

# The Handbook of Midwifery Research

Mary Steen and Taniya Roberts



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# **The Handbook of Midwifery Research**

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# ***Foreword***

As the UK government is beginning to recognise, encouraging an increasing synergy between practice and research is essential to maximise the quality of care, and the development and retention of staff. The recent institution of the NIHR Fellowship awards in the UK is an indication of this intent. However, I am very conscious from my teaching of research methods to undergraduate midwives that it is, generally, the last module they want to do. Most people who want to become midwives are deeply drawn to practice. Many have waited for years to be able to get on to a midwifery course, and they are highly focused on getting through their course, and into practice. Research seems to be a distant irrelevance. Despite this, many of these same students after some years in practice find that they have an increasing number of questions that they would really like to have an answer for. Some of these emerge through clinical experience, and some are borne of frustration at the way things are being done, or at policies and procedures that do not seem to make sense to them, or for the women babies and families they are attending. There are also some students who are curious about aspects of midwifery even during their training.

For student midwives, and for qualified staff who are beginning to turn towards this possibility, there is a plethora of books relating advanced aspects of research, often with a focus on specific qualitative or quantitative techniques. For many of those braving the research ocean for the first time, these books can be very dense and off-putting. Terms like theoretical perspective, epistemology, ontology, and etic and emic perspectives are profoundly scary. This book, in contrast, provides a clear and straightforward introduction to the whole spectrum of research in maternity care. The authors have

broken the process down into easy steps, and provided a clear overview at each stage, with reassuringly familiar examples of how the knowledge they present might be applied in practice. For those just dipping their toes in the cool waters of research this text provides easy access to the warm shallows. Even for those who are more familiar, there are insights to be gained from reading through the book. I hope you enjoy reading it as much as I did!

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# ***Preface***

Research is a subject in its own right and initially many midwives and students will be overwhelmed by the whole process of how to understand and undertake research. The initial idea of writing this book arose when the authors gained an insight into how some midwives were finding it difficult, first, to understand how to search and make sense of research evidence and, second, how to write a research proposal and, finally, how to undertake a research study. In addition, some student midwives reported similar concerns and this did nothing for their confidence to undertake research.

This instigated the authors to write a handbook on understanding and undertaking research which aims to reduce the difficulties some midwives and students have discussed and to promote confidence to undertake research. The authors, therefore, feel there is a need for a handbook which specifically focuses on the needs of midwives and students, which gives midwifery-led research examples, is written in a clear and concise way to help increase their knowledge and clarify some of the misunderstandings reported.

The book is organised into two parts:

Part I Understanding research

Part II Undertaking research

This book will, hopefully help support midwives and students to gain knowledge, skills and increase their confidence to undertake research successfully and to not stop there! The final chapter will focus on encouraging mid-wives and students to write an article for publication or give a conference presentation on their research work. The authors will draw upon their own and other midwives' personal experiences of understanding and undertaking midwifery research. The authors will also refer to some

midwifery studies successfully completed as examples. Both qualitative and quantitative examples will be included and this will help midwives gain confidence to undertake research themselves. Remember, the authors had to start somewhere and have acquired research knowledge and skills over a number of years and now they want to inspire midwives and students to do the same.

Research terminology in itself can be confusing and knowledge of new words and their meanings will need to be learnt whilst trying to understand and undertake research. A useful glossary of research words and terms is included in this handbook.

Research informs and links midwifery education, policy, management and practice. It is, therefore, vitally important that midwives are able to understand what research is, how to find the evidence and how to critique both qualitative and quantitative evidence, so they can make sense of the evidence upon which to base their care and practice. Midwives will then be able to undertake research, either as a team member of a collaborative research study or as a principal or chief investigator of midwifery-led research studies.

