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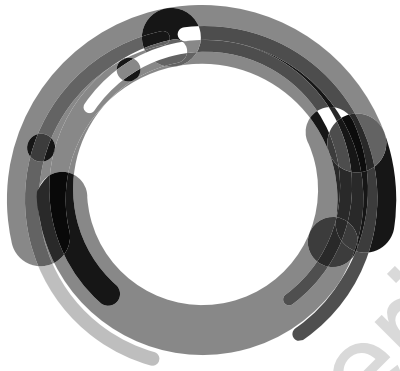

RESEARCHING HEALTH

QUALITATIVE, QUANTITATIVE AND MIXED METHODS

EDITED BY
MIKE SAKS & JUDITH ALLSOP

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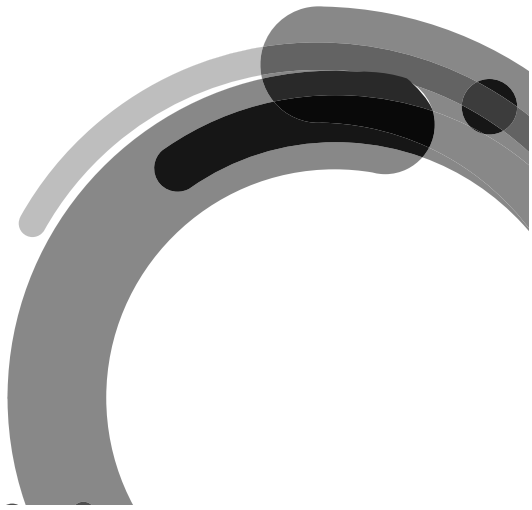

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The editors wish to thank Dr Kathryn Jones for her assistance in compiling this website.

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2

Principles of Health Research

JUDITH ALLSOP AND MIKE SAKS

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Chapter objectives

- To demonstrate the aim and principles of health research
- To outline the scope of health research, showing recent trends
- To introduce the concept of induction and deduction
- To consider the types of research design
- To consider the research process, the principles to follow and how to choose research questions.

Introduction

As editors, we believe that two principles underlie all research. First, research is about producing new insights and new knowledge by setting answerable research questions, collecting data in a systematic way, analysing research questions intelligently and rigorously, and identifying patterns and establishing associations. In this way, researchers may contribute to a greater understanding of both individual health and collective health behaviour, the role and impact of health providers, and the options for delivering health services to communities. In putting together the book, we believe:

> Research is about illumination. If we don't succeed in that we have failed. If a person reads something and doesn't feel any wiser, then why was it done? Research should fire curiosity and

> the imagination. … If people feel research illuminates their understanding and gets into their thinking, then it's of use. (Richardson, Jackson and Sykes 1990: 75)

The second principle is that the findings produced by research are always contingent on the context in which the research is carried out, the methods used, and how the data have been analysed and interpreted. We therefore think that it is incumbent upon the researcher to be explicit and transparent about these elements in the research process. New knowledge or insights occur in small steps. Often studies need to be replicated and/or reanalysed and revisited before findings can be said to be soundly based. All research results are subject to reinterpretation and review. In this sense, the production of new knowledge is a collective enterprise and each researcher, even if working alone, is part of a wider research community. Although there is no single organization that covers all researchers in health and/or other fields, there are both formal and informal rules that govern research. These are outlined and assessed in the various chapters in this volume.

What is health research?

Health research takes many forms from basic scientific and social research to applied clinical research. What, though, is 'research' in the health context? At its most general level the conventions of health research can be viewed as work conducted to develop knowledge based on available evidence, following certain rules and procedures. However, as Henn, Weinstein and Foard (2006) point out, what is to count as knowledge and how we acquire that knowledge is a contested area. Most significantly, there are different beliefs and assumptions that shape what is studied, how research is conducted, what methodology and methods are used to test knowledge claims, as well as how the findings from research should be interpreted. It is important to distinguish between methodology and methods. The former refers to a research strategy, while methods are tools for data collection and can be either quantitative or qualitative. It is fundamental to understand assumptions made between different approaches to research, termed positivism and interpretivism, as these frame what are considered as acceptable ways of carrying out research. They are more fully discussed in Chapter 3.

