VITAL NOTES

Research for Evidence-Based Practice in Healthcare

Robert Newell
Philip Burnard

2nd edition

with website

WILEY-BLACKWELL

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To Phil’s wife and children, Sally, Aaron and Becky; and to Rob’s wife, Caroline and late mother, Olive. Also to Rob’s late Latin teacher, Agnes.

Research for Evidence-Based Practice in Healthcare

Second edition

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List of Common Research Terms

Case study	A descriptive approach to research involving multiple sources of information about a person, organisation or other entity
Content analysis	The organisation and categorisation of text material
Descriptive statistics	Quantitative data analysis approach used to simplify presentation of data from a given sample
Ethnography	Qualitative research method involving study of a culture
Evidence-based practice	An approach to clinical problem solving involving a systematised synthesis of available information
Experiment	Quantitative research method involving randomisation, manipulation of an independent variable, use of a control group
Findings	The outcomes of the analysis of qualitative research (occasionally used broadly to mean any kind of results in a research study)
Four principles approach to ethics	Approach emphasising; respect for autonomy; beneficence; non-maleficence; justice
Hypothesis	Explicit statement of the predicted relationship between independent and dependent variables
Inferential statistics	Quantitative data analysis approach used to draw inferences from sample data to its population
Phenomenology	Qualitative research method involving examination of people's perceptions of their experiences
Qualitative research	Broad approach to research emphasising analysis of text material
Quantitative research	Broad approach to research emphasising analysis of numerical material
Quasi-experiment	Quantitative research method similar to an experiment but with control and/or random assignment missing
Randomised controlled trial	A type of experiment used to investigate effectiveness of therapeutic interventions
Reliability	The extent to which a quantitative study examines the entity it says it does in a consistent and repeatable way
Respondents	Those who are studied or take part in a qualitative study
Results	The outcomes of the analysis of quantitative research
Sampling	Process by which subjects are chosen to participate in a research project
Single case	Application of experimental and quasi-experimental methods

experiment	to a single individual
Subjects	People whose responses are researched by researchers, in quantitative studies. Participants in research other than the researchers themselves
Systematic review	Systematised, rigorous approach to literature search and review
Validity	The extent to which a study examines the entity it says it does

SECTION 1
Contextual Materials

1

Introduction to Healthcare Research for Evidence-Based Practice

Introduction

This book is about research in healthcare, seen principally from the viewpoint of students undertaking pre-registration and postregistration educational programmes. We are both active healthcare researchers and are passionate believers in research by healthcare professionals (HCPs)[1] for the benefit of the patients and clients we serve. Our own background is principally in mental health nursing, although, as teachers and researchers, we have widened the scope of our work beyond a purely mental health focus. Likewise, as researchers we have typically worked in multidisciplinary research, with the broad range of other HCPs, with medical practitioner researchers and with researchers from a range of non-clinical disciplines. In preparing this book, we have sought to make it relevant to colleagues from across the disciplines, and we hope this comes over in the material that follows. We both started to get interested in research from early on in our clinical careers, and did a good deal of research while still mainly working as clinicians. The real reason we started in research was because we were interested in whether the things we did with patients and clients made a difference to their experiences of illness, recovery and health. If you have picked up this book, we guess you have a similar interest, and we hope we can work

with you in developing that interest and finding ways you can translate your ideas into practical projects, whether these be through your own research or your examination of the research literature to inform your practice.

In the following pages, we will try and take you through the various elements of undertaking a piece of research. Even if you do not have to do research yourself as part of your educational course, this book is still for you for three reasons. First, much of the material we present is *essential,* not just for doing your own research, but for understanding the research of others. Because almost all healthcare courses these days require you to critically appraise the research that is already out there, you need an understanding of how to do that. Books and articles which just deal with critical appraisal are fine, as far as they go, but you will certainly have a much better understanding of how to evaluate published research if you have a clear idea of the various elements that go into a research project, the methods used by researchers and the reasoning behind methodological choices they have made. This book will give you that information.