It is also vitally important that student midwives develop the knowledge and skills to understand research and for some to become researchers who will have the ability, confidence and passion to undertake midwifery research. Student midwives are our future; it is vital that they develop the competences and confidence to understand and undertake research as this will empower and enable them to promote evidence-based practice, further develop midwifery as a profession and increase the likelihood of women, their babies and their families receiving the best care possible which will be based on research evidence.

## ***About the book***

Part I starts with a chapter on *Introduction to midwifery research* which sets the scene and covers an understanding of the general principles of research, the importance of the research question, the approaches that can be undertaken, the differences between these and the importance of applying evidence to midwifery practice. Chapter 2, *Finding the evidence*, explains in detail how to undertake a literature review, the sources of evidence available and how to use a search strategy, and gives useful examples. In addition, midwifery-related structured and systematic reviews are described and discussed in an attempt to promote a better understanding of how to undertake these aspects of research. Chapter 3, *Making sense of the evidence*, covers the critiquing aspects of research evidence, gives an insight into how evidence is graded and clearly differentiates the differences between qualitative and quantitative approaches.

Part II focuses on how to undertake research and includes four chapters. *Data collection techniques* cover both qualitative and quantitative methods and are the focus of Chapter 4. This chapter gives specific details on how to undertake a research interview and how to design a questionnaire as these will be the most likely data collection techniques a midwife or student will make use of. Chapter 5, *Ethics and research governance*, introduces the role of ethics when undertaking research and discusses the importance of research governance. Ethical issues relating to midwifery research are considered and specific details on how to obtain ethical approval are addressed to help midwives and students achieve this successfully. *Data analysis* is the focus of Chapter 6. An introduction to data analysis, which is followed by specific sections of both qualitative and quantitative analysis

methods, is covered and a basic understanding of statistics is also included to help midwives and students link the type of data collected with the appropriate statistical test required to analyse a specific type of data (fit for purpose). Finally, *the research dissertation/thesis and dissemination* are the focus of Chapter 7. Writing skills and how to structure your dissertation/thesis are described and discussed. Guidelines and advice on how to get your work published and presenting a conference paper are given. A specific section on useful resources and becoming a researcher brings the book to a close.

## ***About the authors***

**Professor Mary Steen RGN, RM, BHSc, PGCRM, PG Dip HE, MCGI, P h D**

Mary was appointed as a Professor of Midwifery at the University of Chester in 2010. She has been a practising midwife for over 23 years and been involved in midwifery research since 1990. During that time she has become very interested in a wide remit of midwifery and family health issues which has led her to undertake several research studies and service development projects; with the overall aim to improve the care and services for women, babies and their families. Her PhD research focused specifically on the care and consequences of perineal trauma after childbirth and following laboratory experiments, focus group interviews and undertaking two randomised controlled trials she invented a new localised cooling treatment (femepad) to alleviate perineal pain. She has published her work in several health-related journals, presented at national and international conferences and written book chapters and books. She has contributed to books entitled *Ask a Midwife*, *Pregnancy Day by Day* and is the author of a recently published book *Pregnancy and Birth: Everything you Need to Know*.

She is the programme leader for an undergraduate research dissertation module, supervises Masters and PhD students and an external examiner for the MSc in Midwifery at Trinity College, Dublin. She is the professional editor of the Royal College of Midwives magazine and student e-zine, a peer reviewer for several journals and funding bodies. Her work has received several awards for clinical innovation, original research and outstanding services to midwifery. Mary continues to be involved in midwifery practice and particularly enjoys teaching antenatal and postnatal exercises, active birth,

attending home births and then supporting parents through the transition to parenthood

**Taniya Roberts RGN, RM, BSc (Hons), MSc, PG Dip PE**

Taniya has been qualified as a midwife for over 18 years and her midwifery practice has included being a hospital and a team midwife at the Homerton Hospital, London and a hospital midwife at St Michael 's Hospital, Bristol. Prior to becoming a midwife, Taniya had been a Night Sister at the Royal

London Hospital in the late 1980s and this led her to develop a keen interest in women's health; she took a subsequent course in gynaecological nursing, and this resulted in a post as a Research Sister. She ultimately progressed into midwifery practice and qualified as a midwife in 1992.