The scope of health research is broad. It covers scholarly research carried out within the natural and clinical sciences as well as the social sciences – each of which draws on a wide range of theoretical frameworks and related concepts. On the one hand, there are the natural sciences, with disciplines such as anatomy, biology, chemistry, physiology and physics, on which research in clinical areas of health tend to be based. Then, there are the social science disciplines, such as history, politics, psychology, sociology and policy analysis, which contribute to understanding the social context of health and health care. Economics as well as statistics also makes a vital contribution to health research across clinical science and social science projects as they provide techniques to measure and assess the strength of research

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findings and to compare outcomes. Economic models may be used to assess the cost-effectiveness of interventions, for example in surgical interventions for the treatment of coronary heart disease (Bowling 2014). Each has a distinct approach and so too do the related disciplines of epidemiology and translational research. The former has a focus on the distribution of diseases and the health of populations. Research findings can also contribute to the development of new products such as medicines. They can assess the suitability of existing devices such as wheelchairs, and explore the use of digital technologies to enable people to receive health care in their own home (see, for example, Davies and Newman 2012).

These various disciplines use a range of methods in health research. These can be grouped into qualitative or quantitative methods (see, for instance, Bourgeault, Dingwall and de Vries 2010; Bruce and Pope 2018, respectively). Each type is based on a different set of assumptions (or paradigms) that provide a philosophical and methodological basis for using the method in the health field. In the past, there was a divide between the two – as a number of the chapters in this book highlight. Some research projects, particularly larger and well-funded projects, now use a mixture of methods (Andrew and Halcomb 2009). In these circumstances, it is vital for the researcher to understand what kind of knowledge each type of method produces, what kind of evidence supports the interpretation of findings from research data and how different kinds of evidence may or may not be linked together in practice. How to mix methods is discussed by Cresswell and Plano Clark (2017), and in the health context in particular is considered in various chapters of this book.

Conceptualizing health: The social and natural sciences

The conceptualization of health in research is now considered further by comparing and contrasting the ways in which this is seen through the lens of the social and natural sciences, which provide rather different perspectives.

The contribution of the social sciences

Almost all societies are concerned with maintaining health, treating illness and caring for people who are dependent. Issues of reproduction and birth, dying and death are central concerns. However, in the social sciences health and illness have been conceptualized in different ways. For social scientists undertaking research, the meaning of these concepts is a matter for investigation and this has been carried out using the range of both qualitative and quantitative methods. In an early study of how lifestyle can affect health, Blaxter (2010) explored the interrelationship in a survey-based empirical study to investigate whether the social conditions in which people lived were more important than lifestyle factors such as smoking and exercise.

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What people understand by health and illness is subjective and what social groups see as the causes of ill health and their approach to health work are socially constructed and are likely to be embedded in a framework of meaning shaped by a specific social context. There have been many empirical studies of how such views differ. Herzlich (1973) and Stacey (1988) provide early illustrative examples of qualitative studies across different societies. Currently, there are many national and international studies based on quantitative surveys on health and health behaviour providing longitudinal data for researchers. Recent examples are the European Quality of Life Survey, so far conducted periodically between 2003 and 2016 (Ahrendt et al. 2018), and the Survey of Healthy Behaviour and Wellbeing (Rainville 2016).

Turner (2003) charts the manner in which the concepts of health and illness have changed historically, from early societies where ideas are linked to spiritual notions of purity and danger, to the now dominant biomedical, scientific and professional definitions that focus on disease and pathology and on the body and body parts. Moreover, in contemporary society, health can be viewed as a moral norm defining a socially constructed, prescriptive standard that tends towards an ideal of wellbeing or social functioning. Within this perspective, illness is usually conceptualized as the obverse of health, although we know that the way people in different social groups define health depends on variables such as social class, gender, ethnic group and age (Scambler 2008).

In their studies of heath and illness, sociologists tend to focus on the study of social groups in society and have adopted different theoretical perspectives. A foundational theoretical study is the account by Parsons (1951) of the 'sick role' as a system for the social control of illness in society. In a development of this perspective, other social scientists have seen illness as a socially sanctioned, but legitimated, role that is socially patterned through the interpretations of the individuals themselves and significant others. Family, friends and health providers influence and legitimate, or not, the patient pathway through to diagnosis and treatment. This is an arena where health care users, clinicians and health providers interact. Whereas many early sociological studies focused on professional dominance in health care work, health can also be conceptualized as a form of co-production between health care users, carers and professionals (Realpe and Wallace 2010).

