020)

3.1.4.2 Emotional Impact

Midwives perceived a range of emotional effects on pregnant and postnatal women, with the most common one being fear (BAME Maternity Workforce, 2020). In addition to being afraid of attending hospital, midwives perceived women as being afraid, like themselves, of catching COVID (Garcia de Frutos, 2020) and the uncertainty of the rapidly evolving situation (Nahorniak, 2020). For women, this resulted in fear of their birth preferences not being respected, and midwives widely reported women seeking more information and reassurance from them (Halauafu, 2020). Some midwives felt women were more isolated, as they were unable to access support from family, friends or groups (Scott, 2020a). Midwives globally reported trying to compensate for these effects by increasing the amount of emotional support they provided to women (Dixon, 2020).

A small number of midwives felt women were appreciative of the care they provided (Queensland Government, 2020). Another positive impact on women was the perception that they became more empowered (Henderson, 2020). As hospital attendance decreased, midwives felt women were taking more charge over their care – researching options, performing their own examinations (such as home blood pressure monitoring) (Reyes,

2021), and realising they had choices such as homebirth or declining induction ('Birth and midwifery in a time of COVID', 2020). Independent midwives reported not being allowed to accompany women into hospital, instead encouraging women to advocate for their own needs, whereas previously they might have done so on their behalf (Oparah et al., 2021).

“Patients are now in the position where they are the ones taking their own vitals, monitoring their own pregnancies, and guiding their own (virtual) appointments, leading up to and in preparation for birth.” Midwife, Puerto Rico (Reyes, 2021)

The final key emotional response midwives observed in women was anger and frustration. Midwives felt many women were angry about hospital policies being changed (RCM, 2020h), with a very small minority recognising the need for such changes (Johnson, 2020). Midwives noted anger especially around support people being allowed to attend hospital (Bradfield et al., 2021a). Midwives reported bans or limits on birth companions, hospital visitors and partners or children attending appointments and scans (Coxon et al., 2020). Midwives from every continent felt this was the biggest area of concern for pregnant women, and resulted in worry (Gee, 2020), stress (Smith, 2020c), anger (Lewis, 2021) and aggression (Moore, 2020). Some midwives also felt women had been or had perceived being neglected by maternity healthcare professionals (Millar, 2020).

Some midwives also expressed empathy for fathers, with particular regard to them not being allowed into appointments or hospitals (Thomson, 2020), and feeling that this could potentially impact on their bond with their baby (Ostlere, 2020).

3.1.4.3 Personal Impact

Midwives reported a range of behaviour changes and restrictions on women throughout the pandemic – many of them similar to issues affecting midwives themselves. Some midwives described providing women with more social support (Bailey and Gaskin, 2021) as they witnessed them struggling to acquire adequate PPE (Leiva et al., 2021), access childcare (Bailey and Nightingale, 2020), and get basic supplies including food and baby items (Vinaver, 2020). Midwives in the UK (BAME Maternity Workforce, 2020), USA (Oparah et al., 2021) and Australia (Bradfield et al., 2021a) felt that BAME, non-English speaking, and socio-

economically disadvantaged women were disproportionately affected by the pandemic, due to financial difficulties (Caron and Shannon, 2020) and communication challenges when using telehealth (BAME Maternity Workforce, 2020).

Domestic abuse was mentioned as an area of global concern; midwives feared more cases going undetected, due to decreased face-to-face attendance, and fewer opportunities to ask routine enquiries when using telehealth (Coxon et al., 2020). Some midwives also felt unwanted pregnancies were more common (Semaan et al., 2020), as contraception and abortion services were frequently among those cancelled (ICM, 2020b).

A number of midwives voiced fears around the long-term implications of the pandemic for women (Bailey and Nightingale, 2020), with maternal mental health (Millar, 2020) and parent-infant bonding (Bailey and Nightingale, 2020) being identified as the two biggest concerns.

“There will be consequences as a result of this that we don’t fully understand yet.”

Midwife, New Zealand (Eddy, 2020)

3.1.5 Cross-Cutting Themes

In addition to the four main themes identified, two additional themes became apparent, weaving throughout all the other topics: tension between different areas, and the potential for change in the future.

3.1.5.1 Tension

Tension was a very common denominator, both implicitly and explicitly, throughout almost all of the papers reviewed. This underlying tension caused stress and sometimes guilt within midwives, as they struggled to continue with their role despite the internal conflict. A few examples of the tension experienced will be explored.

Midwives were widely advised to enforce social distancing, although many felt touch and physical contact to be integral parts of maternity care (Bradfield et al., 2021a). Some

midwives reported ignoring guidelines (de Freytas-Tamura, 2020), while others enforced them but felt guilty or inadequate with the care they were providing (Oparah et al., 2021).

“Restrictions in the labour rooms to minimise visitors are in place, meaning that women need more psychological support as they go through their ‘journey’ with no relatives, and without emotional and non-verbal cues, other than eye contact with their midwives who try to provide empathetic care.” Kenya, Tanzania & Uganda (Pallangyo et al., 2020)

Many recommendations also advocated limiting face-to-face contact, with a common suggestion of keeping appointments to less than 15 minutes (Gee, 2020). However many midwives felt that not only were their usual tasks taking longer due to increased PPE and cleaning (Dixon, 2020), but that women needed more emotional support (Scott, 2020a). As a result, midwives felt they needed longer appointments than pre-pandemic (Hughes, Dunne and Moyles, 2020).

“They felt that their role was to provide emotional support for pregnant women, at a time when they were being asked to keep physical contact to a minimum.” Spain (Gonzalez-Timoneda et al., 2020)

Midwives widely perceived women as being afraid of attending hospital, and significantly more interested in community-based care and homebirth ('A new style of midwifery', 2020). However many hospitals cancelled or limited their community services (Renfrew et al., 2020), and withdrew homebirth provision (Byrom, 2020).

“Some units across the UK had been forced to centralise maternity services, refuse care to those choosing to birth at home and stop birth partners during labour. These prospects prompt some women to express their concerns and fears of hospital births...and claim intentions to free birth.” UK (Garcia de Frutos, 2020)

Telehealth was increasingly used by midwives (Bailey and Nightingale, 2020), however many found it an unsuitable and inadequate substitution for face-to-face care (Klamroth-Marganska et al., 2021). This was of particular concern as midwives were aware that domestic abuse rates were increasing (Shahid, 2020), yet felt unable to ask routine enquires

over phone- or video-conferencing (Bailey and Nightingale, 2020). Where midwives did discuss domestic abuse with women, they feared missing non-verbal cues of concern (Halauafu, 2020).

“I don't like offering remote care. I feel that if you are not seeing the non- verbal cues and facial expression of your patient, you will not truly know if they are ok.” Midwife, Nigeria (Galle et al., 2021)

The majority of midwives used increased amounts of PPE to protect themselves (Davis-Floyd, Gutschow and Schwartz, 2020b), but many found it deteriorated the quality of care they could provide (Alnuaimi, 2021), and their ability to develop a relationship with women (Benaglia and Canzini, 2021). Some midwives felt forced to choose between their own safety versus the well-being of women and their pregnancy and birth experiences (Halauafu, 2020).

“How do we protect the essence of midwifery care from 6 feet away, behind face shields and N95 masks?” Midwife, USA (Murphy, 2020)

“We're doing our best to balance our personal safety and the safety of our families, with keeping this life-changing event as magical and joyous as we can.” Midwife, USA (Henderson, 2020)

Many hospital midwives reported an institutional aim of reducing the length of admission for women post-birth (Dulfe et al., 2021). However they also witnessed increased intervention, including more caesarean sections, which result in a longer postnatal hospital stay (Reyes, 2021).

“Here we are trying to make an early discharge, to speed up the discharge of these women as much as possible” Midwife, Brazil (Dulfe et al., 2021)

“Women's labors [sic] were being accelerated unnecessarily (programmed induction of labor [sic], routine Pitocin [oxytocin], instrumental deliveries); were given a planned cesarean [sic] as their only option for birth” Chile (Leiva et al., 2021)

Many midwives identified the support of their colleagues as essential (Millar, 2020), however many also reported fewer team meetings or gatherings, where previously they would have accessed social support from their colleagues and managers (Hayes, 2020a).

"We recently had a Zoom gathering of midwives in our area and spent some time just sharing our feelings and fears, crying, and comforting one another ... I had thought that I was alone with the intensity of my feelings, but here were my sister midwives sharing similar anxieties and comforting one another as only a midwife can do." Midwife, USA (Smith, 2020b)

"Before the crisis, we used to have breakfast and coffee together, but now, I bring my sandwich and water bottle from my home...we do not prepare coffee at work now" Midwife, Jordan (Alnuaimi, 2021)

Midwives similarly identified the support of family and friends as vital in coping with the challenges of the pandemic (Uytenbogaardt, 2020b), but many felt forced to self-isolate from family members to protect them (Murphy, 2020). Midwives particularly spoke of the guilt of their vocation impacting on their children's lives, and the tension between being a midwife and a parent (Halauafu, 2020).

"We were apart for three months and I would try and speak to [my husband and son] every day but sometimes it wasn't possible. The toughest times were if [my son] started to cry while on FaceTime, that was difficult for me." Midwife, UK (Lewis, 2021)

3.1.5.2 Potential for the Future

Midwives frequently spoke about their experiences of the pandemic in the context of what the future might look like. This was perceived both positively and negatively.

Some midwives viewed aspects of change due to the pandemic positively, and felt hopeful that they might persist in the future (NMC, 2021). Midwives felt they had risen to the challenge and proven their worth as a profession (Walton, 2020). Some perceived the pandemic as a chance to challenge the status quo (Vinaver, 2020) and explore creative and

innovative solutions (Hunter, Renfrew and Downe, 2020), which would not have been possible in pre-pandemic times.

Private midwives in the USA experienced an explosion of interest and felt many more women were considering their services, who would previously not have done so (Wainer, 2020). They frequently reported feeling hopeful that this interest might outlast the pandemic and advance midwifery in the USA significantly ('Ripe for rebirth', 2020). In some areas, the law was changed to facilitate midwifery-led care (Davis-Floyd, Gutschow and Schwartz, 2020b).

The perceived postnatal benefits were cited as an element that some midwives wanted to retain (Bradfield et al., 2021a). Although some recognised that restricted visiting was a return to more 'old-fashioned' hospital policies (Johnson, 2020), the benefits to women and babies were perceived by some midwives as outweighing the disadvantages of partially excluding fathers and reduced familial support for women (Thomson, 2020).

A number of midwives felt telehealth worked very well within maternity ('COVID-19 Survey', 2020a). Although most believed they were best used to complement face-to-face attendances, and not as a substitution (Eddy, 2020), virtual appointments were lauded as being convenient for women ('The Mother of Invention', 2020) and facilitating multi-professional working ('The Digital Revolution', 2020). Some midwives felt virtual antenatal classes increased attendance from those reluctant to attend an in-person group (Einion-Waller, Lord and Regan, 2020), or enabled more widespread breastfeeding support ('The Mother of Invention', 2020). Some midwives from lower-income countries felt telehealth increased access for women, improving morbidity and mortality:

“Through phone calls to postnatal mothers on breastfeeding, cord care, and thermal care, babies have survived although they were not able to access the health facilities for postnatal care” Nurse-midwife, Uganda (Galle et al., 2021)

Some midwives however felt the future of the profession would be negatively impacted by the pandemic. A common fear was that non-evidence-based changes that were made to guidelines in the chaotic beginnings of the pandemic might remain (Renfrew et al., 2020).

This was particularly raised with regards to fewer face-to-face appointments. Some midwives expressed concern that as maternity services had managed to continue with fewer face-to-face appointments, managers and executives might wish to continue this as a cost-cutting measure (Bradfield et al., 2021a). Midwives feared that reducing appointments or replacing them with virtual appointments risked underestimating the importance of relationship-building within midwifery care, and that although maternity services had continued, they were poorer for these changes (Eddy, 2020).

“My main worry with COVID-19 isn’t now, it’s a future issue. I feel management will see the changes made...as economically beneficial and it will be difficult to revert back”

Midwife, Australia (Bradfield et al., 2021a)

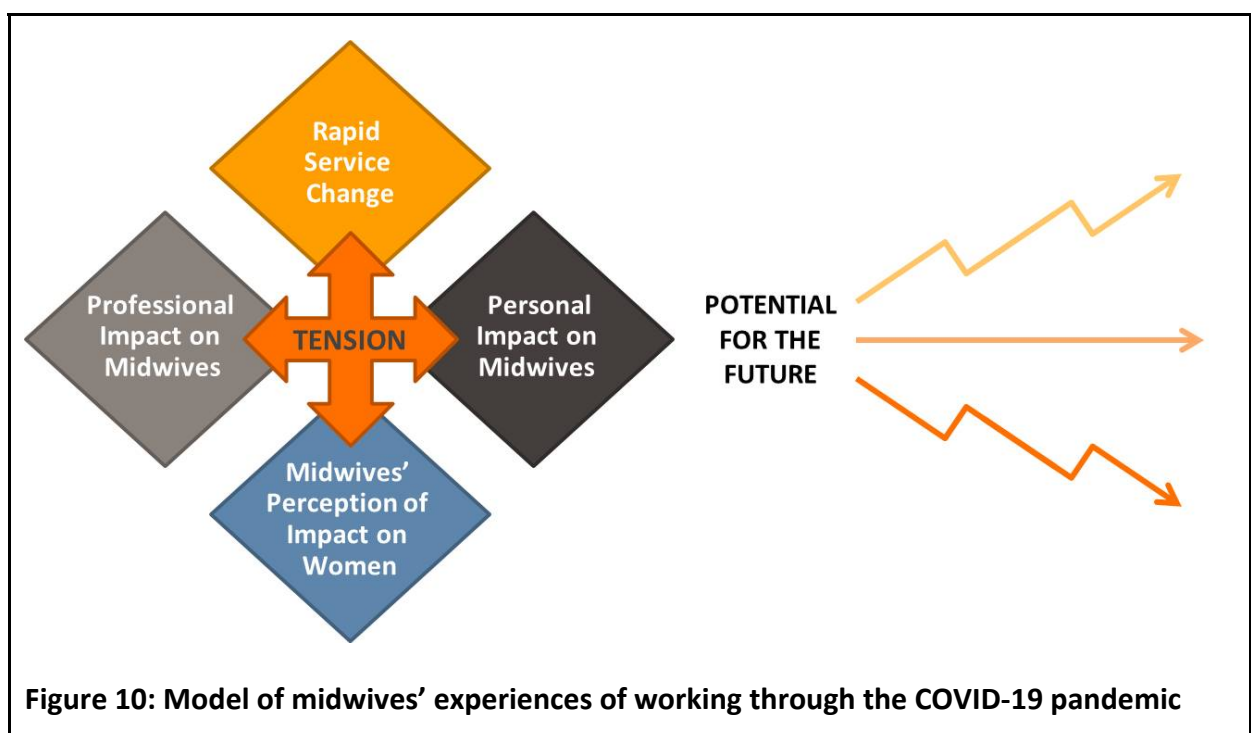
An additional concern voiced by many was the midwife shortages that existed previously and worsened during the pandemic. As increasing numbers of midwives report feeling disillusioned with the profession and are considering or intending to leave, the future prospects of maternity care are viewed by many as bleak (Wyton, 2020). For some midwives, the pandemic shone a light on how the profession was viewed and valued by their government, and many felt disappointed by what they perceived to be a lack of appreciation or understanding of the importance of midwifery care (Crowther et al., 2021).

“Funding deficits are one thing, but they cared nothing for our protection, still have no understanding of what our work entails and how much money we actually save the health system by doing what we do while literally throwing money at other health care workers... I am seriously re-thinking 2021 and whether or not I continue in this role and that’s the first time I have ever had those thoughts.” Midwife, New Zealand (Halauafu, 2020)

4 Discussion

It is clear from this review that the pandemic has had, and continues to have, a huge impact on midwives. COVID-19 appears to be a great equaliser as midwives across the globe, from high- to low-income countries reported remarkably similar experiences and challenges. Unsurprisingly, midwives clearly felt the effects of the pandemic on both their professional and personal lives. A study into resilience in midwifery found self-awareness and identity as a key feature among midwives: *“A midwife is what I am. It’s written through my body like a stick of rock.”* (Hunter and Warren, 2014, p.930). As the world changed and many were furloughed, midwives continued to provide care, reflecting on what their vocation meant to themselves and the world, and balancing their profession with their personal risk.

Based on the findings of this review, a model was developed (Figure 10) to show the impact working during the COVID-19 pandemic had on midwives, which will be discussed further in this chapter, along with recommendations for future crises, which are summarised in Table 8. This chapter will also consider the strengths and limitations of this review, and relevant areas for future research.