She has been involved in research since the early 1990s when she was Research Sister in Ovarian Cancer Screening at King's College Hospital, London. In 1995 she took up a position as Specialist Midwife Practitioner in Fetal Echocardiography at Guy's Hospital, London, which was the only position of its kind within the UK. In 2002 she became a Midwifery researcher at St. Michael's Hospital, Bristol, where she led a qualitative study on women's experiences of obstetric emergencies and participated in a quantitative study on fetal and maternal heart rate monitoring. She has published on a number of research-related topics and most recently has published a series of articles on understanding phenomenology, grounded theory and ethnography. Taniya is also a peer reviewer for an international journal on research methodologies.

Since 2004, Taniya has been a Senior Lecturer in the Department of Midwifery and Reproductive Health, Faculty of Health and Social Care, University of Chester.

She has a particular passion for teaching research and is the module leader for the Context of Research module for third-year midwifery students.

Taniya is also module leader for several other midwifery-specific modules. She is a Link Lecturer to a maternity unit and a gynaecological nursing ward. She is currently studying for a PhD and undertaking a Heideggerian Hermeneutic Phenomenological study of midwives' experiences of caring for women with a raised BMI of 30+ during the childbirth process.

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# ***PART I***

## ***Understanding research***

# ***CHAPTER 1***

## ***Introduction to midwifery research***

### **Introducing research**

The focus of this chapter is to introduce midwifery research, types of knowledge, audit and research, the differences between qualitative and quantitative research and the importance of evidence-based practice. This chapter will assist midwives and students to gain basic knowledge and understanding of what research is and why it is important. This new knowledge will enable midwives and students to understand and appreciate the need for evidence-based practice when caring for childbearing women, their babies and their families. The importance of evidence-based practice will be stressed to promote good standards of care.

### **Aim**

To introduce midwives and students to different research approaches that will help them develop an understanding of types of knowledge, the differences between audit and research and the importance of evidence-based practice.

### ***Learning outcomes***

By the end of this introductory chapter, midwives and students:

- will be able to recognise different types of knowledge;
- will be able to distinguish between qualitative and quantitative approaches;

- will know the difference between audit and research;
- will understand the importance of evidence-based practice.

## **Research questions - what, where, when, why, who and how?**

When undertaking research, you firstly have to ask yourself the questions what, where, when, why, who and how? This will help you decide the research approach you need to apply, either quantitative (measures/numbers/counts/ frequencies) or qualitative (understanding of words/phrases/language). It will also help you to develop a research question or hypothesis (theory) that needs asking and is relevant to something you are curious or concerned about in midwifery education, policy, management or practice. The first task, when you have an idea of the research question you would like to ask, is to find out about any existing evidence there is available on the subject matter.

Ideally, you should choose something you are passionate about or some burning issue you would like to address. Once you have made a decision about what you would like to investigate or explore and have a preliminary research question, you will need to undertake a literature search to see if the research question has already been asked or not. Using a search strategy and structuring the review in some way (which is covered in the next chapter) can be helpful in organising the evidence or identifying a lack of evidence you may find. The search strategy and literature review can be influenced by the research approach adopted and this chapter introduces the different approaches to research.

## **Midwifery and research**

Midwifery-led research has not had a long history, in fact as late as the 1980s there was a paucity of research in this area. Some early midwifery research studies, such as the routine shaving of women in labour (Romney, 1980), the routine use of enemas during labour (Romney & Gordon, 1981), the use of episiotomies (Sleep *et al.*, 1984) and the routine admission of women in labour (Garforth & Garcia, 1987), are examples of traditional midwifery practices that were found to be of little benefit to women. The publication of *Effective Care in Pregnancy and Childbirth*, which provided details of several systematic reviews, initially assisted in the dissemination of research evidence to the midwifery profession (Chalmers *et al.*, 1989).