Taking an interactionist perspective, Goffman (1968) showed how people with certain conditions are stigmatized in society and the effect on their sense of identity. This line of inquiry has led to a body of work about people with specific illnesses, both physical and mental. Qualitative studies include an influential account by Bury (1982), who investigated the disruption caused by chronic illness and the subsequent process of adjustment. More recently, Monaghan and Gabe (2016) published their insightful research on young people with asthma, and Hudson and colleagues (2016) reported on the impact of endometriosis on women and their partners.

Another line of research using both qualitative and quantitative methods has been the study of pathways through the health care system. An illustration of a qualitative study is

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provided by an analysis by Hudson and Culley (2015) of people who cross country borders in the search for fertility treatment. Both gender and ethnicity have been shown to affect access to health care and pathways through treatment. Edited texts by Kuhlmann and Annandale (2012) on gender and health care and by Ingleby and colleagues (2012) on the health and experiences of migrants and ethnic minorities contain contributions exemplifying quantitative and qualitative studies in this field.

Among psychologists, who tend to focus on individual and small-group behaviour, theoretical viewpoints about health cover a wide range. Some psychologists, such as Maslow (1954) and his followers, have considered human motivation in terms of the hierarchy of needs. These range from basic concerns about physiological functioning and safety to a search for esteem and self-actualization. Others have engaged in the assessment of the impact of psychosocial factors on a variety of illnesses (Cassileth et al. 1984). More recently, the interest of psychologists has focused on the relationship between stress and health (Lovallo 2005), health practitioner–client interaction (Purtilo, Haddad and Doherty 2014), and the role of psychology in providing an explanation of the onset of specific health conditions (Straub 2011).

A major area of investigation for social scientists across countries has been on the inequalities in the incidence of disease and illness, especially in relation to class, gender, ethnicity and region in both societal and global contexts (see, for instance, Evans, Barer and Marmor 1994; Lenard and Straehle 2012). In this area, researchers have mainly used quantitative methods to map inequalities and, in epidemiological studies, the incidence and causes of disease and illness. These have been complemented by qualitative studies, not least in relation to psychosocial aspects of health and illness (Bartlett 2017).

Other classic studies take the wider distribution of social and economic power as a starting point for their analysis of health care provision and health care systems. Navarro (1986) is an example of a Marxist analysis of factors influencing access and the availability of health care to different social groups in the United States in particular. Social science writers in this field sometimes use their analyses as a platform for discussions about human justice and to argue for policies that combat poverty and meet the health needs of all social groups (as illustrated by Smith and Bambra 2016).

Health care politics and the interplay of the interests of the state, the medical profession and health care users as patients and carers has also been a major theme for health researchers and policy analysts. Saks (2015a) has analysed from a neo-Weberian viewpoint the influence of the medical profession as an interest group on health inequalities in Britain and the United States. Gabe, Kelleher and Williams (2006) and Kuhlmann and Saks (2008) consider shifts in national and international health care governance. Other studies have focused on the more recent influence and role of social movements in health care (Allsop, Baggott and Jones 2004).

The challenges for policy makers in health care in most countries are well known: rising health care costs, fuelled by population increase and technical innovation; the demographic

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imbalance, with an increasing proportion of elderly people compared to the working population; and the persistent inequalities in access and outcomes. Yet, a feature of health systems is resistance to change. This is partly due to conflicting interests in the politics of health, but also to the size and complexity of health care delivery systems. Can health research contribute to a greater understanding of the barriers to change and what policies facilitate both efficiency and effectiveness? State policies have supported organizational change and increased the power of managers, but evidence on the benefits of this shift is limited, with many instances of perverse incentives. Greener and colleagues (2014) suggest a way forward for health research through a careful comparative analysis of specific organizational change programmes that have had positive benefits and, where they have not, to investigate the factors that contribute to cost/benefit outcomes. This requires a focus on a detailed analysis of both programme and context. For example, why did policy incentives to increase quality and productivity improve outcomes in general practice in the United Kingdom, but were less evident in hospital care?

Other scholars have used Normalization Process Theory to develop a qualitative method to assess the factors that facilitate or impede the implementation of new policy interventions (May and Finch 2009). Initially developed to assess the implementation of new technologies, it provides a middle-range theory that sets out a framework of factors that have been shown to support the implementation of new policy interventions (May 2009). To be embedded in practice, participants must understand the purpose of the innovation; they must support the change as worthwhile; and it must be seen as compatible with their working lives. These propositions provide a framework that has been used more widely to identify the factors that have facilitated the implementation of policy changes across a number of settings (McEvoy et al. 2013).