The start of 2020 was characterised by widespread uncertainty and fear, due to the rapid progression of the COVID-19 pandemic (Vindrola-Padros et al., 2020). However, while COVID-19 was unprecedented, a global pandemic had been predicted for years, with the only unknown being when it would occur (Mellish, Luzmore and Shahbaz, 2020). A 2019 report stated the world was ill-prepared for an inevitable pandemic (Global Preparedness Monitoring Board, 2019). A 2016 influenza pandemic exercise conducted in the UK identified that the UK and NHS were unprepared for a pandemic (Public Health England, 2017), although this report was deemed “too terrifying” for publication, and was concealed until it was leaked to the national press in 2020 (Gardner and Nuki, 2020). As the COVID-19 pandemic de-escalates and many countries move to a ‘living with COVID’ stage (Cabinet Office, 2022), it is vital to reflect on the short- and long-term impact of the pandemic on midwives, and for NHS maternity services to prepare for the next epidemic or pandemic.

This review identified numerous changes to the working lives of midwives, ranging from changes to workloads and the content of clinical care, to the provision and nature of maternity services. While change may be unavoidable at the start of a pandemic, many papers in this review showed midwives feeling overwhelmed at the amount and speed of change. It is important to provide staff with as much time as possible to prepare for any changes, even when situations are changing rapidly, to avoid or alleviate change fatigue (Nilsen et al., 2020), which can cause exhaustion, apathy, powerlessness, burnout, a perceived increase in clinical work, and a sense of repeated and ongoing self-sacrifice (McMillan and Perron, 2020). These feelings are exacerbated in a hierarchical structure, where frontline staff can feel powerless to influence the changes being imposed on them (Nilsen et al., 2020).

This review also showed some midwives disagreeing with or being uncertain about decisions that had been made. Managers must ensure clear lines of communication with staff to keep them well informed, especially during periods of rapid change (Billings et al., 2021). It is important to clearly communicate the background reasoning behind any changes being made, and facilitate safe feedback channels to allow midwives the opportunity to respond and influence changes that affect them (Nilsen et al., 2020).

A number of recommendations for maternity care based on best evidence and service user feedback (Ministère de la Santé et de la Protection Sociale, 2004; Commonwealth of Australia, 2009; Cumberlege, 2016; Ministry of Health, 2022) were identified in this review as services that were stopped or reduced during the pandemic, including choices for women (eg. homebirth and community-based services), continuity of carer models, postnatal care, and perinatal mental health provision. While the early pandemic was a very challenging time (Bailey and West, 2020) that demanded rapid decision-making, some policy changes were perceived as 'knee-jerk' reactions that were slow to be corrected (Khashu et al., 2020; van den Berg et al., 2021). Where policy decisions are made rapidly, it is crucial they are assessed and reviewed, with feedback gathered from staff and service users, to ensure continuously evolving policies that remain appropriate and proportionate to the current situation (Schippers and Rus, 2021). It is also essential that when the pandemic ends, maternity managers create a systematic crisis management plan prior to the next crisis, to aid in decision-making and reduce the likelihood of reactionary decision-making (van den Berg et al., 2021). It is advisable to fully integrate community provision into maternity services, to facilitate choices for women, options for healthcare provision, and service-wide resilience (van den Berg et al., 2021).

Additionally, closing and re-opening services causes challenges for midwives including redeployment, change in job role, and uncertainty of the future of their role, adding to the uncertainty caused by the pandemic. Effective communication from management is even more important in these situations, ensuring redeployed staff are kept informed and supported, and have as much notice as possible when they are returning to their previous roles (Walker and Gerakios, 2021). When being redeployed or resuming previous roles, midwives are likely to need support and a settling-in period to adjust to the changes they are experiencing (Walker and Gerakios, 2021).

This review evidenced emotional and mental challenges for midwives during the pandemic. Midwives reported wide-ranging effects on their mental health, similar to those reported by nurses and doctors working through the pandemic (Muller et al., 2020). Midwives working in developing countries or with women with more complex needs are even more likely to

experience psychological distress (Pezaro et al., 2016). While it is essential that midwives' mental wellbeing is supported by top-down systemic initiatives, a number of barriers may exist to prevent midwives accessing such support. Stigma around mental illness in healthcare professionals is a major barrier to staff seeking or accepting psychological support (Adams et al., 2010). Where hospitals provide access to counselling services, healthcare professionals frequently demonstrate reluctance, or may deny needing such services (Chen et al., 2020). During a pandemic, brief interventions may be more effective (Shorey and Chan, 2020). Some employers provided healthcare staff with subscriptions for wellbeing apps that could be completed in private, in small chunks, such as Headspace for mindfulness and meditation (Headspace, 2022) or Sleepio, which uses cognitive behavioural therapy (CBT) to improve sleep (Big Health, 2020). If there is a lull in the pandemic and time is more available, comprehensive programmes may be more acceptable, such as the Programme for the prevention of post-traumatic stress disorder in midwifery (POPPY) (Slade et al., 2018). As team cohesion is also highly correlated with mental wellbeing (Maben and Bridges, 2020), providing team sessions can support inter-professional relationships.

Any mental wellbeing programme being offered should be embedded in workplace culture to reduce stigma and increase uptake (Blake, Zhou and Batt, 2013). Feedback should be sought from midwives about their emotional and mental needs, and whether existing solutions are utilised or considered beneficial. The introduction of 'wobble rooms' during the pandemic was designed to facilitate healthcare professionals to have a designated place to rest; however some staff members felt they perpetuated stigma as they did not want to be perceived as someone 'having a wobble' (Billings et al., 2021).

During the pandemic, healthcare professionals may be less likely to access support for their mental health when they are facing physical or practical needs (Muller et al., 2020). This tallies with Maslow's hierarchy of needs (Maslow, 1954), which prioritises physiological needs, and was reflected in this review as midwives reported concerns around the impact of the pandemic on their physical and physiological requirements. Initiatives to support staff with practical concerns include offering free parking, providing snacks and drinks whilst working (Billings et al., 2021), selling groceries within the hospital (Wu et al., 2020), flexible

working hours for staff with transportation or childcare difficulties (Billings et al., 2021), and providing accommodation for staff isolating from their family (Chen et al., 2020). Midwives are more likely to experience emotional distress where they have conflicting demands of personal and professional lives, and overlapping priorities (Dixon-Woods et al., 2014). Staff who need to prioritise their own and their families' needs should be supported to do so, without feeling guilty (McConnell, 2020).

This review identified a number of midwives experiencing tension between the level of care they wanted or felt expected to provide, and the level of care they were able to provide due to pandemic restrictions. This disparity can cause moral distress for both midwives and managers, and lead to trauma, whether primary (such as stigmatisation) or secondary, or vicarious trauma (witnessing harm or distress in the women being cared for). The long-term risks of such trauma include fatigue, chronic traumatic stress, depression, anxiety and PTSD (Eagen-Torkko et al., 2021), and therefore steps must be taken to reduce the potential for moral distress as much as possible, such as developing trauma-informed care practices (Eagen-Torkko et al., 2021).

A study in 1999 described midwives having a strong sense of service and self-sacrifice, disregarding their own needs to prioritise women, and perceiving self-care as 'selfish' (Kirkham, 1999). This review suggests that this culture pervades within maternity, and has been worsened by the pressures of the pandemic. Midwives felt their sense of responsibility and duty of care increased, and appeared, at times, to downplay the significance of their work and sacrifices made, despite claims of feeling unappreciated by women, managers and the government. This suggests that midwives recognise the challenges and sacrifices required by their profession, but downplay such stressors, most likely as a coping mechanism or to publicly demonstrate their resilience (Albott et al., 2020). It is essential that midwives are supported in acknowledging the challenges facing them, and that these issues are not overlooked by management or policy-makers simply because midwives do not openly voice them (Wu et al., 2020).

This review identified midwives feeling they had less peer support, due to decreased contact with their colleagues. It is essential that regular team meetings continue (virtually, if

necessary) or alternative forums are provided for midwives to support each other and share the challenges they are facing (Pezaro et al., 2016), to maintain social connections among teams (Williams et al., 2020). There were numerous reports of midwives feeling unsupported by managers. However, midwifery managers were themselves facing an extremely challenging and unprecedented situation, and reported their own frustration and moral distress at making decisions or enforcing guidelines they disagreed with (Benaglia and Canzini, 2021). To improve management within midwifery in a pandemic, the first step must be to support the managers themselves, so they will then feel able to support the staff for whom they are responsible and provide compassionate leadership (Gab Allah, 2021). The King's Fund (2022) created an online toolkit named 'Leading through Covid-19: supporting health and care leaders in unprecedented times' to facilitate this, which contains a wealth of resources to better support managers.

While most acknowledged the essential nature of PPE, it was frequently cited as a challenge to effective midwifery. PPE can impede communication and relationships between caregivers and patients (Hampton et al., 2020), and a number of innovative solutions emerged, including use of the Duchenne smile ('smiling eyes') (Orsini, 2021), noticeboards of staff photos without PPE (National Healthcare Communication Group, 2021), and writing staff names on surgical caps or aprons to facilitate identification and communication (Douglas et al., 2021). PPE was also frequently cited as a source of discomfort for midwives, and prolonged use can result in fatigue, hypoxia, dehydration, headaches, hyperhidrosis, dizziness, fainting, facial bruises, and urinary retention (Vidua et al., 2020). Ill-fitting PPE can cause increased discomfort, poorer dexterity, and reduced tactile sensation (Davey et al., 2021). It is therefore essential that midwives are supplied with appropriately-sized PPE, and allowed to take frequent breaks for hydration, toileting and comfort. Additionally, any systematic crisis management plan should include appropriate measures to maintain a sufficient supply of PPE, so shortages do not occur at crucial junctures (Liu et al., 2020a).

Pre-existing staffing shortages were exacerbated by the pandemic, resulting in midwives working longer hours or extra shifts, skipping breaks, or returning to clinical practice from retirement. Cramer and Hunter (2019) found strong links between working conditions and

the emotional wellbeing of midwives, with short staffing and high workload contributing significantly to emotional distress. This was worsened by poor support from managers and colleagues, which was another finding of this review. Midwives reported many instances of conflicting demands and unrealistic expectations, both from managers and women, which can lead to a sense of inner turmoil that negatively impacts mental health. Long hours also increase the risk of emotional distress, which may be mitigated by autonomy or flexibility over working patterns, appropriate breaks from work, and satisfaction derived from work (Cramer and Hunter, 2019). Where emotional distress is not addressed or corrected, midwives have increased risk of burnout and leaving the profession; where employers demonstrate commitment to midwives' health and work-life balance, and take positive steps to promote wellbeing, emotional distress was reduced (Cramer and Hunter, 2019).

Midwives' perception of the pandemic's impact on women was a key theme that was raised within the context of midwives' own experiences. This suggests that despite the challenges faced, midwives maintained the experience of women at the centre of their practice, and were acutely aware of the ways the pandemic affected them. Midwifery is a relational profession, with a central principle of being 'with woman' (Bradfield et al., 2019). It has been reported that 97% of midwives gain their job satisfaction by feeling valued by women (Kirkham, Morgan and Davies, 2006). However, the pandemic disrupted the midwife-mother relationship (Eagen-Torkko et al., 2021), which can take an emotional toll on individuals, and impact the morale of the workforce (Oxtoby, 2021). Conflict with patients and families contributes significantly to nurses' emotional distress (Cramer and Hunter, 2019), and midwives are among the NHS staff most likely to experience abuse and violence from service users (Mulholland, 2004; Royal College of Nursing, 2018). Midwives experiencing aggression or abuse must be supported by their managers. It is also imperative that service users' views are sought when changing guidelines, to ensure their priorities and experiences are considered (van den Berg et al., 2021), and the midwife-woman relationship is maintained. While this may not be possible early in a pandemic, it is important to re-establish consultation and feedback from service users as soon as possible (The AHSN Network, 2021). This is more successfully achieved when a healthcare service already utilises co-production and has good integration of service users in policy decisions (The AHSN Network, 2021).

While the majority of midwives' observations of women's experiences were supported by research conducted with women themselves (Atmuri et al., 2021; Riley et al., 2021; Vasilevski et al., 2021; Walklate, Godfrey and Richardson, 2021), there was some disparity in certain areas. The postnatal period was identified as being improved by the pandemic, which some women agreed with (Riley et al., 2021), whereas others felt midwives were too strict with visiting restrictions, and found their time on the postnatal ward unhappy and lonely (Sanders and Blaylock, 2021). This extended to the postnatal period at home, as some women appreciated the protected family time (Jackson et al., 2021), while others found the experience frustrating and socially isolating, feeling 'abandoned' and unsupported by healthcare services, and experiencing a negative impact on breastfeeding (Jackson et al., 2021; Riley et al., 2021). While midwives do appear to be sensitively attuned to the experiences of women, their perceptions were not always entirely accurate. Service user feedback is vital when planning for future pandemics, to ensure maternity care providers understand the actual lived experience of women during this difficult time.

In considering the future, this review identified mixed emotions of midwives. Where services were rapidly changed, midwives expressed concern over a lack of solid evidence-base, and fears that reduced service provision may remain in post-pandemic services. It is essential that maternity care is founded on high quality evidence, and service user and staff needs; changes made during emergency situations must be revised and evaluated as soon as feasible. One example is the introduction of telehealth, which has limited evidence to support its use within maternity services. While it has been found that antenatal telehealth can reduce in-person attendance by up to 50% without affecting maternal and neonatal morbidity and mortality (Palmer et al., 2021), this research did not consider maternal or care-provider satisfaction. Therefore, further research is needed before this technology is integrated into standard post-pandemic practice.

Other midwives felt the pandemic opened doors to innovative and creative solutions that may have been inconceivable beforehand, and felt hopeful that some alternative ways of working may remain or be integrated with previous care models in post-pandemic maternity services. While it is important to continue any creative momentum started during the

pandemic, it is imperative to test new ideas with clinical research and assess acceptability to midwives and women (van den Berg et al., 2022).

This review identified midwives as feeling unappreciated by governmental bodies, in some cases being overlooked in 'essential worker' classifications, or excluded from financial bonuses given to key workers. Such exclusions of midwives may also occur at hospital levels: burnout and emotional exhaustion are typically higher in midwives than nurses, and midwives may receive less emotional support compared to other professional groups (Pezaro et al., 2016). A survey in August 2021 found that 92% of UK midwives felt unappreciated by the government, with 57% of midwives planning to leave the profession (RCM, 2021). While extra funding and recruitment drives may temporarily increase staffing levels, retention is unlikely to improve until midwives feel suitably appreciated and valued in their profession. NHS managers must continue to work with governments and unions to address the worsening staffing crisis, and safeguard the future of safe midwifery care.

Table 8: Summary of recommendations for the current and future pandemics

Impact on midwives	Recommendations for managers
NHS unprepared for pandemic	Create a systematic crisis management plan prior to the next crisis to aid in decision-making and reduce the likelihood of reactionary policies, including plans for an ongoing supply of sufficient PPE Fully integrate community provision into maternity services to facilitate choices for women, options for healthcare provision, and service-wide resilience
Changing services	Ensure clear lines of regular communication to all midwives* Explain the background reasoning behind changes and provide midwives with as much time as possible to prepare for changes Where possible, give midwives the opportunity to influence changes that affect them and provide safe feedback channels Assess any rapidly deployed changes as soon as feasibly possible, ensuring they are in line with best current evidence Continuously assess and review changes, gathering feedback from midwives and women, to continuously evolve policies and ensure they remain appropriate and proportionate

Impact on midwives	Recommendations for managers
Redeployment	Ensure good communication with staff who have been redeployed and give as much notice as possible when returning to original roles Provide support and a 'settling in period' for staff resuming pre-pandemic roles as this can cause anxiety
Lack of contact/support from peers and managers	Continue holding regular team meetings (virtually, if necessary) or encourage alternative forums for midwives to support each other Support managers by utilising the resources in the online package 'Leading through Covid-19: supporting health and care leaders in unprecedented times' (The King's Fund, 2022)
Emotional toll	Implement wellness or health-promoting programmes that are evidence-based, private, take minimal time, and are embedded in workplace culture, to support staff in self-care Utilise both individual-level interventions and team/peer support initiatives, to improve team cohesion Seek ongoing feedback from midwives to identify which services are wanted and utilised
Moral distress	Develop trauma-informed care practices, such as considering the psychological impact on women and, vicariously, midwives
Self-sacrifice and downplaying of stressors	Support midwives in acknowledging the difficulties they may be facing, and discuss possible remedies Regularly express praise and gratitude to staff and for the sacrifices they may be making, and encourage gratitude and kindness between midwives (eg. a public noticeboard for notes of thanks or appreciation amongst peers) Implement programmes to support the development of self-compassion, such as Compassionate Mind Training (CMT) (Beaumont and Martin, 2016)
Physical or practical needs unmet	Ensure the physiological needs of midwives are met and supported wherever possible (particularly around food and groceries, transportation, and for midwives with children)
Clinical and physical impact of PPE	Share examples across teams of innovative ways to overcome the challenges of working in PPE Encourage frequent mandatory breaks and good hydration when staff are wearing PPE for prolonged periods

Impact on midwives	Recommendations for managers
High workload and midwives working longer hours	Where possible, enable midwives to have some degree of autonomy or flexibility over their working patterns Encourage a clinical culture where breaks are considered essential and are prioritised Actively promote wellbeing and encourage staff to maintain a work-life balance Support staff where they have professional or personal conflicting demands, and complete individualised risk assessment plans for staff members, which assess potential areas of tension including personal aspects (eg. childcare)
Frustration of women and families	Maintain clear communication of policy changes and guidelines with women, to reduce ground-level conflict between midwives and women and their families Support midwives who experience abuse or aggression at work Fully integrate the importance of service user involvement at all times, including future planning of services in a crisis Provide opportunities for women to feedback on their experiences, and share lessons learnt with staff midwives
The future of maternity services	Assess any rapidly deployed changes as soon as feasibly possible, ensuring they are in line with best current evidence and acceptable to women and midwives alike Encourage innovation from midwives, but test new ideas with clinical research and acceptability studies Appeal to high level healthcare management and governmental bodies, and work with midwifery unions to support the needs of midwives, improve retention and address the staffing crisis

4.1 Strengths and limitations

This review collated a broad range of papers to explore midwives' experiences of the COVID-19 pandemic. An initial scoping search in January 2021 showed few high quality research papers on this topic, and the protocol was therefore designed to incorporate grey literature. As the amount of grey literature was likely to be large, a rapid evidence review was identified as the best option due to limited time and resources. However, a number of research publications had emerged by the time the formal literature search was conducted

in May 2021. This review therefore could have been limited to high quality research papers, which may have reduced the time required, and increased the rigour. However many of the primary research papers available focused specifically on depression, anxiety and PPE, so it is unlikely a more limited review would have observed the range of experiences that were found by including grey literature.