Second, you will almost certainly encounter, during your course or later, the need to undertake some project work, for example developing a new guideline or a new way of organising care. All the information given here will help you to organise and evaluate that project.

Finally, a great deal of clinical practice is investigated by medical practitioners and non-clinical researchers, partly because comparatively few HCPs other than medical practitioners go on to become fulltime researchers. We want to increase the number that do, so that HCPs are increasingly responsible for evaluating their own practice and get the credit for doing so. Ultimately, we would like you to be in a position to decide you want to be one of those people, so part of the job of this book is to give you a taste

of what is involved, including some of its complexities, so that you will want to go on and find out more. We believe that research is essentially a practical skill and is best learnt through an apprenticeship system, and so the best piece of advice we can give you is to get hold of someone who has experience of actually doing research, translating research into practice, doing a systematic review and so on, and learn from them.

Then, use this book as your workshop guide. If you cannot find such an experienced researcher, then we hope this book will be able to tell you some of the things they would have. The book is not heavily referenced (usually only a few per chapter), but each of the references is important, and is easily available, either from your library or from the internet. We have made considerable use of web sources so as to make it easy for you to find the best supporting information. We know web sources do not necessarily remain current forever, but we believe the best ones do. When we came to write the second edition of this book, we found only a few sites that were no longer available.

The scope of healthcare research

Until quite recently, healthcare research had a reputation for being an introspective pursuit which was more concerned with investigating its own workforce than undertaking clinical research. Some commentators have suggested that becoming a teacher of healthcare professionals frequently involved ceasing to have any clinical responsibility for patient care or, indeed, much contact with clinical settings at all. In consequence, those teachers wishing to do research had little access to patients or were often out of touch with issues which were important to patients. They

did, however, have contact with students, and so ended up developing research interests related to education and the views and experiences of student nurses. Sometimes, it was difficult to see how this research would benefit patients. Although this criticism was chiefly aimed at nurse researchers, our experience with the broad range of healthcare professionals suggests it holds true equally in other disciplines, a belief reinforced by the fact that initiatives to increase research by non-medical health disciplines have typically been applied across the range of disciplines.

We do believe that healthcare research is changing for the better, though, and is nowadays much more concerned with patient care, rather than being overly inward looking towards its own professions. Whilst we recognise that it is important for research to be done into such things as the opinions and experiences of students and members of the healthcare professions, or the ways in which these professionals are educated, we also think that the eventual point of all healthcare research should be the greater good of patients. Therefore, we suggest, the vast bulk of research into such issues as the views of the professions themselves should have immediate consequences for patient care. If it does not, then why do we want healthcare researchers doing it, rather than, say, sociologists or educationalists? Surely, examination of, for example, occupational therapists' opinions of their educational preparation, can be done as well by researchers from other disciplines. Given that healthcare researchers are a rare breed, we hope that the growing focus on clinical research, where nurses can make a distinctive contribution, will continue.

That said, many people are largely unaware of the contributions to research that healthcare professionals have made already, or the effect which that research has had on care. Just two fairly random examples from our own areas of

interest give an idea of the scope of research by healthcare professionals. Professor Mary Jo Dropkin, from the University of Long Island, has written definitive studies of the psychosocial impact of head and neck cancer. Her work is cited by researchers across the whole range of health disciplines and has changed the way we think about head and neck cancer. In the UK, Professor Trudie Chalder from Kings College, London, is a world-recognised expert in fatigue, and developed the leading mode of treatment in this area. Once again, her work is referred to by all the healthcare professions. When you consider that fatigue is cited as a major symptom in almost all long-term physical conditions, it is easy to see the extent of this HCP's contribution to the potential well-being of patients via her research.

Whose business is research in healthcare?