Biomedicine and the medical model

From the viewpoint of the natural and clinical sciences, there has been a greater emphasis on the identification and classification of disease categories, with the biomedical, scientific and professional emphasis on pathology and on the body and body parts. These provide the basis for diagnosis, prognosis and treatment. The causes of mortality and morbidity are defined in terms of diseases and objective clinical pathology, with a distinction between the normal and abnormal (as exemplified by Damjanov 2012). These are the basis of the medical model of ill health, which is clearly set out by Neighbors and Tannehill-Jones (2009). The approach focuses less on personal and social contexts of health and more on the biomedical frame of reference, in subjects ranging from infectious diseases (Török, Moran and Cooke 2009) to the implications of genetic structures for the disease process (Panno 2010).

The biomedical model and the medical gaze, which emerged with the birth of the clinic over two centuries ago (Foucault 2003), is rooted in the belief that wellbeing is an objective and measurable state. Yet one of the anomalies in contemporary practice is that patients'

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subjective perception of personal wellbeing may be discordant with their 'objective' health status. For example, a person can feel ill without medical science being able to detect disease and many people live with pathologies of which they are unaware (Bowling 2014). These two points of view, the objective and the subjective, are said to differ ontologically – that is, they take opposed positions about what is 'real'. Does reality exist in the mind of the beholder or is there an objective reality in the material world that is there to be discovered? Researchers should be able to identify which approach they are taking as this can influence the methodology they choose to investigate a research question.

To be sure, the biomedical model of orthodox medicine currently dominates and is heavily state-supported in modern societies. While it has brought many benefits through the use of drugs and surgery – and, more recently through such innovations as STEM cell science (Le Fanu 2011) – its ascendance as contemporary orthodoxy is historically contingent. During the seventeenth and eighteenth centuries effective remedies were few in a more plural health system, but the doctor listened to the patient in a form of 'bedside medicine' that was available at least to the better off. This was overtaken in the later nineteenth century in Europe, by, first, 'hospital medicine', based on classifying diseases generically in the emergent hospital system, and then in the twentieth century by 'laboratory medicine'. In the latter, the body was seen primarily as a complex of cells and a symptom-bearing organism, resulting in the patient voice becoming peripheral, and diagnoses were based on the analysis of blood and other samples at a distance by laboratory technicians (Saks 2002).

Although scientific biomedicine based on a natural science model is dominant, it operates alongside other medical systems and practices. From the perspective of people who use services, some are accessed as alternative systems and others are seen as complementary to orthodox medicine. This explains the term 'complementary and alternative medicine' (CAM), which consists of a diverse range of therapies outside the mainstream, from aromatherapy and crystal therapy to acupuncture and homoeopathy. These do not share a common philosophy but tend to be ideologically positioned more towards the 'holistic' end of the spectrum, in which the subjective views of clients and mind–body links are usually regarded by their proponents as more central to treatment than in orthodox medicine. Despite their growing popularity among members of the public – especially where orthodox medicine has little to offer, as in chronic conditions – they are marginalized in the politics of health care (Saks 2015b). Alternative medical systems and practices co-exist with orthodox medicine in most societies and complementary medical systems, as the name implies, may be recognized through state registration. The extent of recognition varies between countries. In France, for example, hydrotherapies in rehabilitation are funded through the state insurance system, while in the United States there is also funding through insurance schemes of chiropractic and osteopathy, which have become professionalized and underwritten by state licensing (Saks 2015c).

The perspective of proponents of the more holistic CAM therapies has implications for the research methods employed. In assessing the relative efficacy of therapies, orthodox

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clinical research has placed a heavy emphasis on quantitative methods in general and randomized controlled trials (RCTs) in particular. The latter follow a standard protocol with a control group to be compared with a group that receives the intervention, which is more fully discussed in Chapter 14. Some CAM therapists also place emphasis on this perspective and follow standard RCT procedures, but others challenge these assumptions and argue that more qualitative forms of assessment based on subjective client feedback should be more fully taken into account (Saks 2006). CAM treatments are typically targeted more on individual clients in the context of their lives and values rather than on their presenting physical symptoms.