To include a wide range of experiences, this review used a very broad search question and global publications; by including so many results, the review risks lacking depth in its observations. For more focused results, a more restrictive question may be preferable, or limiting results to particular countries or continents. Limiting papers to English-language only increases the risk of excluding relevant publications in other languages; however, there were no resources available for the translation of non-English papers.

As this was a rapid review, the initial screening process was completed by a single researcher. While this has the potential to introduce reviewer bias, a percentage of papers were checked by a second researcher to minimise this. Additionally, the full papers retrieved were read by two researchers, and the quality assessment on the included papers was completed by two researchers, to minimise potential reviewer bias.

The COVID-19 pandemic has proved a rapidly changing and evolving landscape, and it is highly likely that the needs and experiences of midwives may have changed significantly as the pandemic progressed. In addition to such reviews, there is a need for ongoing dialogue and research with midwives about their experiences.

4.2 Recommendations for further research

Further research is needed on the efficacy and acceptability of some of the interventions introduced during the COVID-19 pandemic, such as the use of telehealth, which must be assessed further to identify where and when it works within maternity services, which women it may be most suitable for, and how it can be utilised alongside the need for face-to-face clinical assessments.

Another area for further research is the short- and long-term impact of the pandemic on midwives and maternity services, including midwives' experiences as countries begin to move into a 'living with COVID' phase (Cabinet Office, 2022). Such information is essential for planning and management of future pandemics.

Further research is also needed on the most appropriate ways to support midwives during the pandemic, including which strategies are most effective in reducing emotional and psychological effects. In order to safeguard the future of maternity services, further work should also be performed exploring reasons for midwives leaving the profession and effective strategies to retain staff.

5 Conclusion

This thesis has reviewed the available literature to explore midwives' experiences of working through the pandemic, and made recommendations on how to better support midwives in future pandemics. From the rapid review conducted, it can be concluded that the COVID-19 pandemic had a profound effect on midwives worldwide, both physically and emotionally. Midwives were greatly affected on a professional and personal level by working through the Covid-19 pandemic, with great tension noted between many of the areas raised, and the future perceived with both concern and optimism. While most of the effects on midwives were perceived as negative, there were some positive elements identified. This thesis then considered the evidence to make recommendations for maternity managers on how to better support midwives during future pandemics, and how to prepare for future crises as much as possible. However this area would benefit from further research to identify the most effective strategies for midwives specifically, in addition to understanding the longer-term impact on midwives of working during and after a pandemic.

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Appendix A

Full database search strategies

CINAHL

1. (MH "Midwives+") OR (MH "Midwife Attitudes") OR (MH "Nurse Midwives")
2. "midwife OR midwives"
3. 1 OR 2
4. (MH "COVID-19") OR (MH "COVID-19 Pandemic")
5. "covid OR coronavirus"
6. 4 OR 5
7. 3 AND 6

Limiters: Publication Year: 2020-; English language

EMBASE

1. exp midwife/
2. exp nurse midwife/
3. ("midwife" or "midwives").mp
4. 1 or 2 or 3
5. exp coronavirus disease 2019/
6. ("covid" or "coronavirus").mp
7. 5 or 6
8. 4 and 7
9. limit 8 to (english language and yr="2020 -Current")

HMIC

1. exp Midwives/ or exp Community midwives/ or exp Staff midwives/ or exp Named midwives/
2. covid.mp
3. coronavirus.mp
4. 2 OR 3
5. 1 AND 4

MEDLINE

1. exp midwifery/
2. exp nurse midwives/
3. ("midwife" or "midwives").mp
4. 1 or 2 or 3
5. exp COVID-19/
6. ("covid" or "coronavirus").mp
7. 5 or 6
8. 4 and 7

Restrictions: English language only, published in 2020 or 2021

ProQuest

(MESH(midwifery) OR MESH(nurse midwives) OR NOFT(midwife) OR NOFT(midwives)) AND
(MESH(covid-19) OR NOFT(covid) OR NOFT(covid-19) OR NOFT(coronavirus)) AND la.exact("English")
AND pd(>20191231)

PsychINFO

1. exp Midwifery/
2. midwife.mp
3. midwives.m p
4. 1 or 2 or 3
5. exp coronavirus/
6. covid.mp
7. coronavirus.mp
8. 5 or 6 or 7
9. 4 and 8
10. limit 9 to yr="2020 -Current"

Pubmed

((midwifery[MeSH]) OR (nurse midwives[MeSH]) OR (midwife) OR (midwives)) AND
((COVID-19[MeSH]) OR (covid) OR (coronavirus))

Scopus

((KEY (midwife) OR KEY (midwives) OR TITLE-ABS-KEY (midwife) OR TITLE-ABS-KEY (midwives))) AND ((KEY (covid-19) OR KEY (coronavirus AND disease 2019) OR TITLE-ABS-KEY (covid) OR TITLE-ABS-KEY (coronavirus))) AND (LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020)) AND (LIMIT-TO (LANGUAGE , "English"))

Web of Science

1. (ALL=(midwife OR midwives)) AND LANGUAGE:(English)
2. (ALL=(covid OR coronavirus)) AND LANGUAGE:(English)
3. 1 AND 2

Appendix B

Screening Tool

Lead Author's Name: _____ Year: _____ Paper ID:

Publication Title: _____

Journal/Publisher: _____

Date full paper read: _____ Or tick if full paper not read: ☐

Explanation
(eg. unable to source, no response from lead author, etc)

Please read full paper and answer the following questions:

1. Is the publication in the English language (original or translated)? YES ☐ NO ☐
2. Was the publication published in 2020 or 2021? YES ☐ NO ☐
3. Does the publication contain information on midwives' views or experiences of working during the Covid-19 pandemic?
(may include quantitative data, qualitative data, quotes, narratives, or opinions) YES ☐ NO ☐
4. Are the experiences of midwives specifically and clearly identifiable
(ie. the paper does not group data on midwives with nurses, doctors, or any other healthcare profession) YES ☐ NO ☐

Decision: ☐ Include paper ☐ Exclude paper *If unsure, mark for Inclusion*

Rationale (if paper excluded):

Appendix C

Data Extraction Tool

Paper ID:

Publication Characteristics

Title: _____

Authors: _____

Date published: _____

Journal/Publisher: _____

Publication type: Primary research / Report / Editorial / Blog post / Other: _____

Country: _____

Publication Findings

Study aims: _____

Dates of study: _____

Methodology: _____

Include study design, theoretical assumptions, data collection and data analysis, where relevant

Sample size: _____

Participant demographics: _____

Eg. age, ethnicity, job title, pay grade, years in profession, location (hospital/community), etc.

Type of midwives: _____

Eg. Hospital or Community based

Important results: _____

Appendix D

Modified CASP Tool (Long, French and Brooks, 2020)

Section A: Are the results valid?

1. Was there a clear statement of the aims of the research?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *What was the goal of the research*
- *Why it was thought important*
- *Its relevance*

2. Is a qualitative methodology appropriate?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If the research seeks to interpret or illuminate the actions and/or subjective experiences of research participants*
- *Is qualitative research the right methodology for addressing the research goal*

3. Was the research design appropriate to address the aims of the research?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If the researcher has justified the research design (e.g. have they discussed how they decided which method to use)*

4. Are the study's theoretical underpinnings (e.g. ontological and epistemological assumptions; guiding theoretical framework(s)) clear, consistent and conceptually coherent?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *To what extent is the paradigm that guides the research project congruent with the methods and methodology, and the way these have been described*
- *To what extent is there evidence of problematic assumptions about the chosen method of data analysis? e.g. assuming techniques or concepts from another method (e.g. use of data saturation, originating in grounded theory) apply to chosen method (e.g. Braun and Clarke's reflexive thematic analysis) without discussion or justification*
- *To what extent is there evidence of conceptual clashes or confusion in the paper? e.g. claiming a constructionist approach but then treating participants' accounts as a transparent reporting of their experience and behaviour*

5. Was the recruitment strategy appropriate to the aims of the research?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If the researcher has explained how the participants were selected*
- *If they explained why the participants they selected were the most appropriate to provide access to the type of knowledge sought by the study*
- *If there are any discussions around recruitment (e.g. why some people chose not to take part)*

6. Was the data collected in a way that addressed the research issue?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If the setting for the data collection was justified*
- *If it is clear how data were collected (e.g. focus group, semi-structured interview etc.)*
- *If the researcher has justified the methods chosen*
- *If the researcher has made the methods explicit (e.g. for interview method, is there an indication of how interviews are conducted, or did they use a topic guide)*
- *If methods were modified during the study. If so, has the researcher explained how and why*
- *If the form of data is clear (e.g. tape recordings, video material, notes etc.)*
- *If the researcher has discussed saturation of data*

7. Has the relationship between researcher and participants been adequately considered?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If the researcher critically examined their own role, potential bias and influence during (a) formulation of the research questions, (b) data collection, including sample recruitment and choice of location*
- *How the researcher responded to events during the study and whether they considered the implications of any changes in the research design*

Section B: What are the results?

8. Have ethical issues been taken into consideration?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If there are sufficient details of how the research was explained to participants for the reader to assess whether ethical standards were maintained*
- *If the researcher has discussed issues raised by the study (e.g. issues around informed consent or confidentiality or how they have handled the effects of the study on the participants during and after the study)*
- *If approval has been sought from the ethics committee*

9. Was the data analysis sufficiently rigorous?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If there is an in-depth description of the analysis process*
- *If thematic analysis is used. If so, is it clear how the categories/themes were derived from the data*
- *Whether the researcher explains how the data presented were selected from the original sample to demonstrate the analysis process*
- *If sufficient data are presented to support the findings*
- *To what extent contradictory data are taken into account*
- *Whether the researcher critically examined their own role, potential bias and influence during analysis and selection of data for presentation*

10. Is there a clear statement of findings?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If the findings are explicit*
- *If there is adequate discussion of the evidence both for and against the researcher's arguments*
- *If the researcher has discussed the credibility of their findings (e.g. triangulation, respondent validation, more than one analyst)*
- *If the findings are discussed in relation to the original research question*

Section C: Will the results help locally?

11. How valuable is the research?

☐ Yes ☐ Somewhat ☐ No ☐ Can't tell

- *If the researcher discusses the contribution the study makes to existing knowledge or understanding (e.g. do they consider the findings in relation to current practice or policy, or relevant research based literature)*
- *If they identify new areas where research is necessary*
- *If the researchers have discussed whether or how the findings can be transferred to other populations or considered other ways the research may be used*

Appendix E

Table 9: All papers included in review

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
1	Alnuaimi (2021)	Understanding Jordanian Midwives' Experiences of Providing Care during the COVID-19 Pandemic Crisis: A Phenomenological Study	International Journal of Community Based Nursing & Midwifery	Research	Jordan	High
2	Baumann et al. (2021)	Adaptation of independent midwives to the COVID-19 pandemic: A national descriptive survey	Midwifery	Research	France	High
3	Bradfield et al. (2021a)	Midwives' experiences of providing maternity care during the COVID-19 pandemic in Australia	Women and Birth	Research	Australia	High
4	Bradfield et al. (2021b)	Experiences of receiving and providing maternity care during the COVID-19 pandemic in Australia: A five-cohort cross-sectional comparison	Plos One	Research	Australia	High
5	Galle et al. (2021)	A double-edged sword-telemedicine for maternal care during COVID-19: findings from a global mixed-methods study of healthcare providers	BMJ Glob Health	Research	Global	High
6	Gonzalez-Timoneda et al. (2020)	Experiences and attitudes of midwives during the birth of a pregnant woman with COVID-19 infection: A qualitative study	Women and Birth	Research	Spain	High
7	Harkness et al. (2021)	Induction of labour during the COVID-19 pandemic: a national survey of impact on practice in the UK	BMC Pregnancy and Childbirth	Research	UK	High
8	Homer et al. (2021)	The impact of planning for COVID-19 on private practising midwives in Australia	Women and Birth	Research	Australia	High
9	Izhar et al. (2021)	Knowledge and practices: Risk perceptions of COVID-19 and satisfaction with preventive measures at workplace among maternity care providers in Pakistan	European Journal of Midwifery	Research	Pakistan	High
10	Jardine et al. (2021)	Maternity services in the UK during the coronavirus disease 2019 pandemic: a national survey of modifications to standard care	British Journal of Obstetrics and Gynaecology	Research	UK	High

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
11	Kabasakal et al. (2021)	COVID-19 fear and compliance in preventive measures precautions in workers during the COVID-19 pandemic	International Archives of Occupational and Environmental Health	Research	Turkey	High
12	Klamroth-Marganska et al. (2021)	Does Therapy Always Need Touch? - A cross-sectional study among Switzerland-based occupational therapists and midwives regarding their experience with health care at a distance during the COVID-19 pandemic in Spring 2020	-	Preprint Research [Published in June 2021]	Switzerland	High
13	Liu et al. (2020b)	Psychological impact in non-infectious disease specialists who had direct contact with patients with COVID-19	BJPsych Open	Research	China	High
14	Ombere (2021)	Access to Maternal Health Services During the COVID-19 Pandemic: Experiences of Indigent Mothers and Health Care Providers in Kilifi County, Kenya	Frontiers in Sociology	Research	Kenya	High
15	Oparah et al. (2021)	Creativity, Resilience and Resistance: Black Birthworkers' Responses to the COVID-19 Pandemic	Frontiers in Sociology	Research	USA	High
16	Ozhiganova (2021)	Soldiers of the System: Maternity Care in Russia Between Bureaucratic Instructions and the Epidemiological Risks of COVID-19	Frontiers in Sociology	Research	Russia	High
17	Regasa et al. (2021)	Healthcare Professionals' Willingness and Preparedness to Work During COVID-19 in Selected Hospitals of Southwest Ethiopia	Risk Management and Healthcare Policy	Research	Ethiopia	High
18	Semaan et al. (2020)	Voices from the frontline: findings from a thematic analysis of a rapid online global survey of maternal and newborn health professionals facing the COVID-19 pandemic	BMJ Global Health	Research	Global	High
19	Tadesse et al. (2020)	Healthcare worker's knowledge, attitude, and practice of proper face mask utilization, and associated factors in police health facilities of Addis Ababa, Ethiopia	Journal of Multidisciplinary Healthcare	Research	Ethiopia	High
20	Umazume et al. (2020)	Survey on the use of personal protective equipment and COVID-19 testing of pregnant women in Japan	Journal of Obstetrics and Gynaecology Research	Research	Japan	High
21	West, Bailey and Williams (2020)	The courage of compassion: Supporting nurses and midwives to deliver high-quality care	The King's Fund	Report	UK	High