The Midwifery Research Database (MIRIAD) had 393 studies recorded in 1995, whereas at its inception period, 1976-1980, only 21 studies were recorded (McCormick & Renfrew, 1997). Presently it is difficult to determine exactly how many midwifery studies are in the public domain, but an internet search using the term 'UK midwifery research studies' on Google Scholar resulted in 38800 hits (not all necessarily research studies); this does suggest that the body of knowledge has increased significantly. More midwives are now in possession of PhDs, both in the academic and clinical environments, and this means that they have conducted a significant and valid research study.

It was not until the 1980s that the concept of research was included in the midwifery curriculum (Macdonald, 2004). Since then it has become an integral element to student midwives' studies with assignments being based on research critiques or the formulation of research proposals. Post-registration students who are studying at Master's level in most universities have to conduct and write up their research study as part of their dissertation.

Students can add to the body of knowledge of midwifery by conducting a research study. An understanding of the research process is therefore essential from an academic viewpoint. However, it is not the academic viewpoint, but evidence-based clinical practice that drives this educational research awareness. In the UK the Nursing and Midwifery Council (NMC) Code (2008) states that practice and care should be underpinned by the best available evidence (Box 1.1).

**Box 1.1** The Code: Standards of conduct, performance and ethics for nurses and midwives (NMC, 2008, p. 4).

- Provide a high standard of practice and care at all times.
- Use the best available evidence.
- You must deliver care based on the best available evidence or best practice.
- You must ensure any advice you give is evidence based if you are suggesting healthcare products or service.

## Types of research knowledge

As mentioned previously a process needs to be followed and this starts with trying to determine 'what you want to know'. This sounds easy, but the reality is that this starting point does take time. It is your thinking time, time to put your thoughts into reality. What burning issues do you want to address? What subject or topic are you passionate about? What have you observed in practice that merits further research? At the beginning of each research module, these are the questions we put to the students and the response we usually receive from them is 'it's not as easy as you think'. Rees (2003) refers to this as the 'conceptual phase', where the potential researcher, or in this case the student, embarking on a research proposal is trying to determine 'what they want

to know' and to refine that further into 'how do I find out what I want to know' and so the research process begins.

The next step is trying to work out how you are going to go about obtaining that information. You might want to find out about people's feelings, experiences of events or circumstances, such as *Women's experiences of obstetric emergencies* (Mapp & Hudson, 2005); or how an intervention/treatment can improve care, e.g. *Ice packs and cooling gel pads versus no localised treatment for relief of perineal pain: a randomised controlled trial* (Steen & Marchant, 2007). Or you might have a general idea but want the focus/theory of the study to be generated by the information you collect (Furber & Thomson, 2006).

The type of knowledge that you want to obtain then determines the type of research approach that you will follow which is also referred to as a research paradigm (or the 'philosophical underpinnings!'). This essentially refers to the school of thought or beliefs which forms the basis of your research and determines the type of knowledge you want to acquire (Parahoo, 2006). The following terms are associated with this step in the process - **paradigms** and **qualitative** and **quantitative approaches** (Mackenzie & Knipe, 2006). These terms and their definitions can be intertwined and can therefore be confusing to understand, however the following should address any confusion.

Key research paradigms are positivism, post-positivism, interpretivism, naturalism, constructivism, critical and postmodern (Grix, 2004; Blaxter *et al.*, 2006; Mackenzie & Knipe, 2006). The paradigms which appear to be used mostly in midwifery research are the positivist and naturalistic paradigms. They appear to be the two paradigms which hold the most opposing views. The **positivist paradigm** is considered to be the traditional

paradigm underlying the scientific approach. This paradigm assumes that there is a fixed, orderly reality that can be objectively studied and is associated with quantitative research (Polit & Beck, 2008). The **naturalistic paradigm** is often considered to be an alternative paradigm to the positivist one. It maintains that there are multiple interpretations of reality and that the goal of research is to understand how individuals construct reality within their context. It is subjective and is associated with qualitative research (Letherby, 2003; Walsh & Wiggins, 2003).