Nonetheless, reference to the widespread use of RCTs in biomedicine over the past few decades accentuates that there has been a major change in the culture of health services in the developed world. Clinical interventions have therefore become more evidence-based. This has led to an emphasis on the assessment of the efficacy and cost-effectiveness of particular interventions and technologies in treating patients. Evidence-based medicine initially drew on indicators from the biomedical sciences. Increasingly, though, they have started to become focused on additional indicators, such as social functioning, patient-perceived health status and quality of life measures (Kane and Radosevich 2011), thus reducing some of the original polarity between CAM and orthodox therapies.

What are the principles of the health research process?

In terms of the principles of health research, the following aspects need to be considered: the different types of reasoning, the main forms of research design, starting the research process, theories and concepts in health research, and the key factors guiding such research.

Types of reasoning in health research

In terms of the underpinning of health research, there are two mainstream starting points for research. These are based on contrasting forms of reasoning, as outlined in Bryman (2016). On the one hand, there is research that tests theory and, on the other hand, there is research that builds theory. The first uses *deductive* reasoning, the second *inductive* reasoning. The logic of biomedical research and social research using quantitative methods begins with a hypothesis or a proposition drawn from a tested body of theory that underpins a research question. Data are collected, and the findings may support, refine or refute the research question and the underlying theory. This follows a *deductive* form of reasoning – from theory to testing. The alternative is to build theory from data by drawing out patterns and generalizations from the data themselves. Then, on the basis of these, the aim is to arrive at a theory or explanation through an *inductive* form of reasoning. This is a logic followed in data collection using qualitative methods where little is known. Why is it that some mothers refuse

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to have their children immunized for measles, even when they may know that this disease can have serious consequences? On the basis of qualitative interviews, the researcher may be able to identify assumptions about biomedicine and relate these to education or social class. The logic of these two forms of reasoning is shown in Figure 2.1.

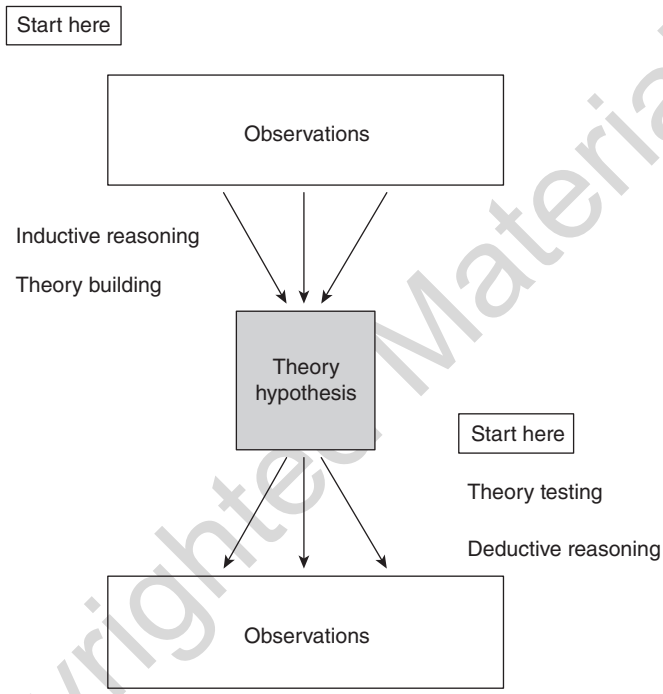

Figure 2.1 Forms of reasoning in health research: Inductive and deductive

Source: De Vaus (2002: 6)

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Science-based research and quantitative methods tend to be deductive. Existing studies indicate a hypothesis to be tested. Exploratory research and qualitative methods collect data on a research question about which they are curious and where an initial literature search suggests there is a gap in knowledge. The link to theory is developed in the process of analysis from patterns observed in the data. Dyson and Brown (2006) provide a useful contribution to understanding the contribution of theory to applied health research.

This brings us to the more practical aspects of doing research by introducing the concept of research design, followed by a discussion of the early stages of the research process. Prior to starting on a research project, three questions must be addressed:

- What is my research question?
- What research design am I using to address the question?
- What methods am I going to use and are they quantitative or qualitative, or both?

First, we consider research design and methods.