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
22	'A new style of midwifery' (2020)	A new style of midwifery	Kai Tiaki Nursing New Zealand	Journal Article	New Zealand	Medium
23	'Birth and midwifery in a time of COVID' (2020)	Birth and Midwifery in a Time of COVID	InScope	Journal Article	Australia	Medium
24	'COVID-19 Survey' (2020a)	COVID-19 Survey	Association of Radical Midwives	Journal Article	UK	Medium
25	'Homebirth vs the pandemic' (2021)	Homebirth vs the pandemic	Midwives	Journal Article	UK	Medium
26	'Midwives ensuring safe delivery under COVID-19' (2020)	Midwives ensuring safe delivery under COVID-19	The New Vision	News Article	Uganda	Medium
27	'Ripe for rebirth' (2020)	Ripe for rebirth	The Economist Intelligence Unit N.A., Incorporated	News article	USA	Medium
28	'Stronger Together' (2021)	Stronger Together	Midwives	Journal Article	UK	Medium
29	'The midwife's story rescued from media's COVID crisis' (2020)	The midwife's story rescued from media's COVID crisis	Aotearoa New Zealand Midwife	Journal Article	New Zealand	Medium
30	'The Mother of Invention' (2020)	The Mother Of Invention	Midwives	Journal Article	UK	Medium
31	Akoorie (2020)	Midwives desperate for gear	The Northern Advocate	News article	New Zealand	Medium
32	Aksoy and Kocak (2020)	Psychological effects of nurses and midwives due to COVID-19 outbreak: The case of Turkey	Archives of Psychiatric Nursing	Research	Turkey	Medium
33	Alonso et al. (2021)	Emergent Change in a Mexican Midwifery Center Organization Amidst the COVID-19 Crisis	Frontiers in Sociology	Research	Mexico	Medium
34	Ayres-Brown (2020)	Opting to give birth at home: Illinois midwives face surge of interest in home birth during pandemic	Chicago Tribune	News article	USA	Medium
35	Bailey and Nightingale (2020)	Navigating maternity service redesign in a global pandemic: A report from the field	Midwifery	Journal Article	UK	Medium
36	BAME Maternity Workforce (2020)	Turning The Tide	East London Health & Care Partnership	Report	UK	Medium

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
37	Benaglia and Canzini (2021)	"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	Frontiers in Sociology	Research	Italy	Medium
38	Boyden (2020)	Retired midwife back on duty to help during the coronavirus crisis: It's scary says Sarah - but she is eager to support health service	The Kent and Sussex Courier	News article	UK	Medium
39	Caron and Shannon (2020)	'Extreme Pain, but Also Extreme Joy'	New York Times (Online)	News Article	USA	Medium
40	Carter (2020)	Running maternity services during the coronavirus pandemic: keep calm and don't forget the woman!	AIMS Journal	Journal Article	UK	Medium
41	Chimbwanda (2020)	Inspiring role of nurses, midwives on COVID-19 frontline	WHO Africa	News Article	Zimbabwe	Medium
42	Chowdhury et al. (2020)	Maternity Care Amid COVID-19 Outbreak: Story of midwives from a remote rural area in Bangladesh	Midwifery Today	Journal Article	Bangladesh	Medium
43	Coxon et al. (2020)	The impact of the coronavirus (COVID-19) pandemic on maternity care in Europe	Midwifery	Editorial	Europe	Medium
44	Crowther et al. (2021)	When Maintaining Relationships and Social Connectivity Matter: The Case of New Zealand Midwives and COVID-19	Frontiers in Sociology	Research	New Zealand	Medium
45	Dahlen, Kumar-Hazard and Chiarella (2020)	How COVID-19 Highlights an Ongoing Pandemic of Neglect and Oppression When It Comes to Women's Reproductive Rights	Journal of Law & Medicine	Journal Article	Australia	Medium
46	Davis-Floyd, Gutschow and Schwartz (2020a)	How Birth Providers in the United States are Responding to the COVID-19 Pandemic	Journal of Prenatal & Perinatal Psychology & Health	Research	USA	Medium
47	Davis-Floyd, Gutschow and Schwartz (2020b)	Pregnancy, Birth and the COVID-19 Pandemic in the United States	Medical anthropology	Journal Article	USA	Medium
48	de Freytas-Tamura (2020)	Pregnant and Scared of 'COVID Hospitals,' They're Giving Birth at Home	New York Times	News article	USA	Medium
49	Dinsdale (2020)	Midwives adapt to rise in home births	The Northern Advocate	News Article	New Zealand	Medium
50	Dixon (2020)	College survey confirms the impact of covid response on midwives	Aotearoa New Zealand Midwife	Research	New Zealand	Medium
51	Dulfe et al. (2021)	Nurse-midwives reconfiguring care in the scope of labor and births in COVID-19 times	Revista Brasileira de Enfermagem	Research	Brazil	Medium

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
52	Eddy (2020)	So, How Did We Do?	Aotearoa New Zealand Midwife	Journal Article	New Zealand	Medium
53	Einion-Waller, Lord and Regan (2020)	Teaching hypnobirthing during a pandemic	All4Maternity	Blog	UK	Medium
54	Ellingson (2020)	How midwives are taking on more demands, sacrifices to keep working during the COVID-19 pandemic	The Globe and Mail	News Article	Canada	Medium
55	Flemming (2020)	Charity donates PPE to midwives	Daily News	News Article	Australia	Medium
56	Gammon (2020)	Should You Have a Home Birth Because of Coronavirus?	New York Times (Online)	News Article	USA	Medium
57	Gee (2020)	How working as a midwife has changed	The Nelson Mail	News Article	New Zealand	Medium
58	Ghanchi (2020)	Adaptation of Coronavirus Disease (COVID-19) Protocols to a Parisian Maternity Unit During the 2020 Pandemic: A Managerial Perspective	Disaster Medicine and Public Health Preparedness	Journal Article	France	Medium
59	Godfrey-Isaacs (2020)	'Hello, can you hear me' – virtual midwifery in a pandemic	All4Maternity	Blog	UK	Medium
60	Halauafu (2020)	Your stories	Aotearoa New Zealand Midwife	Journal Article	New Zealand	Medium
61	Hayes (2020a)	Portlaoise midwife brings news in a sealed envelope	Laois Nationalist	News Article	Ireland	Medium
62	Hayes (2020b)	A midwife shielding in the COVID-19 pandemic	All4Maternity	Blog	UK	Medium
63	Hemming (2020)	Midwife sessions set to be moved	Daily Post	News Article	UK	Medium
64	Henderson (2020)	As coronavirus lingers, home births surge. How midwives are adapting	The Christian Science Monitor	News Article	USA	Medium
65	Hughes, Dunne and Moyles (2020)	Messages from members on the frontline	World of Irish Nursing & Midwifery	Journal Article	Ireland	Medium
66	Hunter, Renfrew and Downe (2020)	Supporting the emotional wellbeing of midwives in a pandemic	Royal College of Midwives	Research	UK	Medium
67	Johariyah et al. (2020)	How maternal and neonatal services at the community level during the COVID-19 pandemic in Indonesia?	Systematic Reviews in Pharmacy	Research	Indonesia	Medium
68	Johnson (2020)	'There are more births in the car park': a midwife's experience of the COVID-19 crisis	The Guardian (Online)	News article	UK	Medium
69	Khan and Socheata (2021)	Cambodian Nurse-Midwife Turns COVID-19 Front Line Medical Worker	VOA Cambodia	News Article	Cambodia	Medium

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
70	Kotowska and Gawlik (2020)	Variables modulating the sense of safety in nurses and midwives facing epidemiological endangerment of COVID-19	Medical Science Pulse	Research	Poland	Medium
71	Langlois (2020)	Local midwives seeking donations of masks, other PPE	Sun Times	News Article	Canada	Medium
72	Leiva et al. (2021)	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	Frontiers in Sociology	Research	Chile	Medium
73	Lewin (2020)	Midwives' Work During COVID-19	Santa Fe Reporter	News Article	USA	Medium
74	Lewis (2020)	COVID-19: supporting staff wellbeing	All4Maternity	Blog	UK	Medium
75	Lewis (2021)	Mum, Rugby Player And Midwife - Life For Jade In Pandemic	Wales on Sunday	News Article	UK	Medium
76	McCann (2020)	Midwife returns to the frontline	The Mercury	News Article	Australia	Medium
77	McDonald (2020)	Midwives Deliver For New Mums	Geelong Advertiser	News Article	Australia	Medium
78	Melendez (2020)	Midwives Slam NYC Hospital for Forcing Women to Give Birth Alone	The Daily Beast	News Article	USA	Medium
79	Millar (2020)	Pandemic Midwifing	Association of Radical Midwives	Journal article	UK	Medium
80	Moore (2020)	Managing fear, anxiety and uncertainty why does it matter?	The Student Midwife	Journal Article	UK	Medium
81	Moyles (2020)	INMO members continue to show the courage to care	World of Irish Nursing & Midwifery	Journal Article	Ireland	Medium
82	Murphy (2020)	Midwifery in the Time of COVID-19	Journal of Midwifery & Women's Health	Editorial	USA	Medium
83	Nahorniak (2020)	'Grateful that we have this option': Some pregnant women turn to home births amid coronavirus pandemic	USA Today (Online)	News Article	USA	Medium
84	Nguyen et al. (2020)	Beyond harm reduction: COVID-19 may foster genuine collaboration between obstetricians and home birth midwives	-	Preprint (Expert opinion)	USA	Medium
85	NMC (2021)	Reflections on a traumatic year	The Nursing and Midwifery Council	Report	UK	Medium
86	Nugget Staff (2020)	Midwives thank PPE donors	The North Bay Nugget (Online)	News Article	Canada	Medium

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
87	Oppenheim (2020)	'We have to make our own sanitiser': Midwives fear coronavirus will mirror Ebola with surge in maternal deaths	The Independent	News Article	Liberia	Medium
88	Oppenheim (2021)	Maternity staff face PTSD and burnout amid shortages	The Independent (Daily Edition)	News Article	UK	Medium
89	Ostlere (2020)	I am an NHS midwife in the coronavirus crisis. New mothers are scared – the focus has moved to COVID-19	The Independent	News Article	UK	Medium
90	Ozcevik Subasi et al. (2021)	Healthcare workers' anxieties and coping strategies during the COVID-19 pandemic in Turkey	Perspectives in Psychiatric Care	Research	Turkey	Medium
91	Perry (2020)	Petaluma midwives in demand as pregnant women seek hospital alternatives	The Press Democrat	News Article	USA	Medium
92	Queensland Government (2020)	Midwives play crucial support role to women birthing during COVID-19	The State of Queensland (Queensland Health)	Press Release	Australia	Medium
93	Rankin (2020)	Critical shortage of midwives in Palmerston North needs urgent action	Manawatu Standard	News Article	New Zealand	Medium
94	RCM (2020a)	Fears for maternity as staffing shortages hit safety and morale says RCM	Royal College of Midwives	Press Release	UK	Medium
95	RCM (2020b)	Midwives feel the love – but not by all - on International Day of the Midwife	Royal College of Midwives	Press Release	UK	Medium
96	RCM (2020c)	Midwives missing meals and loo breaks to keep services running	Royal College of Midwives	Press Release	UK	Medium
97	RCM (2020d)	Midwives' mental health hit by pandemic	Royal College of Midwives	Press Release	UK	Medium
98	RCM (2020e)	New RCM survey reveals more than half of midwives do not feel safe carrying out home visits	Royal College of Midwives	Press Release	UK	Medium
99	RCM (2020f)	Protection is more than just PPE – RCM calls on NHS employers to offer proper training and support to those working in maternity services	Royal College of Midwives	Press Release	UK	Medium
100	RCM (2020g)	RCM plea: Help us deliver safe care for pregnant women	Royal College of Midwives	Press Release	UK	Medium
101	RCM (2020h)	Seven out of 10 midwives experience abuse from women and partners during pandemic, says RCM	Royal College of Midwives	Press Release	UK	Medium
102	Renfrew et al. (2020)	Sustaining quality midwifery care in a pandemic and beyond	Midwifery	Journal Article	UK	Medium

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
103	Renfrew et al. (2021)	Sustaining quality education and practice learning in a pandemic and beyond: 'I have never learnt as much in my life, as quickly, ever'	Midwifery	Journal Article	UK	Medium
104	Retka (2020)	Home birth interest grows in Yakima amid pandemic; hospitals and midwives taking new measures	TCA Regional News	News Article	USA	Medium
105	Reyes (2021)	Born in Captivity: The Experiences of Puerto Rican Birth Workers and Their Clients in Quarantine	Frontiers in Sociology	Research	Puerto Rico	Medium
106	Ribner (2020)	A Midwife's COVID-19 Gift	Midwifery Today	Journal Article	USA	Medium
107	Rivers (2020)	A virtual choir	All4Maternity	Blog	UK	Medium
108	Ryan (2020)	COVID-19: Midwives say lack of support pushing them to the brink as demand for their services soars	The Vancouver Sun	News Article	Canada	Medium
109	Salaudeen (2020)	Midwives face fear and new challenges as the coronavirus spreads in Africa	CNN Wire Service	News Article	Africa	Medium
110	Samara Kalk (2020)	Local midwives seeing surge in requests for home births amid COVID-19 pandemic	TCA Regional News	News Article	USA	Medium
111	Scheier (2020)	Black women turn to midwives to avoid COVID and 'feel cared for'	TCA News Service	News Article	USA	Medium
112	Schipani (2020)	How Maine's midwives are adjusting in the age of coronavirus	The Bangor Daily News	News Article	USA	Medium
113	Scott (2020a)	New Midwives Rise To The Challenges Of Practice In Pandemic	Aotearoa New Zealand Midwife	Journal Article	New Zealand	Medium
114	Scott (2020b)	Queenstown midwives and mothers improvise as covid closes maternity unit	Aotearoa New Zealand Midwife	Journal Article	New Zealand	Medium
115	Scott (2020c)	What We Did In Lockdown	Aotearoa New Zealand Midwife	Journal Article	New Zealand	Medium
116	Selcuk Tosun, Akgul Gundogdu and Tas (2021)	Anxiety levels and solution-focused thinking skills of nurses and midwives working in primary care during the COVID-19 pandemic: A descriptive correlational study	Journal of Nursing Management	Research	Turkey	Medium
117	Semu-Banda (2020)	As COVID-19 rages on, midwives continue to provide quality care in Somalia	United Nations Population Fund	Press Release	Somalia	Medium
118	Sherwood (2020)	Midwife shortage doubles as NHS staff diverted to tend COVID-19 patients	The Observer	News Article	UK	Medium
119	Sibonney (2020a)	Nova Scotia has cancelled all home births—could it happen in other provinces?	St. Joseph Communications	News article	Canada	Medium

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
120	Smith (2020a)	The structural vulnerability of healthcare workers during COVID-19: Observations on the social context of risk and the equitable distribution of resources	Social Science & Medicine	Journal Article	Australia	Medium
121	Smith (2020b)	Midwives and COVID-19	Midwifery Today	Journal Article	USA	Medium
122	Smith (2020c)	'Please don't be scared or anxious - these midwives are amazing'	Western Mail	News Article	UK	Medium
123	Smith (2021)	New Arrivals: How our birth rate stacked up in 2020	The Queensland Times	News Article	Australia	Medium
124	Sole De La Llere (2021)	Virtual mandatory training	Midwives	Journal Article	UK	Medium
125	Stewart (2020)	Midwife Who 'Saved Baby' Hits Out At Sanctions Procedure	Evening Times	News Article	UK	Medium
126	Talbot (2020)	400 babies have been born during lockdown at Paisley's RAH	Daily Express	News Article	UK	Medium
127	Terzon (2020)	Pregnant women maxing out credit cards, withdrawing super to homebirth during COVID-19	ABC Premium News	News Article	Australia	Medium
128	Thomson (2020)	Being A Midwife During COVID-19	Association of Radical Midwives	Journal article	UK	Medium
129	Tugores and Wiseman (2020)	Should we all be wearing masks? A community midwives' view	BMJ Sexual & Reproductive Health	Blog	UK	Medium
130	Turley (2020)	More mothers in Cambridge using midwives, having home births amid COVID-19 crisis	Cambridge Times	News Article	Canada	Medium
131	Uzun et al. (2020)	Psychological and social effects of COVID-19 pandemic on obstetrics and gynecology employees	Journal of Surgery and Medicine	Research	Turkey	Medium
132	Vinaver (2020)	Some Blessings for the Homebirth Community during COVID-19 Times	Midwifery Today	Journal Article	USA	Medium
133	Vinga (2021)	Sally Mugabe Hospital Midwives Down Tools Over COVID-19 PPE	AllAfrica.com	News Article	Zimbabwe	Medium
134	Wade (2021)	Midwife finds comfort at work after losing husband to COVID-19	CNN Wire Service	News Article	USA	Medium
135	Wainer (2020)	Homebirth in the Time of COVID	Midwifery Today	Journal Article	USA	Medium
136	Williams (2020)	Midwives tell PM of workloads	Dominion Post	News Article	New Zealand	Medium