As you can tell from the above, we think it is primarily the business of HCPs themselves to evaluate and develop our care through research. These days, almost all large-scale research is undertaken in teams, and almost all these teams are multidisciplinary. All HCPs need to be equipped to take a full part in these teams. In the past, we have been ill equipped to do so, and, given the packed nature of healthcare pre-registration education, research often takes a back seat. As we said above, very few clinicians go on to be full-time researchers, but all of us are research *users,* even when we are not aware of it. Being a *knowledgeable, aware* consumer of research findings is integral to competent practice.

Apart from using research in our own clinical practice, we have a further ethical obligation concerning use of research,

and one which exceeds the responsibility of members of the general public. For example, HCPs need to be sufficiently knowledgeable about research to help patients who may become involved in research projects run by other members of the clinical team to make reasonable, informed choices about, for example, participation in such a study. Similarly, patients may ask our views about treatment which is currently practiced, and we are unable to offer such advice without an informed understanding of the evidence base. This, in turn, comes from an understanding of the research approaches which have been used to generate this evidence.

Surprisingly, even in everyday life, away from clinical practice, our role as an HCP gives us a greater ethical obligation to understand the evidence behind healthcare interventions, because our role may give us a certain amount of authority when we communicate (even very informally) with others about healthcare matters and healthcare research. Accordingly, we have a special responsibility to ensure that we know what we are talking about. This implies, once again, a knowledge of research methods.

Which brings us to our final point in this section. Very little healthcare has been subject to robust clinical research. This leaves us, we believe, with two important responsibilities. First, we should be basing our care as far as possible on the best available evidence. This implies an ability to search for, appraise and implement that evidence. Appraisal requires a basic understanding of the merits of the studies we read, and a knowledge of research methods is essential to that understanding. Second, the knowledge base needs building, so involvement, at whatever level, in research to build it is as part of our ethical responsibility as HCPs in just the same way as use of current best evidence.

Perhaps the key questions at the heart of evidence-based practice in the health professions are as follows:

What works?

What works best?

How does it work?

Research provides a starting point in answering these questions.

Using this book to get involved in healthcare research

We want this book to be a practical guide. Part of being practical is being as easy to access as possible. This leaves us with a problem. We have tried to make each chapter as stand-alone as possible, but at the same time we wanted to avoid repetition, so we do not go over every piece of background information necessary in each chapter. This means there will inevitably be some shifting around for you between chapters, and we hope you will dip in and out to follow up things we have not been able to cover over and over again as they occur in different contexts. To help you do this, we are going to avoid giving you the traditional detailed chapter-by-chapter description of what is going to be covered in this book. Instead, here we are simply giving you each chapter title, followed by the key points section for that chapter. As a result, at any point, you will be able to flick back to this chapter (dog ear it now) and read through key points to give you an idea of where relevant issues are covered. Please do not feel you have to read the whole book. It is a tool. Use what you need and leave the rest. Maybe it will be of use later.

The chapters

Chapter 2: The research process – organising your research

The research process is a way of organising a research project.

The study aims and objectives guide the study.

The literature review provides the context for the study and determines the need for it.

All stages of the process should be clearly described with appropriate rationale.

Issues of ethics are fundamental to the research process.

Dissemination and implementation complete the research process and start the research cycle with new questions.

Chapter 3: Choosing methodological approaches

Researchers tend to associate inductive reasoning with qualitative research and theory building, and deductive reasoning with quantitative research and theory testing.

Quantitative approaches emphasise cause–effect relationships and prediction.

Qualitative approaches emphasise exploration.

Researchers should examine the goals of their research when choosing methodological approaches.

Consider qualitative approaches first for studies of individuals' experiences; research with excluded and hard to reach groups; pilot studies.

Consider quantitative approaches first for epidemiological studies of large groups; treatment comparison studies.

Chapter 4: Searching the literature

Literature searches are done primarily to ensure awareness of a field of research.

Systematic reviews examine the literature using systematised, transparent criteria.

A search strategy consists of the research question, its components, sources of information, search terms, retrieval and inclusion criteria, available resources.