Research design: The main forms

Research design is a way of organizing a project to provide evidence for answering a question. It refers to the structure, or architecture, of a project: the analogy of a building has been used to express the concept of a research design. Buildings have a particular structure to suit their purpose. There will be guidelines and principles to be followed in their construction (methodology). Various methods (quantitative or qualitative, or a mixture of both) will be used to construct the building and certain materials (instruments) will be required. The purpose of the analogy is to make a distinction between a research design and research methods (De Vaus 2002). A commonly used typology is a distinction between designs that are experimental or quasi-experimental, cross-sectional, case studies, longitudinal (they take place over time) or comparative. The overall design of a project should be mapped out before deciding on particular methods for data collection. For each category of design, a range of quantitative or qualitative methods may be used. As can be seen in Box 2.1, a particular design does not predetermine what methods are used.

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Box 2.1 Different types of design in health research

Experiments are set up to test a hypothesis and they are more common in the clinical sciences and psychological studies. In essence, experiments seek to introduce an independent variable and control for a range of other variables in one of two or more groups in a before-and-after study. If there is a control group, this allows for a causal explanation of the effect of introducing the independent variable. An RCT that is double-blinded is the most highly developed form of experiment. It is known that not blinding a trial introduces bias (Schulz et al. 1995). Experiments are rare in sociology and social policy due to the difficulties in setting up a control group and manipulating the independent variable, although they may be used in psychological studies. For instance, if we wished to test the effect of social class on health status, it would not be possible to do this through an experiment because social class is an attribution that cannot be changed. It is also ethically contentious to have a control group where a known-to-be effective treatment is denied to participants. However, there have been examples of experiments in some areas of public policy that have offered incentives, exerted peer pressure or provided targeted information to nudge people into

(Continued)

(Continued)

changing their behaviour (John et al. 2011). There may also be opportunities for a nimble researcher to study naturally occurring situations. For example, when, during a school vaccination session, one of two batches of ampoules contained one and a half times the standard measure due to a labelling error, an opportunity arose to compare the two groups at intervals to check for a specified range of side-effects.

Cross-sectional designs refer to studies that require the collection of data from a number of subjects/objects over a specified and short time period. This would include surveys of different kinds. The aim is to establish an association between variables, such as gender and the use of acupuncture, and to draw inferences. Methods can be quantitative, where questionnaires or structured interviewing are used to collect data from more than one, and often a very large number of, respondents. The aim is to capture variation. If the methods are sound, and the number sufficient, findings can be extrapolated to larger populations. Data can also be collected using qualitative methods, such as documentary evidence or observation. The aim is to select particular criteria to establish similarity and difference across the units being analysed to make generalizations.

Case study designs focus on a single organization, place or person as the subject of research. The case is the unit of analysis, and the research methods focus on the circumstances, dynamics and complexity of a single or small number of cases. Yin (2018) defines five types of case: the critical, the unique, the typical, the revelatory and the longitudinal. An example of a unique case study is the research by Korman and Glennerster (1990) on the process of closing a large mental handicap hospital. A number of methods were used to collect both quantitative and qualitative data. Bryman (2016) warns that the term 'case study' is often used loosely. Some so-called case studies are in fact cross-sectional studies.

Longitudinal designs study phenomena over time. They require a significant investment of resources and large teams, so they are unlikely to be used by student researchers. The National Child Development Study (www.esds.ac.uk/longitudinal/access/ncds) is an example of a longitudinal study that has generated a raft of publications. Data were collected on a sample of children born in one week in 1958 and then followed up at intervals subsequently. The design allows for a number of very interesting and profound questions about the influence of childhood events or smoking, for instance on health in adult life (Wadsworth 1991).

Comparative designs are based on the value of studying similarity and difference between two or more contrasting cases. Typically, the same phenomenon is compared within two or more contrasting socio-cultural settings, such as institutions, customs, traditions and values. Studies may be cross-national, cross-regional or cross-institutional. Studies use the same methods for data collection in each setting. For example, there can be a secondary analysis of national data followed by data collection through a questionnaire or observation. If the study is cross-national, particular problems can arise in identifying key concepts and asking whether these can be compared across settings. For example, the procedures that are carried out in a hospital or in the community may differ between countries. It is important to be sure that the unit of comparison refers to the same phenomenon. This is discussed in Chapter 22.

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As Table 2.1 shows, a range of methods may be used within any of the design types described in Box 2.1.