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
137	Wu (2020)	More families turn to home births and midwives amid pandemic	University Wire	News Article	USA	Medium
138	Wyton (2020)	BC's Midwives Are on the Brink of a Burnout Crisis	The Canadian Press	News Article	Canada	Medium
139	Yoruk and Guler (2021)	The relationship between psychological resilience, burnout, stress, and sociodemographic factors with depression in nurses and midwives during the COVID-19 pandemic: A cross-sectional study in Turkey	Perspectives in psychiatric care	Research	Turkey	Medium
140	Yulisman (2021)	Midwives and soldiers mobilised to support country's inoculation drive	The Straits Times	News Article	Indonesia	Medium
141	'Adapting to change' (2020)	Adapting to change	Midwives	Journal Article	UK	Low
142	'Ethiopia's Midwives Grapple With the COVID-19 While Ensuring Safe Delivery' (2020)	Ethiopia's Midwives Grapple With the COVID-19 While Ensuring Safe Delivery	United Nations Population Fund	Press Release	Ethiopia	Low
143	'Liberian Midwives Join Counterparts Worldwide to Celebrate International Day of the Midwife Amid COVID-19 Pandemic' (2020)	Liberian Midwives Join Counterparts Worldwide to Celebrate International Day of the Midwife Amid COVID-19 Pandemic	Front Page Africa	Press Release	Liberia	Low
144	'Midwife retires after career spanning three decades' (2020)	Midwife retires after career spanning three decades	News Bites	News Article	UK	Low
145	'Standing Up For Community Midwives' (2020)	Standing Up For Community Midwives	Aotearoa New Zealand Midwife	Journal Article	UK	Low
146	'The Digital Revolution' (2020)	The Digital Revolution	Midwives	Journal Article	UK	Low
147	'Working for you' (2021)	Working for you	Midwives	Journal Article	UK	Low
148	Azzopardi (2020)	Health authorities reverse decision to deploy Parentcraft midwives to COVID-19 contact tracing team	MaltaToday	News Article	Malta	Low

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
149	Bailey and Gaskin (2021)	Spotlight on maternal mental health: a prepandemic and postpandemic priority	Evidence-Based Nursing	Editorial	UK	Low
150	Bar-Zeev et al. (2020)	UNFPA supporting midwives at the heart of the COVID-19 response	Women & Birth	Journal article	Global	Low
151	Bodkin and Roberts (2021)	Twice as many severely ill in regions as the first wave	The Daily Telegraph	News Article	UK	Low
152	Byrom (2020)	Where to be born during COVID-19? Positive practice to share	All4Maternity	Blog	UK	Low
153	Calleja (2020)	Parentcraft midwives redeployed to COVID-19 contact tracing centres	MaltaToday	News Article	Malta	Low
154	Conroy (2020)	The impact of COVID-19 on hospital midwives	Aotearoa New Zealand Midwife	Journal article	New Zealand	Low
155	Daellenbach (2020)	Midwives go extra miles to cover for colleagues	Aotearoa New Zealand Midwife	Journal article	New Zealand	Low
156	Davis (2020)	NHS trusts begin suspending home births due to coronavirus	The Guardian	News Article	UK	Low
157	Ducklow (2021)	'It's great that midwives are included' in rollout of B.C.'s COVID vaccine plan, says college	The News	News Article	Canada	Low
158	Garcia de Frutos (2020)	Delivering next generations	British Journal of Midwifery	Journal article	UK	Low
159	Harper and Garland (2020)	Sustaining the Power of Water Assisted Labour and Birth during COVID-19	All4Maternity	Blog	UK	Low
160	ICM (2020a)	ICM's Seventy-third World Health Assembly Statement	The International Confederation of Midwives	Press Release	Global	Low
161	ICM (2020b)	Protecting Midwives to Sustain Care for Women, Newborns + their Families in the COVID-19 Pandemic	The International Confederation of Midwives	Press Release	Global	Low
162	ICM (2020c)	Statement on the Provision of Personal Protective Equipment	The International Confederation of Midwives	Press Release	Global	Low
163	Jarman (2020)	In Mexico, Childbirth in COVID's Shadow	The New York Times	News Article	Mexico	Low
164	Kanem (2020)	Celebrating midwives, unsung heroes on the front lines of the COVID-19 crisis	United Nations Population Fund	Press Release	Global	Low

No	Reference	Title	Journal/Publisher	Publication Type	Country	Quality Rating
165	Kennedy (2020)	2020 International Year of the Midwife - An unexpected challenge	Midwifery	Editorial	USA	Low
166	Leduc (2020)	France's post-COVID healthcare reform pushes midwives to the brink	France24	News Article	France	Low
167	Luyben, Fleming and Vermeulen (2020)	Midwives' professional and personal experiences during the COVID-19 pandemic in Europe: The set-up of the 'CoroVie' project	European Journal of Midwifery	Letter	Europe	Low
168	Mosalski (2020)	The midwife-led unit at Wales' biggest hospital has been closed due to coronavirus	Western Mail	News Article	UK	Low
169	Ngatjiheue (2021)	The Joys and Fears of Being a Midwife	AllAfrica	News Article	USA	Low
170	O'Connell et al. (2020)	Midwives in a pandemic: A call for solidarity and compassion	Women Birth	Journal Article	Australia	Low
171	Pallangyo et al. (2020)	The impact of COVID-19 on midwives' practice in Kenya, Uganda and Tanzania: A reflective account	Midwifery	Journal Article	Kenya, Uganda & Tanzania	Low
172	Parrocha (2021)	Gov't backs plans to tap pharmacists, midwives as vaccinators	PNA Phillipines News Agency	News Article	Philippines	Low
173	Perkel (2020)	Virus fears feeding interest in home births, midwives say	Toronto Star	News Article	Canada	Low
174	Pihema (2020)	From The President, New Zealand College Of Midwives, Nicole Pihema	Aotearoa New Zealand Midwife	Journal Article	New Zealand	Low
175	Romanis and Nelson (2020)	Homebirthing in the United Kingdom during COVID-19	Medical Law International	Journal Article	UK	Low
176	Shahid (2020)	Midwives in low-resource settings	British Journal of Midwifery	Journal Article	Pakistan	Low
177	Sibonney (2020b)	So you're about to give birth in a coronavirus pandemic	St. Joseph Communications	News article	Canada	Low
178	Uytenbogaardt (2020a)	Support—from a distance	British Journal of Midwifery	Editorial	UK	Low
179	Uytenbogaardt (2020b)	Supporting midwives on the frontline	British Journal of Midwifery	Journal Article	UK	Low
180	Walton (2020)	COVID-19. The new normal for midwives, women and families	Midwifery	Journal Article	UK	Low
181	Wiltshire (2020)	Midwives to limit contact with mums	Dominion Post	News Article	New Zealand	Low

Appendix F

Table 10: Detailed summary of all high quality papers included in this review

Reference Country	Methodology Methods	Study aim	Dates, Sample size & Inclusion criteria	Findings	Limitations
Alnuaimi (2021) Jordan	Qualitative Phenomenology Semi-structured interviews	Explore midwives' experiences of providing health care during COVID-19	April to May 2020 n=20 Midwives working in 2 maternity wards for at least 2 weeks	Four main themes: Living in turmoil, Communication dilemma, Positive experience over time, Seeking support	Purposive sampling not detailed sufficiently No researcher reflexivity All participants had >10 years' experience (lack of newly qualified midwives)
Baumann et al. (2021) France	Quantitative Survey	Identify how independent midwives adapted their practices at the beginning of the pandemic	March 2020 n=1,517 Independent midwives working in France	Adapted practices: Cancelling or postponing non-urgent consultations and activities Adaptation of office: Women not meeting in the waiting room, children not allowed in waiting room, increased phone/email use, closed office PPE: Masks, hand sanitiser, medical gown, protective eyewear, non-contact thermometer	Self-reported answers Self-selected participants
Bradfield et al. (2021a) Australia	Mixed methods Cross-sectional survey and semi-structured interviews	Explore and describe midwives' experiences of providing maternity care during the pandemic	May to June 2020 n=620 surveyed n=16 interviewed Midwives in Australia	Move to telehealth appointments Limited support for women in labour Postnatal visiting severely affected Five main themes: Coping with rapid and radical changes, challenges to woman-centred care, managing professional resilience, addressing personal and professional challenges, and looking ahead	Convenience sample Lack of reflexivity

Reference Country	Methodology Methods	Study aim	Dates, Sample size & Inclusion criteria	Findings	Limitations
Bradfield et al. (2021b) Australia	Quantitative Five cohort cross-sectional survey	Explore and compare the experiences of those receiving or providing care during the pandemic	May to June 2020 n=3,701 (560 midwives) Women, partners, midwives, doctors and students who received or provided maternity care in Australia from March 2020	Top 10 words used by midwives to describe their experiences of providing maternity care: Stressful, challenging, frustrating, anxious, different, uncertain, difficult, safe, anxiety, isolating	Convenience sample
Galle et al. (2021) Global	Mixed methods Cross-sectional survey	Document experiences of using telemedicine for maternal and newborn healthcare during the pandemic	July to September 2020 n=1060 (257 midwives) Maternal and newborn health professionals	Antenatal: frequent use of birth preparedness class, psychological counselling, routine consultations Labour: infrequent use of women recommended to call before attending, COVID helpline Postnatal: frequent use of BF counselling & support, routine consultations, psychological counselling Frequent use: prescribing supplements, meds & contraception, sharing lab test results, professional communication & collaboration Challenges: lack of infrastructure, technological illiteracy, remote monitoring limitations, financial barriers, no non-verbal feedback, limited bonding, language barriers, distrust from patients	Convenience sample Over-representation of high income countries Potential under-representation of overwhelmed professionals
Gonzalez-Timoneda et al. (2020) Spain	Qualitative Phenomenology Interviews	Investigate the experiences and attitudes of midwives who provided care to women with confirmed or suspected COVID-19 infection	May to June 2020 n=14 Midwives working in 2 Spanish tertiary hospitals, who had cared for a woman with suspected or confirmed COVID-19	Three main themes: Challenges and differences when working in a pandemic: Changes in organisation of care; misinformation and lack of coordination and management; adapting the role of the midwife; increased workload; use of PPE Emotional and mental health and wellbeing: Fear, anxiety and uncertainty; discomfort; dissatisfaction vs satisfaction; lack of knowledge; lack of support Women's emotional impact perceived by midwives: Surprise and frustration; fear and anxiety; loneliness	Little information provided on interviewers, reflexivity and potential to influence respondents' answers Potential memory bias – retrospective study

Reference Country	Methodology Methods	Study aim	Dates, Sample size & Inclusion criteria	Findings	Limitations
Harkness et al. (2021) UK	Quantitative Cross-sectional survey	Explore whether and how the pandemic changed practice around induction of labour (IOL) in the UK	June to November 2020 n=92 trusts/boards	Clinical changes: 23% change in IOL methods, 7% change in professional performing IOL, 6% change in approach for post-dates IOL, increased obstetric presence Outpatient IOL: 28% change in criteria, 28% more OP IOL, 5% fewer OP IOL, some withdrew service Changes in IOL uptake: women's reluctance, impact of partner restrictions, more declining due to desire for homebirth	Insufficient information on non-responders Survey conducted over several months, where the UK was in/out of lockdowns and the alert level was changed several times – potential for great variation in responses depending on timing
Homer et al. (2021) Australia	Quantitative Cross-sectional survey	Explore the experience of midwives in planning for the pandemic	April 2020 n=103 Privately practising midwives in Australia	82% felt well informed but most still wanted specifically tailored information 35% felt prepared with PPE but many lacked sufficient PPE, with 64% getting PPE via non-clinical sources 68% of midwives with collaborative arrangements with local hospitals reported a lack of support and were unable to support women who needed transfer to hospital 93% reported increased demand from women wanting homebirth	Little information on non-responders No responses from 2 territories Minimal information given on data analysis methods
Izhar et al. (2021) Pakistan	Quantitative Cross-sectional survey	Assess the knowledge and practices of obstetricians and midwives about PPE, risk perception of COVID-19, and satisfaction with workplace preventative measures	July 2020 n=452 (172 midwives) Intrapartum care providers in Pakistan	Adequate knowledge of PPE and optimal practices Perceived risk of contracting COVID-19 was lower than flu, tuberculosis and hepatitis B/C. Perceived risk was greatest for outpatient clinics and emergency rooms Fewer midwives than obstetricians were satisfied with job security provided, but more satisfied with preventative measures implemented	Convenience sample No information on non-responders Satisfaction scale used was not validated

Reference Country	Methodology Methods	Study aim	Dates, Sample size & Inclusion criteria	Findings	Limitations
Jardine et al. (2021) UK	Quantitative Cross-sectional survey	Investigate local modifications to general and specialist maternity care during the pandemic, in the context of the contemporaneous national pandemic guidance	May to July 2020 n=81 sites Healthcare professionals working within maternity services	70% reduced antenatal appointments, 56% reduced postnatal appointments, 89% use more remote consultation methods, 70% changed screening pathways for gestational diabetes, 59% removed homebirth and midwife-led unit services, 86% reported reduced emergency antenatal attendance	Response rate 40% Some subjective questions included
Kabasakal et al. (2021) Turkey	Quantitative descriptive Survey	Identify the relationship between fear of COVID-19 and preventative measures of healthcare workers and service sector employees during the COVID-19 pandemic	May to June 2020 n=735 (35 midwives) White-collar private-sector workers who worked actively during the COVID-19 pandemic, and individuals who participated in voluntary aid groups	Fear of COVID-19 was highest in midwives than any other healthcare professionals or white collar workers. Increased fear of COVID-19 corresponded with increased compliance with preventative measures.	Snowball sampling (no sample selection) Baseline characteristics not included No details of number of non-responders or their characteristics Very small percentage of midwives
Klamroth-Marganska et al. (2021) Switzerland	Mixed methods cross-sectional Survey Pre-print [published in June 2021]	Explore demographic influencers on provision of telehealth, and experiences of using telehealth	May 2020 n=1269 (501 midwives) Occupational therapists (OTs) and midwives	Midwives were more likely than OTs to use telehealth, but were also more likely to perceive it as a negative experience. Main advantage: maintain relationship with clients & carry out consultations under extraordinary circumstances Perceived disadvantages: restricted in ability to recognise & assess complexities, large number of appointments not possible at a distance due to absence of direct physical interaction	No information on non-responders

Reference Country	Methodology Methods	Study aim	Dates, Sample size & Inclusion criteria	Findings	Limitations
Liu et al. (2020b) China	Quantitative descriptive Survey	Survey the mental health of obstetricians and midwives working in officially designated hospitals	March 2020 n=2126 (1356 midwives) Obstetricians and midwives working in hospitals treating patients with COVID-19	Mental health was worse than pre-pandemic levels 40% had depression, 27% had anxiety, 35% had insomnia 34% had depression, anxiety and insomnia Mental health was worse where insufficient PPE and training, or direct contact with patients with suspected/confirmed COVID	No information on non-responders
Ombere (2021) Kenya	Qualitative ethnography Literature review & interviews	Explore alternatives used by women to gain access to maternity care during the COVID-19 pandemic	June to July 2020 n=21 (5 nurse-midwife matrons, 4 traditional birth attendants) Mothers and birthworkers who had previously participated in ethnographic work	Fear of infections, lack of PPE in hospitals, and increase in Traditional Midwife-attended births	Convenience sample Baseline characteristics not provided All work performed by a single researcher Reflexivity and potential to influence respondents' answers not discussed
Oparah et al. (2021) USA	Qualitative narrative Community-based sheltered-in-place research	Explore the impact of the pandemic on the experiences of Black birthworkers and the communities they serve	Dates unknown n=38 (3 midwives) Black birthworkers	Uncertainty, Racialized Fear and Restrictions: The Impact of Pandemic-Related Policies and Procedures; Shifting Policies and Communication Gaps (Impact of the "Doula Ban", Separation From Newborns, The Impact of COVID-19 Testing); Creative Strategies and Adaptations; Surviving and Thriving During the Pandemic (The Financial Impact of the Pandemic, Birthworkers' Sources of Strength)	Convenience sample Limited information on baseline characteristics of participants
Ozhiganova (2021) Russia	Qualitative descriptive Interviews	Subjective interpretations of COVID-related changes in maternal care	March to August 2020 n=47 (8 midwives) Personal networks	COVID-19 Prevention Measures: Conversion of Maternity Hospitals, New Clinical Guidelines and Routing Plans; Converting Maternity Hospitals to COVID-19 Hospitals; Formal Cancellation of Partner Support and Informal Ways to Get Around it; Maternity Hospitals for Women with COVID-19: Epidemic Expediency or Additional Risks to the Health of Women and Newborns?	Convenience sample Baseline characteristics not provided All work performed by a single researcher Limited reflexivity Small number of midwives included