Sensitivity (recall) refers to comprehensivity of a search strategy.

Specificity (precision) refers to relevance of a search strategy.

The scope of a search is determined by its search strategy.

Chapter 5: Ethics of healthcare research

Codifications of research ethics date from the Nuremberg code and the declaration of Helsinki.

Autonomy, beneficence, non-maleficence and justice are key principles in research ethics.

Autonomy refers to an individual’s freedom to choose and act.

Beneficence and non-maleficence require that we maximise good and minimise harm.

Justice is the maximising of fairness to all.

Research ethics committees exist to interpret these concepts for the protection of research participants and researchers.

All research should receive ethical scrutiny.

All NHS-related research must receive approval from a Research Ethics Committee (REC).

NHS REC approval is centrally organised and standardised.

All NHS research must receive Research Governance approval from the NHS institution in which it takes place.

Research Governance approval is locally organised by each institution and there is limited standardisation.

Chapter 6: Basic concepts – sampling, reliability and validity

Sampling is an everyday activity, not peculiar to research.

A population is a total group from which a sample is drawn.

Some populations are themselves samples from larger populations

Representativeness is key to sampling, but is defined differently by quantitative and qualitative researchers.

Samples may be random or non-random.

Sampling technique is guided by the aim of the research.

Validity is the extent to which a study examines the entity it says it does.

Reliability is that it does so in a systematised, repeatable way.

Quantitative and qualitative researchers place different emphasis on different aspects of validity and reliability.

Chapter 7: Issues in qualitative data collection

Data collection choices are made in response to research aims.

Sampling in qualitative research aims at illumination rather than representativeness.

Interviews may be structured, semi-structured or unstructured.

Interviews are normally transcribed verbatim.

Sometimes, qualitative data can be gleaned from questionnaires.

Observational studies benefit from painstaking field notes.

Published work can be subjected to similar data analysis to other research methods.

Chapter 8: Case studies

Case studies are descriptive pieces of qualitative research.

Case studies may be stand-alone investigations or illustrations from larger studies.

Case studies examine a particular person, group, situation or set of circumstances in detail.

Case studies are not necessarily typical of general experiences.

Case studies rely on a high level of detailed description.

Sample selection for case studies can lead to challenges in terms of typicality or inevitable comparisons with other settings.

Chapter 9: Ethnography

Ethnography involves the in-depth study of a culture.

Ethnographic approaches use elements of ethnography.

Ethnographic approaches can be combined with other methods.

Ethnographic approaches usually involve extended amounts of field work.

Ethnography combines observation with other methods such as interviews.

Formal recording of interviews may often be impossible, so field notes are particularly important.

Disconfirming evidence is actively sought.

The range of phenomena to be observed is potentially overwhelming.

Ethnography reminds us of the importance of cultural context.

Chapter 10: Phenomenology

Phenomenology is concerned with individuals’ perceptions of their experiences.

Phenomenology as a philosophy is concerned with seeing things without making value judgements.

Phenomenology frequently uses in-depth interviews and series of interviews.

Bracketing is the attempt to put aside one's own thoughts, feelings and beliefs.

The researcher avoids explanations of people's accounts so that the person's own voice can emerge.

Phenomenology aims to create vivid personal insights.

Chapter 11: A pragmatic approach to qualitative data analysis

Content analysis refers to the organising and ordering of textual material.

Transcription involves writing out recordings of an interview.

Some degree of quantification is possible.

Categories can be pre-defined or can emerge from the data.

The pragmatic approach involves six stages:

- taking memos after each interview
- reading transcripts and making notes of general themes
- repeated reading and generating open coding headings to describe all aspects of the data
- reducing the codes under higher order headings
- returning to the data with the higher order codes
- collating the organised data for reporting

Chapter 12: Limitations of qualitative research

Qualitative research does not claim to be scientific in the same way as quantitative research.

Samples in qualitative research are rarely representative.