TABLE 2.1 The range of methods in types of research design

Design type	Experiment	Cross-sectional	Case study	Longitudinal	Comparative
Method of data	Questionnaire	Questionnaire	Questionnaire	Questionnaire	Questionnaire
Method of data	Interview	Interview	Interview	Interview	Interview
Method of data	Observation	Observation	Observation	Observation	Observation
Method of data	Document analysis	Document analysis	Document analysis	Document analysis	Document analysis

Source: De Vaus (2002: 10)

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Starting the research process

This chapter concludes with some general guidelines on starting a small-scale research study. These are further elaborated in Chapter 26, which discusses the shape of a research proposal and writing up health research. The research question is critical because it will determine the aims and objectives of a project, the scope of the literature review, and will influence the design and methods for data collection and analysis. It will suggest explicitly or implicitly a body of theory relevant to researching a topic.

Students often find pinning down a research question difficult. A particular topic may be a starting point, but this must be refined down. There are likely to be both what and why questions. A question is likely to be answerable if it is explicit, focused and feasible. Your own life, experience and interests may provoke questions or ideas may come from your immediate circle of friends and family. Almost everyone has experience of episodes of health and illness, has looked after others who have been ill or has used health services. You may have read something that identifies a puzzle or a gap in knowledge. Curiosity about why things are as they are, and persistence in working through ideas, then finding out what has already been written, can help in refining research questions. These should be clear, focused and concise, and be answerable through data collection. Denscombe (2017) describes types of research question, which are shown with examples in Box 2.2.

Box 2.2 Types of research question

The types of research questions are as follows:

Descriptive – A phenomenon is described: What is X and what form does it take? What visual images do hospices use in their advertisements? Why are these used?

Explanatory – The causes and consequences are explained. What is causing or what has caused an outcome? What are the explanations for an increase in obesity in the United Kingdom or other country?

Evaluative – Did an intervention bring benefits? What are the short- and long-term effects of taking HRT to alleviate discomfort during the menopause? What have been the outcomes of a project in health area X to encourage pregnant women to stop smoking?

Comparative – How do A and B differ in relation to X? How does the system for dealing with complaints from patients in hospital A compare to hospital B? What are the outcomes?

Predictive – An outcome is predicted. Have predicted benefits occurred? Have there been unwanted/undesirable side-effects?

Here research questions should be:

- Significant in terms of addressing real-world events
- A problem answerable through research
- A question that has not been answered.

There are examples of how to develop research questions by sharing your ideas with others at the end of the chapter. Chapter 26 gives further examples.

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The practical advice is to pick an area of interest first and then look at the relevant literature. The process is iterative – zig-zag between reading, note taking and thinking about theory and methods. Who has carried out research on a topic before? What theories and concepts have been used? What research methods have been used? What have been the main findings? Are there any gaps in knowledge? If you find a study that has been done well, could this model be used to address a different population group, a different illness, or a different organization or policy area? It is worth taking time to frame the question in a way that makes the research feasible and interesting but also has the potential to make a contribution to knowledge. Your literature review should include studies that have used a variety of methods.

The chapters in this book provide examples of qualitative methods such as the use of documents, unstructured and semi-structured interviews, participant observation, focus groups and

action research. They also provide examples of quantitative methods such as surveys, experimental methods including RCTs, as well as methods used in economics and to analyse secondary data.

Theory and concepts in health research

In general terms, theories tend to be discipline-based and describe findings that have been observed in earlier research. In clinical research, questions are typically narrow and the research instruments and measures used will be quantitative and well founded as valid measures of the phenomenon under investigation. In qualitative research, theories aid data analysis. Although some theories are too general or abstract to be of use to student researchers or even more experienced researchers, they can be indicative of where to look. Middle-range theories may be more relevant. These can be identified from the literature.

During a literature review, researchers should notice the concepts used and how these are defined as this can lead to identifying relevant theories. A concept is an abstract idea or generalization based on things observed in the real world. We have already discussed the concepts related to health, illness and health work, and have shown that, in consequence, definitions differ. This does not inhibit communication in day-to-day life as people have a general understanding of terms. When doing research, differences in definitions can contribute to a literature review and provide a basis for developing an argument – particularly if there is disagreement between authors. You will find that concepts abound in health research literature. For example, hospital culture, bureaucracy, health technology, carers and the caring professions are all concepts that require discussion. Researchers can note differences and select their preferred definition.