Reference Country	Methodology Methods	Study aim	Dates, Sample size & Inclusion criteria	Findings	Limitations
Regasa et al. (2021) Ethiopia	Quantitative cross-sectional Survey	To assess healthcare professionals' willingness and preparedness to work during the COVID-19 in selected hospitals of Southwest Ethiopia	June 2020 n=407 (31 midwives) Healthcare workers at 4 hospitals who worked for at least 6 months	Midwife findings: 22 willing to work, 9 not willing to work 10 prepared to work, 21 not prepared to work In the whole sample, having 6-10 years' experience or divorced marital status were predictors of not willing to work during COVID-19. Lack of PPE or shortage of infrastructure at the workplace were predictors of poor preparedness.	No details of number of non-responders or their characteristics (although very high response rate – 96%) Low numbers of midwives included
Semaan et al. (2020) Global	Mixed methods cross-sectional Survey	To prospectively document experiences of frontline maternal and newborn healthcare providers	March to April 2020 n=714 (331 midwives) Healthcare workers providing maternal or newborn care	One-third of professionals received training on COVID-19 from their health facility and nearly all searched for information themselves. Respondents from low- and middle-income countries were less likely to receive updated guidelines, feel knowledgeable in how to care for COVID-19 maternity patients, or have facility-level responses to COVID-19 than respondents in high-income countries. 90% of respondents reported higher levels of stress, and many perceived reduced use of routine maternity care services, and non-evidence-based changes to care provision.	Snowball sampling (no sample selection) No details of number of non-responders or their characteristics (results may not be representative of the wider population)
Tadesse et al. (2020) Ethiopia	Quantitative cross-sectional Survey	To determine health workers' knowledge, attitude, and practice of proper face mask utilization and associated factors at police health faculties in Addis Ababa, Ethiopia	June to July 2020 n=408 (71 midwives) Healthcare workers at federal police health facilities in Addis Ababa during the study period	Compared to the whole sample, midwives were more likely to be less knowledgeable about face masks (72%), have a negative attitude to mask utilisation (50%), and practice poor use of face masks (42%)	No details of number of non-responders or their characteristics Non-validated questionnaire used

Reference Country	Methodology Methods	Study aim	Dates, Sample size & Inclusion criteria	Findings	Limitations
Umazume et al. (2020) Japan	Quantitative descriptive Survey	To clarify the status of PPE and COVID-19 tests for pregnant women	April to May 2020 n=294 institutions Facilities and hospitals affiliated to the obstetrics and gynaecology training program, or the national perinatal medical liaison council	73.5% midwives used PPE beyond the standard during labour: 6.8% full PPE, 94% standard gown/apron, 88% surgical mask, 73% goggle/face shield, 42% cap, 24% shoe cover, 14% double glove, 7% N95 mask, 1.1% none of the above 61% facilities performed PCR tests on <50 samples per week, 92% performed <5 PCR tests. 18 facilities (6%) tested all asymptomatic pregnant women admitted for labour/surgery	No information on who completed each institution's survey Self-reported surveys have potential for response bias Findings may reflect guidelines rather than actual practice
West, Bailey and Williams (2020) UK	Mixed methods: Literature review Secondary quantitative analysis of publicly available data Qualitative interviews Qualitative focus groups	To examine workplace stressors, cultures, contexts and leadership styles that impact on nurse and midwife wellbeing and mental health, both before and during Covid-19, and show how to transform workplaces so they can thrive and facilitate compassionate, high-quality care	Dates unknown n=47 participants interviewed and 3 focus groups with 13 participants Nursing and midwifery staff, including students, healthcare assistants and nursing associates	The pandemic was preceded by issues such as staff stress, absenteeism, turnover and intentions to quit, with large numbers of nurse and midwife vacancies across the system. The impact of the pandemic was unprecedented and has exacerbated longstanding problems faced by nurses and midwives, including inequalities, inadequate working conditions and chronic excessive work pressures. Three core work needs were identified that nurses and midwives need to have met to ensure wellbeing and minimise workplace stress: autonomy, belonging, and contribution. Eight key recommendations were made to support nurses and midwives in providing high-quality, compassionate care.	Very limited information on methods, including sampling, data collection, data analysis, participant characteristics, and non-responders. No reflexivity discussed

Appendix G

Table 11: Full list of papers showing which contributed to the ‘Rapid Service Change’ theme and its sub-themes

COLOUR KEY:

High quality paper

Medium quality paper

Low quality paper

Total number of papers n=181		THEME:	SUB-THEMES:				
		Rapid Service Change	Changes to Guidelines & Policies	Changes to Antenatal care	Changes to Intrapartum Care	Changes to Postnatal Care	Use of Telehealth
No	Reference	n=126 (70%)	n=59 (33%)	n=77 (43%)	n=71 (39%)	n=50 (28%)	n=71 (39%)
1	Alnuaimi (2021)	✓	✓	✓	✓		
2	Baumann et al. (2021)	✓	✓	✓			✓
3	Bradfield et al. (2021a)	✓	✓	✓	✓	✓	✓
4	Bradfield et al. (2021b)	✓	✓				
5	Galle et al. (2021)	✓		✓		✓	✓
6	Gonzalez-Timoneda et al. (2020)	✓	✓		✓		
7	Harkness et al. (2021)	✓			✓		
8	Homer et al. (2021)	✓	✓	✓	✓	✓	✓
9	Izhar et al. (2021)						
10	Jardine et al. (2021)	✓		✓	✓	✓	✓
11	Kabasakal et al. (2021)						
12	Klamroth et al. (2020)	✓					✓
13	Liu et al. (2020)						
14	Ombere (2021)	✓			✓		
15	Oparah et al. (2021)	✓	✓		✓	✓	✓
16	Ozhiganova (2021)	✓			✓		✓
17	Regasa et al. (2021)						
18	Semaan et al. (2020)	✓	✓	✓	✓	✓	✓
19	Tadesse et al. (2020)						
20	Umazume et al. (2020)	✓			✓		
21	West, Bailey & Williams (2020)	✓			✓		
22	'A new style of midwifery' (2020)	✓	✓	✓		✓	✓
23	'Birth and midwifery in a time of COVID' (2020)	✓	✓				
24	COVID-19 Survey (2020)	✓	✓	✓	✓	✓	✓
25	'Homebirth vs the pandemic' (2021)	✓	✓	✓	✓		✓
26	'Midwives ensuring safe delivery under COVID-19' (2020)	✓		✓	✓		
27	Ripe for rebirth (2020)						

Total number of papers n=181		THEME:	SUB-THEMES:				
		Rapid Service Change	Changes to Guidelines & Policies	Changes to Antenatal care	Changes to Intrapartum Care	Changes to Postnatal Care	Use of Telehealth
No	Reference	n=126 (70%)	n=59 (33%)	n=77 (43%)	n=71 (39%)	n=50 (28%)	n=71 (39%)
28	'Stronger Together' (2021)	✓		✓			
29	'The midwife's story rescued from media's COVID crisis' (2020)	✓		✓			
30	'The Mother of Invention' (2020)	✓		✓		✓	✓
31	Akoorie (2020)	✓					✓
32	Aksoy & Kocak (2020)						
33	Alonso et al. (2021)	✓	✓	✓		✓	✓
34	Ayres-Brown (2020)	✓			✓		
35	Bailey & Nightingale (2020)	✓	✓	✓	✓	✓	✓
36	BAME Maternity Workforce (2020)	✓	✓	✓	✓		✓
37	Benaglia & Canzini (2021)	✓	✓		✓		✓
38	Boyden (2020)						
39	Caron & Shannon (2020)	✓		✓			
40	Carter (2020)	✓	✓	✓	✓		✓
41	Chimbwanda (2020)	✓	✓				
42	Chowdhury et al. (2020)	✓		✓			
43	Coxon et al. (2020)	✓	✓	✓	✓	✓	✓
44	Crowther et al. (2021)	✓	✓	✓	✓	✓	✓
45	Dahlen, Kumar-Hazard & Chiarella (2020)	✓		✓	✓		
46	Davis-Floyd, Gutschow & Schwartz (2020a)	✓	✓	✓	✓	✓	✓
47	Davis-Floyd, Gutschow & Schwartz (2020b)	✓	✓	✓	✓	✓	✓
48	Dinsdale (2020)	✓		✓		✓	
49	Dixon (2020)	✓	✓			✓	✓
50	Dulfe et al. (2021)	✓	✓		✓	✓	
51	Eddy (2020)	✓	✓	✓			✓
52	Einion-Waller, Lord & Regan (2020)	✓	✓	✓	✓		✓
53	Ellingson (2020)						
54	Flemming (2020)						
55	Gammon (2020)	✓			✓	✓	
56	Gee (2020)	✓		✓		✓	✓
57	Ghanchi (2020)	✓	✓	✓	✓	✓	✓
58	Godfrey-Isaacs (2020)	✓	✓	✓		✓	✓
59	Halauafu (2020)	✓	✓	✓	✓	✓	✓
60	Hayes (2020a)	✓		✓			
61	Hayes (2020b)						
62	Hemming (2020)	✓		✓	✓	✓	

Total number of papers n=181		THEME:	SUB-THEMES:				
		Rapid Service Change	Changes to Guidelines & Policies	Changes to Antenatal care	Changes to Intrapartum Care	Changes to Postnatal Care	Use of Telehealth
Nº	Reference	n=126 (70%)	n=59 (33%)	n=77 (43%)	n=71 (39%)	n=50 (28%)	n=71 (39%)
63	Henderson (2020)	✓		✓	✓		✓
64	Hughes, Dunne & Moyles (2020)	✓		✓		✓	✓
65	Hunter, Renfrew & Downe (2020)						
66	Johariyah et al. (2020)	✓		✓	✓	✓	✓
67	Johnson (2020)	✓	✓		✓	✓	✓
68	Khan & Socheata (2021)						
69	de Freytas-Tamura (2020)	✓	✓		✓		
70	Kotowska & Gawlik (2020)						
71	Langlois (2020)	✓	✓				
72	Leiva et al. (2021)	✓	✓		✓	✓	✓
73	Lewin (2020)	✓		✓	✓		✓
74	Lewis (2020)						
75	Lewis (2021)	✓	✓				
76	Sole De La Llere (2021)						
77	McCann (2020)	✓		✓			✓
78	McDonald (2020)	✓		✓		✓	✓
79	Melendez (2020)	✓					✓
80	Millar (2020)	✓	✓		✓	✓	✓
81	Moore (2020)	✓	✓				
82	Moyles (2020)	✓	✓	✓		✓	✓
83	Murphy (2020)						
84	Nahorniak (2020)	✓		✓	✓		✓
85	Nguyen et al. (2020)	✓	✓		✓		✓
86	NMC (2021)	✓	✓	✓			✓
87	Nugget Staff (2020)	✓		✓			
88	Oppenheim (2020)	✓				✓	
89	Oppenheim (2021)	✓			✓		
90	Ostlere (2020)	✓				✓	✓
91	Ozcevik Subasi et al. (2021)						
92	Perry (2020)	✓					✓
93	Queensland Government (2020)	✓		✓			
94	Rankin (2020)						
95	RCM (2020a)						
96	RCM (2020b)						
97	RCM (2020c)						
98	RCM (2020d)						
99	RCM (2020e)						
100	RCM (2020f)	✓	✓				
101	RCM (2020g)	✓		✓	✓	✓	✓
102	RCM (2020h)	✓	✓				✓

Total number of papers n=181		THEME:	SUB-THEMES:				
		Rapid Service Change	Changes to Guidelines & Policies	Changes to Antenatal care	Changes to Intrapartum Care	Changes to Postnatal Care	Use of Telehealth
No	Reference	n=126 (70%)	n=59 (33%)	n=77 (43%)	n=71 (39%)	n=50 (28%)	n=71 (39%)
103	Renfrew et al. (2020)	✓	✓	✓	✓	✓	✓
104	Renfrew et al. (2021)	✓	✓				
105	Retka (2020)	✓		✓	✓		✓
106	Reyes (2021)	✓		✓	✓	✓	✓
107	Ribner (2020)						
108	Rivers (2020)						
109	Ryan (2020)						
110	Salaudeen (2020)	✓	✓	✓	✓		
111	Samara Kalk (2020)	✓			✓		
112	Scheier (2020)	✓		✓			✓
113	Schipani (2020)	✓	✓	✓	✓	✓	✓
114	Scott (2020a)	✓		✓			✓
115	Scott (2020b)	✓		✓	✓		
116	Scott (2020c)	✓	✓	✓	✓	✓	✓
117	Selcuk Tosun, Akgul Gundogdu & Tas (2021)						
118	Semu-Banda (2020)	✓		✓			
119	Sherwood (2020)	✓		✓	✓	✓	
120	Sibonney (2020a)	✓			✓		✓
121	Smith (2020a)						
122	Smith (2020b)	✓		✓	✓	✓	✓
123	Smith (2020c)						
124	Smith (2021)						
125	Stewart (2020)	✓			✓		
126	Talbot (2020)						
127	Terzon (2020)						
128	Thomson (2020)						
129	Tugores & Wiseman (2020)	✓	✓	✓	✓		
130	Turley (2020)	✓		✓			✓
131	Uzun et al. (2020)						
132	Vinaver (2020)	✓		✓	✓		✓
133	Vinga (2021)						
134	Wade (2021)						
135	Wainer (2020)						
136	Williams (2020)						
137	Wu (2020)	✓		✓			✓
138	Wyton (2020)						
139	Yoruk & Guler (2021)						
140	Yulisman (2021)						
141	'Adapting to change' (2020)	✓		✓		✓	✓

Total number of papers n=181		THEME:	SUB-THEMES:				
		Rapid Service Change	Changes to Guidelines & Policies	Changes to Antenatal care	Changes to Intrapartum Care	Changes to Postnatal Care	Use of Telehealth
No	Reference	n=126 (70%)	n=59 (33%)	n=77 (43%)	n=71 (39%)	n=50 (28%)	n=71 (39%)
142	Ethiopia's Midwives Grapple With the COVID-19 While Ensuring Safe Delivery (2020)						
143	Liberian Midwives Join Counterparts Worldwide to Celebrate International Day of the Midwife Amid COVID-19 Pandemic (2020)						
144	'Midwife retires after career spanning three decades' (2020)						
145	'Standing Up For Community Midwives' (2020)	✓	✓	✓		✓	✓
146	'The Digital Revolution' (2020)	✓		✓		✓	✓
147	'Working for you' (2021)						
148	Azzopardi (2020)	✓	✓	✓			
149	Bailey & Gaskin (2021)	✓		✓	✓	✓	
150	Bar-Zeev et al. (2020)	✓		✓			
151	Bodkin & Roberts (2021)	✓			✓		
152	Byrom (2020)	✓			✓		
153	Calleja (2020)	✓		✓			
154	Conroy (2020)	✓		✓	✓	✓	✓
155	Daellenbach (2020)	✓	✓				
156	Davis (2020)	✓			✓		
157	Garcia de Frutos (2020)	✓		✓	✓	✓	
158	Ducklow (2021)						
159	Harper & Garl& (2020)	✓	✓		✓		
160	ICM (2020a)	✓		✓			
161	ICM (2020b)	✓	✓	✓	✓	✓	
162	ICM (2020c)						
163	Jarman (2020)	✓			✓		
164	Kanem (2020)						
165	Kennedy (2020)	✓	✓				
166	Leduc (2020)	✓	✓				✓
167	Luyben, Fleming & Vermeulen (2020)	✓	✓				
168	Mosalski (2020)	✓			✓		
169	Ngatjiheue (2021)						
170	O'Connell et al. (2020)	✓	✓				✓
171	Pallangyo et al. (2020)	✓		✓	✓		✓
172	Parrocha (2021)						
173	Perkel (2020)						
174	Pihema (2020)						
175	Romanis & Nelson (2020)	✓	✓		✓		

Total number of papers n=181		THEME:	SUB-THEMES:				
		Rapid Service Change	Changes to Guidelines & Policies	Changes to Antenatal care	Changes to Intrapartum Care	Changes to Postnatal Care	Use of Telehealth
No	Reference	n=126 (70%)	n=59 (33%)	n=77 (43%)	n=71 (39%)	n=50 (28%)	n=71 (39%)
176	Shahid (2020)						
177	Sibonney (2020b)	✓			✓	✓	✓
178	Uytenbogaardt (2020a)						
179	Uytenbogaardt (2020b)	✓	✓	✓			✓
180	Walton (2020)	✓	✓	✓	✓	✓	✓
181	Wiltshire (2020)	✓		✓	✓	✓	✓

Appendix H

Table 12: Full list of papers showing which contributed to the ‘Professional Impact on Midwives’ theme and its sub-themes

COLOUR KEY:

High quality paper

Medium quality paper

Low quality paper

Total number of papers n=181		THEME:	SUB-THEMES:				
		Professional Impact on Midwives	Sense of Professional Responsibility	Use of PPE	Increased Workload	Change of Role	Impact on Team
No	Reference	n=161 (89%)	n=88 (49%)	n=93 (51%)	n=76 (42%)	n=98 (54%)	n=52 (29%)
1	Alnuaimi (2021)	✓	✓	✓	✓	✓	✓
2	Baumann et al. (2021)	✓		✓		✓	
3	Bradfield et al. (2021a)	✓	✓	✓	✓	✓	✓
4	Bradfield et al. (2021b)	✓	✓			✓	✓
5	Galle et al. (2021)	✓				✓	✓
6	Gonzalez-Timoneda et al. (2020)	✓	✓	✓	✓	✓	✓
7	Harkness et al. (2021)						
8	Homer et al. (2021)	✓	✓	✓	✓	✓	
9	Izhar et al. (2021)	✓		✓		✓	
10	Jardine et al. (2021)						
11	Kabasakal et al. (2021)						
12	Klamroth et al. (2020)						
13	Liu et al. (2020)						
14	Ombere (2021)	✓		✓	✓	✓	
15	Oparah et al. (2021)	✓	✓		✓	✓	✓
16	Ozhiganova (2021)	✓		✓	✓		✓
17	Regasa et al. (2021)	✓		✓			
18	Semaan et al. (2020)	✓		✓	✓	✓	
19	Tadesse et al. (2020)	✓		✓			
20	Umazume et al. (2020)	✓		✓			
21	West, Bailey & Williams (2020)	✓		✓	✓	✓	✓
22	'A new style of midwifery' (2020)	✓		✓	✓	✓	
23	'Birth and midwifery in a time of COVID' (2020)	✓		✓			
24	COVID-19 Survey (2020)	✓	✓	✓	✓	✓	✓
25	'Homebirth vs the pandemic' (2021)	✓				✓	✓
26	'Midwives ensuring safe delivery under COVID-19' (2020)	✓	✓	✓	✓	✓	
27	Ripe for rebirth (2020)	✓			✓		

Total number of papers n=181		THEME:	SUB-THEMES:				
		Professional Impact on Midwives	Sense of Professional Responsibility	Use of PPE	Increased Workload	Change of Role	Impact on Team
No	Reference	n=161 (89%)	n=88 (49%)	n=93 (51%)	n=76 (42%)	n=98 (54%)	n=52 (29%)
28	'Stronger Together' (2021)	✓	✓		✓		
29	'The midwife's story rescued from media's COVID crisis' (2020)	✓				✓	
30	'The Mother of Invention' (2020)						
31	Akoorie (2020)	✓		✓			
32	Aksoy & Kocak (2020)						
33	Alonso et al. (2021)	✓		✓	✓	✓	
34	Ayres-Brown (2020)	✓	✓		✓	✓	
35	Bailey & Nightingale (2020)	✓	✓	✓	✓	✓	✓
36	BAME Maternity Workforce (2020)	✓		✓	✓	✓	✓
37	Benaglia & Canzini (2021)	✓	✓	✓		✓	✓
38	Boyden (2020)	✓	✓				✓
39	Caron & Shannon (2020)	✓	✓		✓	✓	
40	Carter (2020)	✓		✓	✓	✓	✓
41	Chimbwanda (2020)	✓	✓	✓	✓	✓	
42	Chowdhury et al. (2020)	✓	✓	✓			
43	Coxon et al. (2020)	✓	✓	✓	✓	✓	✓
44	Crowther et al. (2021)	✓	✓	✓	✓	✓	✓
45	Dahlen, Kumar-Hazard & Chiarella (2020)	✓		✓	✓	✓	
46	Davis-Floyd, Gutschow & Schwartz (2020a)	✓		✓	✓	✓	
47	Davis-Floyd, Gutschow & Schwartz (2020b)	✓	✓	✓	✓	✓	
48	Dinsdale (2020)	✓			✓	✓	✓
49	Dixon (2020)	✓		✓	✓	✓	✓
50	Dulfe et al. (2021)	✓	✓	✓	✓		✓
51	Eddy (2020)	✓	✓	✓	✓	✓	✓
52	Einion-Waller, Lord & Regan (2020)	✓				✓	
53	Ellingson (2020)						
54	Flemming (2020)	✓		✓			
55	Gammon (2020)						
56	Gee (2020)	✓			✓	✓	
57	Ghanchi (2020)	✓		✓	✓		
58	Godfrey-Isaacs (2020)	✓	✓		✓	✓	✓
59	Halauafu (2020)	✓	✓	✓	✓	✓	✓
60	Hayes (2020a)	✓	✓	✓		✓	✓
61	Hayes (2020b)	✓	✓	✓		✓	
62	Hemming (2020)						

Total number of papers n=181		THEME:	SUB-THEMES:				
		Professional Impact on Midwives	Sense of Professional Responsibility	Use of PPE	Increased Workload	Change of Role	Impact on Team
Nº	Reference	n=161 (89%)	n=88 (49%)	n=93 (51%)	n=76 (42%)	n=98 (54%)	n=52 (29%)
63	Henderson (2020)	✓	✓	✓	✓	✓	
64	Hughes, Dunne & Moyles (2020)	✓	✓	✓	✓	✓	✓
65	Hunter, Renfrew & Downe (2020)	✓	✓	✓		✓	✓
66	Johariyah et al. (2020)	✓		✓			
67	Johnson (2020)	✓	✓	✓	✓	✓	
68	Khan & Socheata (2021)	✓				✓	
69	de Freytas-Tamura (2020)	✓		✓			
70	Kotowska & Gawlik (2020)	✓	✓	✓			
71	Langlois (2020)	✓		✓			
72	Leiva et al. (2021)	✓	✓	✓		✓	✓
73	Lewin (2020)	✓	✓	✓			
74	Lewis (2020)	✓	✓				✓
75	Lewis (2021)	✓		✓	✓		
76	Sole De La Llere (2021)	✓					✓
77	McCann (2020)	✓	✓			✓	
78	McDonald (2020)	✓				✓	
79	Melendez (2020)	✓		✓	✓	✓	
80	Millar (2020)	✓	✓	✓	✓	✓	✓
81	Moore (2020)	✓			✓		
82	Moyles (2020)	✓	✓		✓	✓	✓
83	Murphy (2020)	✓		✓		✓	
84	Nahorniak (2020)	✓			✓	✓	✓
85	Nguyen et al. (2020)	✓	✓			✓	
86	NMC (2021)	✓	✓	✓	✓		✓
87	Nugget Staff (2020)	✓		✓			
88	Oppenheim (2020)	✓	✓	✓	✓		
89	Oppenheim (2021)	✓			✓		
90	Ostlere (2020)	✓		✓	✓		
91	Ozcevik Subasi et al. (2021)						
92	Perry (2020)	✓		✓		✓	
93	Queensland Government (2020)	✓				✓	
94	Rankin (2020)	✓			✓		
95	RCM (2020a)	✓			✓		
96	RCM (2020b)						
97	RCM (2020c)	✓	✓		✓		
98	RCM (2020d)	✓					✓
99	RCM (2020e)	✓		✓			✓
100	RCM (2020f)	✓					✓
101	RCM (2020g)	✓			✓	✓	✓
102	RCM (2020h)	✓			✓		

Total number of papers n=181		THEME:	SUB-THEMES:				
		Professional Impact on Midwives	Sense of Professional Responsibility	Use of PPE	Increased Workload	Change of Role	Impact on Team
No	Reference	n=161 (89%)	n=88 (49%)	n=93 (51%)	n=76 (42%)	n=98 (54%)	n=52 (29%)
103	Renfrew et al. (2020)	✓			✓	✓	
104	Renfrew et al. (2021)	✓	✓				
105	Retka (2020)	✓		✓	✓	✓	
106	Reyes (2021)	✓		✓		✓	
107	Ribner (2020)	✓				✓	
108	Rivers (2020)	✓	✓				✓
109	Ryan (2020)	✓		✓	✓		
110	Salaudeen (2020)	✓	✓	✓		✓	
111	Samara Kalk (2020)						
112	Scheier (2020)	✓			✓		
113	Schipani (2020)	✓	✓		✓	✓	
114	Scott (2020a)	✓		✓	✓	✓	✓
115	Scott (2020b)	✓	✓			✓	
116	Scott (2020c)	✓	✓	✓	✓	✓	
117	Selcuk Tosun, Akgul Gundogdu & Tas (2021)						
118	Semu-Banda (2020)	✓	✓		✓		
119	Sherwood (2020)	✓	✓		✓	✓	
120	Sibonney (2020a)	✓	✓	✓			
121	Smith (2020a)	✓	✓	✓			
122	Smith (2020b)	✓	✓			✓	✓
123	Smith (2020c)	✓	✓	✓		✓	
124	Smith (2021)	✓	✓		✓	✓	
125	Stewart (2020)	✓	✓				
126	Talbot (2020)	✓	✓	✓			
127	Terzon (2020)	✓			✓		
128	Thomson (2020)	✓	✓	✓	✓	✓	
129	Tugores & Wiseman (2020)	✓	✓	✓		✓	✓
130	Turley (2020)	✓	✓	✓			
131	Uzun et al. (2020)	✓				✓	
132	Vinaver (2020)	✓				✓	✓
133	Vinga (2021)	✓		✓	✓		✓
134	Wade (2021)	✓	✓				
135	Wainer (2020)	✓			✓		
136	Williams (2020)	✓	✓	✓	✓	✓	
137	Wu (2020)	✓		✓	✓	✓	
138	Wyton (2020)	✓		✓	✓		
139	Yoruk & Guler (2021)						
140	Yulisman (2021)	✓			✓	✓	
141	'Adapting to change' (2020)	✓				✓	

Total number of papers n=181		THEME:	SUB-THEMES:				
		Professional Impact on Midwives	Sense of Professional Responsibility	Use of PPE	Increased Workload	Change of Role	Impact on Team
Nº	Reference	n=161 (89%)	n=88 (49%)	n=93 (51%)	n=76 (42%)	n=98 (54%)	n=52 (29%)
142	Ethiopia's Midwives Grapple With the COVID-19 While Ensuring Safe Delivery (2020)	✓	✓	✓		✓	
143	Liberian Midwives Join Counterparts Worldwide to Celebrate International Day of the Midwife Amid COVID-19 Pandemic (2020)	✓		✓			✓
144	'Midwife retires after career spanning three decades' (2020)	✓	✓				
145	'Standing Up For Community Midwives' (2020)	✓	✓	✓	✓	✓	
146	'The Digital Revolution' (2020)						
147	'Working for you' (2021)	✓		✓		✓	
148	Azzopardi (2020)	✓				✓	
149	Bailey & Gaskin (2021)	✓			✓	✓	
150	Bar-Zeev et al. (2020)	✓				✓	
151	Bodkin & Roberts (2021)						
152	Byrom (2020)	✓			✓	✓	✓
153	Calleja (2020)	✓				✓	
154	Conroy (2020)	✓	✓	✓	✓	✓	✓
155	Daellenbach (2020)	✓	✓	✓	✓	✓	
156	Davis (2020)	✓			✓		
157	Garcia de Frutos (2020)	✓	✓		✓	✓	
158	Ducklow (2021)	✓			✓	✓	
159	Harper & Garl& (2020)	✓	✓	✓			
160	ICM (2020a)	✓		✓	✓	✓	
161	ICM (2020b)	✓		✓	✓	✓	
162	ICM (2020c)	✓	✓	✓			
163	Jarman (2020)	✓			✓		
164	Kanem (2020)	✓	✓	✓		✓	✓
165	Kennedy (2020)	✓				✓	✓
166	Leduc (2020)	✓	✓	✓			
167	Luyben, Fleming & Vermeulen (2020)						
168	Mosalski (2020)	✓			✓		
169	Ngatjiheue (2021)	✓	✓				
170	O'Connell et al. (2020)	✓	✓		✓	✓	✓
171	Pallangyo et al. (2020)	✓	✓	✓	✓	✓	✓
172	Parrocha (2021)	✓				✓	
173	Perkel (2020)						
174	Pihema (2020)	✓	✓				
175	Romanis & Nelson (2020)	✓			✓		

Total number of papers n=181		THEME:	SUB-THEMES:				
		Professional Impact on Midwives	Sense of Professional Responsibility	Use of PPE	Increased Workload	Change of Role	Impact on Team
No	Reference	n=161 (89%)	n=88 (49%)	n=93 (51%)	n=76 (42%)	n=98 (54%)	n=52 (29%)
176	Shahid (2020)						
177	Sibonney (2020b)	✓		✓			
178	Uytenbogaardt (2020a)	✓		✓	✓		
179	Uytenbogaardt (2020b)	✓	✓	✓		✓	✓
180	Walton (2020)	✓	✓	✓	✓	✓	✓
181	Wiltshire (2020)	✓		✓	✓		

Appendix I

Table 13: Full list of papers showing which contributed to the ‘Personal Impact on Midwives’ theme and its sub-themes

COLOUR KEY:

High quality paper

Medium quality paper

Low quality paper

Total number of papers n=181		THEME:	SUB-THEMES:			
		Personal Impact on Midwives	Fear	Emotional Toll	Impact on Home-Life	Value of Job
No	Reference	n=136 (75%)	n=88 (49%)	n=75 (41%)	n=79 (44%)	n=56 (31%)
1	Alnuaimi (2021)	✓	✓	✓	✓	✓
2	Baumann et al. (2021)					
3	Bradfield et al. (2021a)	✓	✓	✓	✓	
4	Bradfield et al. (2021b)	✓	✓	✓		
5	Galle et al. (2021)	✓	✓			
6	Gonzalez-Timoneda et al. (2020)	✓	✓			✓
7	Harkness et al. (2021)					
8	Homer et al. (2021)	✓			✓	
9	Izhar et al. (2021)	✓	✓			
10	Jardine et al. (2021)					
11	Kabasakal et al. (2021)	✓	✓			
12	Klamroth et al. (2020)					
13	Liu et al. (2020)	✓		✓		
14	Ombere (2021)	✓	✓	✓		
15	Oparah et al. (2021)	✓	✓	✓	✓	✓
16	Ozhiganova (2021)	✓			✓	✓
17	Regasa et al. (2021)	✓				✓
18	Semaan et al. (2020)	✓	✓	✓		
19	Tadesse et al. (2020)					
20	Umazume et al. (2020)					
21	West, Bailey & Williams (2020)	✓	✓	✓	✓	✓
22	'A new style of midwifery' (2020)	✓			✓	✓
23	'Birth and midwifery in a time of COVID' (2020)	✓	✓	✓	✓	
24	COVID-19 Survey (2020)	✓		✓		
25	'Homebirth vs the pandemic' (2021)	✓	✓	✓		
26	'Midwives ensuring safe delivery under COVID-19' (2020)	✓	✓			✓
27	Ripe for rebirth (2020)					

Total number of papers n=181		THEME:	SUB-THEMES:			
		Personal Impact on Midwives	Fear	Emotional Toll	Impact on Home-Life	Value of Job
No	Reference	n=136 (75%)	n=88 (49%)	n=75 (41%)	n=79 (44%)	n=56 (31%)
28	'Stronger Together' (2021)	✓		✓		✓
29	'The midwife's story rescued from media's COVID crisis' (2020)	✓	✓			
30	'The Mother of Invention' (2020)					
31	Akoorie (2020)	✓	✓			
32	Aksoy & Kocak (2020)	✓	✓	✓		
33	Alonso et al. (2021)	✓	✓	✓	✓	
34	Ayres-Brown (2020)					
35	Bailey & Nightingale (2020)	✓		✓	✓	
36	BAME Maternity Workforce (2020)	✓	✓	✓	✓	✓
37	Benaglia & Canzini (2021)	✓	✓	✓		✓
38	Boyden (2020)	✓	✓			
39	Caron & Shannon (2020)	✓	✓			
40	Carter (2020)	✓	✓	✓	✓	✓
41	Chimbwanda (2020)	✓	✓	✓	✓	✓
42	Chowdhury et al. (2020)	✓	✓			
43	Coxon et al. (2020)	✓	✓		✓	
44	Crowther et al. (2021)	✓	✓	✓	✓	✓
45	Dahlen, Kumar-Hazard & Chiarella (2020)					
46	Davis-Floyd, Gutschow & Schwartz (2020a)	✓	✓		✓	✓
47	Davis-Floyd, Gutschow & Schwartz (2020b)	✓	✓		✓	✓
48	Dinsdale (2020)					
49	Dixon (2020)	✓		✓	✓	
50	Dulfe et al. (2021)	✓	✓	✓		
51	Eddy (2020)	✓	✓	✓	✓	
52	Einion-Waller, Lord & Regan (2020)					
53	Ellingson (2020)	✓			✓	✓
54	Flemming (2020)					
55	Gammon (2020)					
56	Gee (2020)					
57	Ghanchi (2020)	✓	✓	✓	✓	
58	Godfrey-Isaacs (2020)	✓	✓	✓	✓	
59	Halauafu (2020)	✓	✓	✓	✓	✓
60	Hayes (2020a)	✓			✓	
61	Hayes (2020b)	✓		✓	✓	✓
62	Hemming (2020)					