The positivist research paradigm belongs to the scientific school of thought and its knowledge is usually derived in the form of randomised controlled trials (RCTs) and quasi-experiments (experimental research) and surveys in midwifery research. The naturalistic paradigm beliefs are focused on the human experience, thoughts and feelings and research is usually gathered using the research methods of ethnography, phenomenology, and grounded theory.

Qualitative and quantitative approaches can also be referred to as paradigms (Cluett & Bluff, 2006), but here, to aid your understanding, they are referred to as approaches. They help to structure the type of knowledge that needs to be acquired and different research methods are aligned to the different approaches, e.g. positivist paradigm, quantitative approach, randomised control trial or alternatively naturalistic paradigm, qualitative approach, ethnography.

In the **qualitative approach** the type of knowledge to be acquired focuses on experiences, thoughts, feelings and behaviour, and acknowledges the use of subjectivity (Davies, 2007). Its aim is to understand from the perspective of study participants, the meaning of their experiences (Robinson, 2002). An example of a

qualitative study could be women's experiences of breastfeeding. The **quantitative approach** is centred within empirical knowledge, facts, figures, experiments, and is therefore tangible and objective (Begley, 2008). Its intention is to produce data that can be '*counted, measured, weighed, enumerated and so manipulated and compared mathematically*' (Grix, 2004, p. 173). An example of a quantitative study could be to measure the effectiveness of skin-to-skin contact on the length of breastfeeding.

Research language can be a bit overwhelming and to add to this further the student researcher must have an understanding of the following terms: epistemology, ontology, methodology, method and research design.

**Epistemology** is the study of the nature of knowledge, how we understand our world and relate this to the understanding of theories of what makes up knowledge (Cluett & Buff, 2006). It concerns '*questioning and understanding how we know what we know*' (Griffiths, 2009, p. 193). **Ontology** concerns '*our views about what constitutes the social world and how we can go about studying it*' (Barbour, 2008, p. 296). Walsh and Wiggins (2003, p. 3) suggest that '*ontological assumptions are the researcher's views about the nature of reality and epistemological assumptions are the researcher's decisions about how best to gather data on this reality*'.

**Table 1.1** Two possible research designs.

<i>Paradigm</i>	<i>Approach</i>	<i>Methodology</i>	<i>Data collection tools</i>	<i>Data analysis</i>
Naturalistic	Qualitative	Ethnography	Observation Field diaries Interviews	Thematic analysis
Positivist	Quantitative	Survey	Questionnaire	Descriptive statistics

In research texts there is quite often an intertwined use of the terms methodology and method, which can be confusing (Grix, 2004). To clarify, **methodology** refers to

the theoretical and philosophical underpinnings of the research and the knowledge that is to be determined or theory developed (Barbour, 2008 ). **Method** comprises the procedural steps for data collection and data analysis (Brewer, 2000) and is the acquisition and analysis of that knowledge (Williams, 2008). Clark (2000, p. 46) suggests that clarity should be sought, when researchers are publishing their studies, regarding the use of the terms methodology and method as some researchers have failed to distinguish the difference between the research methodology (e.g. RCT, survey, ethnography) and the research methods used to collect and analyse the data (such as a questionnaire, a semi-structured interview or a rating scale). The methods selected are usually determined by the methodology chosen (Grix, 2004). The **research design** therefore encompasses all of the above, which is a detailed plan of the research study. [Table 1.1](#) gives an outline of two research designs.

## Audit and research

Audit and research share some similarities:

- Both involve answering specific questions which can relate to the quality of maternity care and practice.
- Both can be carried out either prospectively or retrospectively.
- Both involve some type of sampling, use of questionnaires for data collection and some form of analysis.
- Both have implications for midwifery practice.

Audit and research, however, involve different processes and work towards different goals.