Key factors guiding health research

In health research, the onus is on researchers to produce robust results based on sound methods. This chapter concludes with definitions of some central factors that should guide the conduct of research whatever method is used. In order to add to knowledge, research should be carried out in a way that is as rigorous as possible to produce findings that are *reliable, replicable* and *valid*. These relate to the quality of and the robustness of findings and are outlined in Box 2.3.

Finally, ethical practice in health research is of central importance. This relates to how research has been done – that is, to the robustness of the findings, the truth-telling in the research process, the claims made in presenting findings and, not least, how the researcher has sought to safeguard the interests of research participants in collecting data. Research involves responsibilities to the bodies funding and enabling research, and to the constituencies and the public who draw on research findings. Research projects that are well structured, feasible and cost-effective benefit the public. Research findings should be presented critically, and alternative explanations should be considered.

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Box 2.3 Reliability, replicability and validity

These important factors in health research can be outlined as follows:

Reliability in research refers to the tools or measures used to make assessments of the research data. Some measures are unreliable because they are poorly defined or inconsistent in what they measure. A tape measure is reliable as it provides a consistent measurement of distance each time it is used. The Short Form 36 (SF-36) is tool designed to measure health status. It asks a series of questions on physical, social and emotional functioning and has been tested for consistency and is considered reliable. However, most measures require a degree of interpretation.

Replicability is a question that is asked in research. It means is it possible to repeat the study? If a study is described well enough to allow it to be repeated, it can be used to confirm or refute previous findings. If there is the same result, this strengthens a knowledge claim. The term is particularly applicable in biomedical research using quantitative methods. As will be discussed in the next chapter, studies are more difficult to replicate exactly in the social sciences.

Validity refers to the soundness of the research findings. Will the research design and the chosen methods answer the research question? Are the findings of a study drawn from the evidence presented and are the conclusions that are made justified?

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Clearly, the interests of participants in health research should be protected. A few projects have involved serious violations of ethical principles, leading to harm to participants. It is now incumbent on all researchers in social as well as biomedical research to ensure, if permission to proceed is given, that there is no harm to participants, that their consent is obtained to take part in research and that the anonymity of participants is protected. There is also an expectation, particularly in social and policy research, that participants can and should contribute to the research process from the inception of a project and its design, through to developing research instruments, taking part in the project and being informed of the findings, including the opportunity to comment and provide feedback. There are underlying issues about power relationships in the research process. Researchers must respect participants as persons, be aware of vulnerabilities where sensitive issues are being discussed and avoid any form of coercion. In the more informal research methods, coercion can take subtle forms such as asking leading questions and straying into areas that are not part of the project. Researchers should also not put themselves at risk in doing research.

Conclusion

In discussing the principles of health research, this chapter has indicated the range and scope of research on health and health care. A number of disciplines may be drawn on to provide theories and concepts to formulate research questions. Some illustrations have been given of studies undertaken within both the natural and social sciences. These studies may develop from observing or collecting data and then formulating a theory to explain patterns of behaviour, or theories may be tested through data collection. We have argued that researchers must be thoughtful about the design they choose to pursue their research project. There are a limited number of options to follow, but then a variety of methodologies and methods may be adopted to carry out an investigation. The latter should be selected to suit both the question chosen and personal preference. A number of principles have been referred to that should govern the conduct of all health research. These relate to both the substance and ethics of the research process. On the one hand, findings must be soundly-based in order to add to knowledge. On the other, collecting data involves personal relations with people whose interests and dignity should be respected.

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Exercise 2.1 Engaging in health research

- Choose a research topic for health research and present it to colleagues (as a group or in pairs), describing it in one sentence. Construct three possible research questions from this topic and discuss.
- Search for three texts related to one of these questions and write a short paper examining the methods used in these papers and how the question has been answered. Are there any gaps in the argument? If so, what are they?

Recommended further reading

This book provides a strong general grounding in social research methods, albeit it is not specifically oriented to health:
Bryman, A. (2016) *Social Research Methods*, 5th edition. Oxford: Oxford University Press.

This useful guide will help researchers engage in designing and conducting mixed methods research:

Cresswell, J. W. and Plano Clark, V. L. (2017) *Designing and Conducting Mixed Methods Research*, 3rd edition. London: Sage.

This book provides a straightforward introductory overview covering the whole research process, with a particular focus on health:

Jacobsen, K. H. (2017) *Introduction to Health Research Methods: A Practical Guide*, 2nd edition. Burlington, MA: Jones & Bartlett Learning.

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