Total number of papers n=181		THEME:	SUB-THEMES:			
		Personal Impact on Midwives	Fear	Emotional Toll	Impact on Home-Life	Value of Job
Nº	Reference	n=136 (75%)	n=88 (49%)	n=75 (41%)	n=79 (44%)	n=56 (31%)
63	Henderson (2020)					
64	Hughes, Dunne & Moyles (2020)	✓	✓	✓		✓
65	Hunter, Renfrew & Downe (2020)	✓	✓	✓	✓	✓
66	Johariyah et al. (2020)					
67	Johnson (2020)	✓		✓		
68	Khan & Socheata (2021)					
69	de Freytas-Tamura (2020)	✓	✓			
70	Kotowska & Gawlik (2020)	✓	✓			
71	Langlois (2020)	✓	✓			
72	Leiva et al. (2021)	✓	✓	✓	✓	✓
73	Lewin (2020)	✓		✓	✓	
74	Lewis (2020)	✓	✓	✓	✓	✓
75	Lewis (2021)	✓	✓	✓	✓	
76	Sole De La Llere (2021)					
77	McCann (2020)	✓	✓			✓
78	McDonald (2020)					
79	Melendez (2020)	✓	✓			
80	Millar (2020)	✓	✓	✓	✓	✓
81	Moore (2020)	✓	✓	✓		✓
82	Moyles (2020)	✓	✓	✓	✓	
83	Murphy (2020)	✓	✓		✓	
84	Nahorniak (2020)	✓	✓			
85	Nguyen et al. (2020)					
86	NMC (2021)	✓	✓	✓	✓	✓
87	Nugget Staff (2020)					
88	Oppenheim (2020)	✓	✓	✓	✓	
89	Oppenheim (2021)	✓	✓	✓	✓	✓
90	Ostlere (2020)	✓	✓	✓	✓	✓
91	Ozcevik Subasi et al. (2021)	✓		✓	✓	
92	Perry (2020)					
93	Queensland Government (2020)					
94	Rankin (2020)					
95	RCM (2020a)	✓		✓		✓
96	RCM (2020b)	✓				✓
97	RCM (2020c)	✓			✓	
98	RCM (2020d)	✓		✓		
99	RCM (2020e)	✓	✓			
100	RCM (2020f)	✓	✓			
101	RCM (2020g)	✓			✓	

Total number of papers n=181		THEME:	SUB-THEMES:			
		Personal Impact on Midwives	Fear	Emotional Toll	Impact on Home-Life	Value of Job
No	Reference	n=136 (75%)	n=88 (49%)	n=75 (41%)	n=79 (44%)	n=56 (31%)
102	RCM (2020h)	✓	✓	✓		✓
103	Renfrew et al. (2020)	✓	✓	✓	✓	✓
104	Renfrew et al. (2021)	✓			✓	
105	Retka (2020)	✓		✓	✓	
106	Reyes (2021)	✓	✓	✓	✓	✓
107	Ribner (2020)	✓	✓	✓		✓
108	Rivers (2020)	✓		✓	✓	✓
109	Ryan (2020)	✓		✓	✓	✓
110	Salaudeen (2020)	✓	✓	✓		✓
111	Samara Kalk (2020)					
112	Scheier (2020)	✓			✓	
113	Schipani (2020)	✓	✓	✓	✓	
114	Scott (2020a)	✓		✓	✓	
115	Scott (2020b)	✓		✓	✓	
116	Scott (2020c)	✓	✓		✓	✓
117	Selcuk Tosun, Akgul Gundogdu & Tas (2021)	✓	✓	✓		
118	Semu-Banda (2020)	✓	✓	✓	✓	
119	Sherwood (2020)	✓			✓	
120	Sibonney (2020a)	✓	✓			✓
121	Smith (2020a)	✓				✓
122	Smith (2020b)	✓	✓	✓	✓	
123	Smith (2020c)	✓		✓		
124	Smith (2021)	✓				✓
125	Stewart (2020)					
126	Talbot (2020)	✓		✓		
127	Terzon (2020)					
128	Thomson (2020)	✓	✓	✓	✓	✓
129	Tugores & Wiseman (2020)	✓	✓		✓	
130	Turry (2020)	✓			✓	✓
131	Uzun et al. (2020)	✓		✓	✓	
132	Vinaver (2020)	✓		✓		
133	Vinga (2021)	✓	✓		✓	✓
134	Wade (2021)	✓			✓	✓
135	Wainer (2020)					
136	Williams (2020)	✓		✓	✓	✓
137	Wu (2020)					
138	Wyton (2020)	✓		✓	✓	✓
139	Yoruk & Guler (2021)	✓	✓	✓		
140	Yulisman (2021)					
141	'Adapting to change' (2020)	✓			✓	

Total number of papers n=181		THEME:	SUB-THEMES:			
		Personal Impact on Midwives	Fear	Emotional Toll	Impact on Home-Life	Value of Job
Nº	Reference	n=136 (75%)	n=88 (49%)	n=75 (41%)	n=79 (44%)	n=56 (31%)
142	Ethiopia's Midwives Grapple With the COVID-19 While Ensuring Safe Delivery (2020)	✓	✓			
143	Liberian Midwives Join Counterparts Worldwide to Celebrate International Day of the Midwife Amid COVID-19 Pandemic (2020)	✓	✓		✓	
144	'Midwife retires after career spanning three decades' (2020)					
145	'Standing Up For Community Midwives' (2020)	✓			✓	✓
146	'The Digital Revolution' (2020)					
147	'Working for you' (2021)	✓	✓			
148	Azzopardi (2020)					
149	Bailey & Gaskin (2021)					
150	Bar-Zeev et al. (2020)	✓	✓		✓	
151	Bodkin & Roberts (2021)					
152	Byrom (2020)	✓		✓		
153	Calleja (2020)					
154	Conroy (2020)	✓	✓	✓	✓	
155	Daellenbach (2020)	✓			✓	
156	Davis (2020)	✓			✓	
157	Garcia de Frutos (2020)	✓	✓	✓		✓
158	Ducklow (2021)					
159	Harper & Garl& (2020)	✓	✓			
160	ICM (2020a)					
161	ICM (2020b)	✓	✓		✓	✓
162	ICM (2020c)	✓			✓	✓
163	Jarman (2020)	✓			✓	
164	Kanem (2020)	✓	✓		✓	
165	Kennedy (2020)	✓	✓			
166	Leduc (2020)	✓		✓	✓	✓
167	Luyben, Fleming & Vermeulen (2020)	✓			✓	
168	Mosalski (2020)					
169	Ngatjiheue (2021)	✓	✓			✓
170	O'Connell et al. (2020)	✓	✓	✓	✓	
171	Pallangyo et al. (2020)	✓	✓		✓	
172	Parrocha (2021)					
173	Perkel (2020)					
174	Pihema (2020)	✓		✓		
175	Romanis & Nelson (2020)					

Total number of papers n=181		THEME:	SUB-THEMES:			
		Personal Impact on Midwives	Fear	Emotional Toll	Impact on Home-Life	Value of Job
No	Reference	n=136 (75%)	n=88 (49%)	n=75 (41%)	n=79 (44%)	n=56 (31%)
176	Shahid (2020)	✓	✓	✓		
177	Sibonney (2020b)	✓	✓			✓
178	Uytenbogaardt (2020a)	✓	✓			
179	Uytenbogaardt (2020b)	✓	✓	✓	✓	
180	Walton (2020)	✓	✓	✓	✓	✓
181	Wiltshire (2020)					

Appendix J

Table 14: Full list of papers showing which contributed to the 'Midwives' Perception of Impact on Women' theme and its sub-themes

COLOUR KEY:

High quality paper

Medium quality paper

Low quality paper

Total number of papers n=181		THEME:	SUB-THEMES:		
		Midwives' Perception of Impact on Women	Clinical Impact	Emotional Impact	Personal Impact
No	Reference	n=126 (70%)	n=97 (54%)	n=112 (62%)	n=52 (29%)
1	Alnuaimi (2021)	✓	✓		✓
2	Baumann et al. (2021)				
3	Bradfield et al. (2021a)	✓	✓	✓	✓
4	Bradfield et al. (2021b)				
5	Galle et al. (2021)	✓	✓	✓	
6	Gonzalez-Timoneda et al. (2020)	✓	✓	✓	
7	Harkness et al. (2021)	✓	✓	✓	
8	Homer et al. (2021)	✓	✓	✓	
9	Izhar et al. (2021)				
10	Jardine et al. (2021)	✓	✓		
11	Kabasakal et al. (2021)				
12	Klamroth et al. (2020)				
13	Liu et al. (2020)				
14	Ombere (2021)	✓	✓	✓	✓
15	Oparah et al. (2021)	✓	✓	✓	✓
16	Ozhiganova (2021)	✓		✓	
17	Regasa et al. (2021)				
18	Semaan et al. (2020)	✓	✓	✓	
19	Tadesse et al. (2020)				
20	Umazume et al. (2020)				
21	West, Bailey & Williams (2020)	✓		✓	
22	'A new style of midwifery' (2020)	✓	✓	✓	
23	'Birth and midwifery in a time of COVID' (2020)	✓	✓	✓	
24	COVID-19 Survey (2020)	✓	✓	✓	
25	'Homebirth vs the pandemic' (2021)	✓	✓	✓	✓
26	'Midwives ensuring safe delivery under COVID-19' (2020)	✓	✓		
27	Ripe for rebirth (2020)	✓	✓	✓	
28	'Stronger Together' (2021)	✓		✓	
29	'The midwife's story rescued from media's COVID crisis' (2020)	✓		✓	

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30	'The Mother of Invention' (2020)	✓		✓	
31	Akoorie (2020)				
32	Aksoy & Kocak (2020)				
33	Alonso et al. (2021)	✓	✓	✓	✓
34	Ayres-Brown (2020)	✓	✓	✓	
35	Bailey & Nightingale (2020)	✓	✓	✓	✓
36	BAME Maternity Workforce (2020)	✓	✓	✓	✓
37	Benaglia & Canzini (2021)	✓	✓	✓	✓
38	Boyden (2020)				
39	Caron & Shannon (2020)	✓	✓	✓	✓
40	Carter (2020)	✓	✓	✓	
41	Chimbwanda (2020)	✓		✓	
42	Chowdhury et al. (2020)	✓		✓	
43	Coxon et al. (2020)	✓	✓	✓	✓
44	Crowther et al. (2021)	✓	✓	✓	
45	Dahlen, Kumar-Hazard & Chiarella (2020)	✓	✓	✓	✓
46	Davis-Floyd, Gutschow & Schwartz (2020a)	✓	✓	✓	✓
47	Davis-Floyd, Gutschow & Schwartz (2020b)	✓	✓	✓	✓
48	Dinsdale (2020)	✓	✓	✓	
49	Dixon (2020)	✓	✓	✓	
50	Dulfe et al. (2021)	✓		✓	
51	Eddy (2020)	✓	✓	✓	
52	Einion-Waller, Lord & Regan (2020)	✓	✓	✓	
53	Ellingson (2020)	✓	✓	✓	
54	Flemming (2020)	✓		✓	
55	Gammon (2020)	✓	✓	✓	
56	Gee (2020)	✓	✓	✓	
57	Ghanchi (2020)	✓		✓	
58	Godfrey-Isaacs (2020)	✓	✓	✓	✓
59	Halauafu (2020)	✓		✓	
60	Hayes (2020a)	✓		✓	✓
61	Hayes (2020b)				
62	Hemming (2020)				
63	Henderson (2020)	✓	✓	✓	
64	Hughes, Dunne & Moyles (2020)	✓	✓	✓	
65	Hunter, Renfrew & Downe (2020)	✓		✓	
66	Johariyah et al. (2020)	✓		✓	✓
67	Johnson (2020)	✓	✓	✓	
68	Khan & Socheata (2021)				
69	de Freytas-Tamura (2020)	✓	✓	✓	

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70	Kotowska & Gawlik (2020)				
71	Langlois (2020)	✓	✓	✓	
72	Leiva et al. (2021)	✓	✓	✓	✓
73	Lewin (2020)	✓	✓	✓	✓
74	Lewis (2020)				
75	Lewis (2021)	✓	✓	✓	
76	Sole De La Llere (2021)				
77	McCann (2020)	✓		✓	
78	McDonald (2020)	✓	✓	✓	
79	Melendez (2020)	✓	✓	✓	✓
80	Millar (2020)	✓	✓	✓	✓
81	Moore (2020)	✓		✓	
82	Moyles (2020)	✓		✓	
83	Murphy (2020)	✓		✓	
84	Nahorniak (2020)	✓	✓	✓	
85	Nguyen et al. (2020)	✓	✓	✓	✓
86	NMC (2021)	✓	✓		✓
87	Nugget Staff (2020)	✓			✓
88	Oppenheim (2020)	✓	✓	✓	
89	Oppenheim (2021)	✓	✓	✓	
90	Ostlere (2020)	✓	✓	✓	✓
91	Ozcevik Subasi et al. (2021)				
92	Perry (2020)	✓	✓	✓	✓
93	Queensland Government (2020)	✓	✓	✓	
94	Rankin (2020)				
95	RCM (2020a)				
96	RCM (2020b)				
97	RCM (2020c)				
98	RCM (2020d)				
99	RCM (2020e)				
100	RCM (2020f)				
101	RCM (2020g)				
102	RCM (2020h)	✓	✓	✓	
103	Renfrew et al. (2020)	✓	✓	✓	
104	Renfrew et al. (2021)				
105	Retka (2020)	✓	✓	✓	✓
106	Reyes (2021)	✓	✓	✓	✓
107	Ribner (2020)	✓	✓		
108	Rivers (2020)				
109	Ryan (2020)	✓	✓	✓	
110	Salaudeen (2020)	✓		✓	✓
111	Samara Kalk (2020)	✓	✓	✓	

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112	Scheier (2020)	✓	✓	✓	✓
113	Schipani (2020)	✓	✓	✓	✓
114	Scott (2020a)	✓	✓	✓	
115	Scott (2020b)	✓		✓	
116	Scott (2020c)	✓	✓	✓	
117	Selcuk Tosun, Akgul Gundogdu & Tas (2021)				
118	Semu-Banda (2020)				
119	Sherwood (2020)	✓	✓		
120	Sibonney (2020a)	✓	✓	✓	✓
121	Smith (2020a)				
122	Smith (2020b)	✓	✓	✓	✓
123	Smith (2020c)	✓	✓	✓	✓
124	Smith (2021)				
125	Stewart (2020)	✓	✓	✓	✓
126	Talbot (2020)	✓		✓	
127	Terzon (2020)	✓	✓	✓	✓
128	Thomson (2020)	✓	✓	✓	
129	Tugores & Wiseman (2020)	✓	✓		✓
130	Turay (2020)	✓	✓	✓	✓
131	Uzun et al. (2020)				
132	Vinaver (2020)	✓	✓	✓	✓
133	Vinga (2021)				
134	Wade (2021)				
135	Wainer (2020)	✓	✓	✓	
136	Williams (2020)	✓		✓	
137	Wu (2020)	✓	✓	✓	✓
138	Wyton (2020)	✓	✓	✓	
139	Yoruk & Guler (2021)				
140	Yulisman (2021)				
141	'Adapting to change' (2020)	✓		✓	
142	Ethiopia's Midwives Grapple With the COVID-19 While Ensuring Safe Delivery (2020)	✓	✓		
143	Liberian Midwives Join Counterparts Worldwide to Celebrate International Day of the Midwife Amid COVID-19 Pandemic (2020)				
144	'Midwife retires after career spanning three decades' (2020)				
145	'Standing Up For Community Midwives' (2020)	✓	✓	✓	✓
146	'The Digital Revolution' (2020)				
147	'Working for you' (2021)	✓	✓		

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148	Azzopardi (2020)				
149	Bailey & Gaskin (2021)				
150	Bar-Zeev et al. (2020)	✓	✓	✓	✓
151	Bodkin & Roberts (2021)				
152	Byrom (2020)	✓	✓		
153	Calleja (2020)				
154	Conroy (2020)	✓	✓		
155	Daellenbach (2020)				
156	Davis (2020)	✓	✓	✓	
157	Garcia de Frutos (2020)	✓	✓	✓	✓
158	Ducklow (2021)				
159	Harper & Garl& (2020)				
160	ICM (2020a)	✓	✓	✓	
161	ICM (2020b)	✓	✓	✓	✓
162	ICM (2020c)				
163	Jarman (2020)	✓	✓	✓	✓
164	Kanem (2020)	✓		✓	
165	Kennedy (2020)	✓	✓	✓	✓
166	Leduc (2020)				
167	Luyben, Fleming & Vermeulen (2020)				
168	Mosalski (2020)	✓	✓	✓	
169	Ngatjiheue (2021)				
170	O'Connell et al. (2020)	✓		✓	
171	Pallangyo et al. (2020)	✓	✓	✓	✓
172	Parrocha (2021)				
173	Perkel (2020)	✓	✓	✓	✓
174	Pihema (2020)	✓	✓		
175	Romanis & Nelson (2020)	✓	✓	✓	✓
176	Shahid (2020)	✓	✓		✓
177	Sibonney (2020b)	✓		✓	✓
178	Uytenbogaardt (2020a)				
179	Uytenbogaardt (2020b)				
180	Walton (2020)	✓		✓	
181	Wiltshire (2020)	✓		✓	✓