## What is audit?

A simple definition is that audit is a process of finding out whether systems or interventions that are evidence based are being carried out effectively.

The National Institution for Health & Clinical Excellence (NICE) describes clinical audit as:

A quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change. Aspects of the structure, processes and outcomes of care are selected and systematically evaluated against explicit criteria. Where indicated, changes are implemented at an individual, team, or service level and further monitoring is used to confirm improvement in healthcare delivery.

*Principles for Best Practice in Clinical Audit, NICE, 2002, p. 1*

See Box 1.2.

The following ten statements clarify what audit is:

- Audit informs us if best practice is being carried out or not.
- Audit can identify systems failures and then make recommendations.
- Audit measures against set standards.
- Audit can measure the effects of a standardised treatment in use.
- Audit does not involve testing out new ideas, theories, treatments or interventions.
- Audit does not involve randomising service users to different treatment groups.
- Audit usually involves basic descriptive statistical analysis of data.
- Audit results are usually applicable to the local settings where the audit was carried out.

- Audit can also be undertaken nationally to compare systems and practices of local areas.
- Audit does not need ethical approval.

## What is research?

*'Research is the diligent, systematic inquiry or investigation to validate and refine existing knowledge and generate new knowledge'* (Burns & Grove, 2009, p. 2). It can be defined further as the systematic collection of information to determine either an answer to a question, to test a theory or to verify a hunch (Lobiondo-Wood *et al*, 2002).

A simple definition is that research can involve investigating or exploring new ideas, theories or concepts, views and experiences, treatments or interventions to create new knowledge to inform education and promote best practice.

The following ten statements clarify what research is:

- Research creates new knowledge about what works and what is wanted by a target population.
- Research can make inferences about what will work for the population at large.
- Research can be based on a theory or hypothesis.

### **Box 1.2** An example of a clinical audit.

An acupuncturist midwife had an established clinic which provided pregnant women with the options of acupuncture, moxibustion and cupping therapies. In 2003, concerns about the evidence base and benefits of moxibustion led to it being suspended until a clinical audit was undertaken. Over an 18-month period a clinical audit was carried out by Calderdale and Huddersfield NHS Trust (2004). A review of the literature found that moxibustion reduced the need for External Cephalic Version (ECV), may be helpful to turn a breech presentation and no adverse effects were reported. Interestingly, during the audit period an increase in Caesarean Section (CS) for breech presentation when moxibustion therapy was discontinued prior to ECV being

offered was reported. On the basis of this evidence permission was given to re-introduce this service for pregnant women.

Following this audit a Cochrane review has been carried out that examined the evidence investigating the effectiveness and safety of moxibustion on turning the baby from a breech position, the need for ECV, mode of birth and perinatal morbidity and mortality (Coyle *et al.*, 2005). The evidence supported the clinical audit outcomes. Three trials were included in this review with a total of 597 women. The reviewers were unable to undertake a meta-analysis of the data from the trials due to inconsistencies and differences within the trial methodologies and interventions. However, they reported that moxibustion reduced the need for ECV (RR 0.47, 95% CI 0.33-0.66) and decreased the use of oxytocin before or during labour for women who had vaginal deliveries (RR 0.28, 95% CI 0.13-0.60). They concluded that moxibustion may be helpful in turning a breech baby when applied to the little toe but there was insufficient evidence to support its use in clinical practice and recommended further research and well designed randomised controlled trials in moxibustion.

This NHS trust is now planning to undertake further research into the effectiveness of moxibustion.

- Research can involve investigating the effects of a treatment or interventions.
- Research may involve both descriptive and inferential statistical analysis of data.
- Research may involve emerging themes and concepts to generate new knowledge.
- Research can gain deep insights into understanding service users' feelings, views and experiences.
- Research requires ethics committee approval.
- Research can identify the gaps in knowledge that need further investigation or exploration.
- Research can provide the best evidence to promote good practices and standards.

**Figure 1.1** The research process.