Contents

List of research examples xiii
List of figures and tables xv
Preface to the third edition xvi
Acknowledgements xvii

Introduction 1

1 Research and Nursing Practice 7
Introduction 7
Sources of knowledge for nursing practice 7
The meaning of nursing research 12
The rationale for nursing research 13
The role of nurses in research 16
The development of nursing research 20

2 Knowledge, Science and Research 25
Introduction 25
The need for knowledge 25
Belief systems 26
Belief systems and knowledge 28
Science and knowledge 29
Science and research 29
What is research? 30
Science and non-science 32
Paradigms 33
Qualitative research 39

3 Quantitative Research 42
Introduction 42
What is quantitative research? 42
The role of measurement in quantitative research 44
Objective and subjective measurements 44
Types of quantitative data 46
Quantitative approach as deductive 48
Data collection and analysis 48
The value of quantitative research to nursing 50
Criticisms and limitations of the quantitative approach 51
## Contents

### 4 Qualitative Research  
Introduction  
What is qualitative research?  
Main characteristics of qualitative research  
Common approaches in qualitative research  
Similarities and differences between approaches  
Other types of qualitative studies  
Qualitative research and nursing  
Qualitative studies in nursing and health research  
Criticisms and limitations of qualitative research  

### 5 Mixed Methods  
Introduction  
The quantitative–qualitative debate  
Rationale for combining quantitative and qualitative methods  
Types and purpose of combining methods  
Triangulation  
Implications of triangulation  

### 6 The Research Process and Ethical Issues  
Introduction  
The meaning of research process  
The research process and the nursing process  
The process in quantitative research  
Main stages of the research process  
The process in qualitative research  
Understanding the research process  
Critiquing the research process  
Ethical issues and the research process  
Ethical principles in the conduct of research  
Ethical issues in quantitative and qualitative research  
Research governance  
Nurses’ role as patients’ advocates and as researchers  

### 7 Literature Reviews  
Introduction  
The meaning of literature  
Primary, secondary and tertiary sources  
Assessing the value of publications  
Accessing information sources  
Purpose of literature reviews  
Critiquing the literature review  
Systematic reviews  
The systematic review process  
Systematic and exploratory reviews  
Validity and reliability of reviews  
Appraisal of systematic reviews  

---

Copyrighted material – 9781137281265

Copyrighted material – 9781137281265
<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Research and Theory</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>What is a theory?</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>Practice, research and theory</td>
<td>138</td>
</tr>
<tr>
<td></td>
<td>Theory and research</td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>Conceptual frameworks in quantitative research</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>Conceptual frameworks in qualitative research</td>
<td>144</td>
</tr>
<tr>
<td></td>
<td>Evaluating the use of conceptual frameworks in research</td>
<td>146</td>
</tr>
<tr>
<td>9</td>
<td>Research Questions and Operational Definitions</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>Formulating research questions</td>
<td>149</td>
</tr>
<tr>
<td></td>
<td>Aim or purpose of the study</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Research questions</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>Research objectives</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td>Hypotheses</td>
<td>151</td>
</tr>
<tr>
<td></td>
<td>Operational definitions</td>
<td>154</td>
</tr>
<tr>
<td></td>
<td>Evaluating operational definitions</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td>Research questions in qualitative research</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>Critiquing research questions and operational definitions</td>
<td>161</td>
</tr>
<tr>
<td>10</td>
<td>Research Designs</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>Research design</td>
<td>164</td>
</tr>
<tr>
<td></td>
<td>Selecting a design</td>
<td>165</td>
</tr>
<tr>
<td></td>
<td>Variations on research designs</td>
<td>169</td>
</tr>
<tr>
<td></td>
<td>Qualitative research approaches</td>
<td>180</td>
</tr>
<tr>
<td>11</td>
<td>Experiments</td>
<td>184</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>184</td>
</tr>
<tr>
<td></td>
<td>The meaning and purpose of experiments</td>
<td>184</td>
</tr>
<tr>
<td></td>
<td>Clinical trials</td>
<td>185</td>
</tr>
<tr>
<td></td>
<td>The logic of experiments</td>
<td>186</td>
</tr>
<tr>
<td></td>
<td>Intervention</td>
<td>187</td>
</tr>
<tr>
<td></td>
<td>Control</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>Randomisation</td>
<td>195</td>
</tr>
<tr>
<td></td>
<td>Placebos and blind techniques</td>
<td>197</td>
</tr>
<tr>
<td></td>
<td>Internal and external validity</td>
<td>198</td>
</tr>
<tr>
<td></td>
<td>Ethics of experiments</td>
<td>204</td>
</tr>
<tr>
<td></td>
<td>RCTs in nursing</td>
<td>206</td>
</tr>
<tr>
<td></td>
<td>Evaluating experiments</td>
<td>206</td>
</tr>
<tr>
<td>12</td>
<td>Phenomenological Research</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td>Phenomenological research in nursing</td>
<td>211</td>
</tr>
<tr>
<td></td>
<td>The origins of phenomenology</td>
<td>212</td>
</tr>
<tr>
<td></td>
<td>Husserlian phenomenology</td>
<td>213</td>
</tr>
<tr>
<td>Section</td>
<td>Title</td>
<td>Page</td>
</tr>
<tr>
<td>---------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>13</td>
<td>Grounded Theory</td>
<td>229</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>229</td>
</tr>
<tr>
<td></td>
<td>The meaning of grounded theory and its value to nursing</td>
<td>229</td>
</tr>
<tr>
<td></td>
<td>Versions of grounded theory</td>
<td>230</td>
</tr>
<tr>
<td></td>
<td>Key features of grounded theory</td>
<td>231</td>
</tr>
<tr>
<td></td>
<td>Data collection methods</td>
<td>238</td>
</tr>
<tr>
<td></td>
<td>Rigour in grounded theory studies</td>
<td>239</td>
</tr>
<tr>
<td></td>
<td>Criticism of grounded theory</td>
<td>240</td>
</tr>
<tr>
<td></td>
<td>Evaluating grounded theory studies</td>
<td>240</td>
</tr>
<tr>
<td>14</td>
<td>Ethnography</td>
<td>244</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>244</td>
</tr>
<tr>
<td></td>
<td>Studying behaviour in context</td>
<td>244</td>
</tr>
<tr>
<td></td>
<td>What is ethnography?</td>
<td>245</td>
</tr>
<tr>
<td></td>
<td>Origins of ethnography</td>
<td>246</td>
</tr>
<tr>
<td></td>
<td>Contemporary ethnography</td>
<td>247</td>
</tr>
<tr>
<td></td>
<td>Key features of ethnographic studies</td>
<td>249</td>
</tr>
<tr>
<td></td>
<td>The ethnographic process</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>Rigour in ethnographic studies</td>
<td>253</td>
</tr>
<tr>
<td></td>
<td>Reporting findings</td>
<td>254</td>
</tr>
<tr>
<td></td>
<td>Ethics of ethnography</td>
<td>255</td>
</tr>
<tr>
<td></td>
<td>Criticisms and challenges of ethnographic research</td>
<td>256</td>
</tr>
<tr>
<td>15</td>
<td>Samples and Sampling</td>
<td>259</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>259</td>
</tr>
<tr>
<td></td>
<td>Samples and populations</td>
<td>259</td>
</tr>
<tr>
<td></td>
<td>Types of sample</td>
<td>262</td>
</tr>
<tr>
<td></td>
<td>Types of probability sample</td>
<td>263</td>
</tr>
<tr>
<td></td>
<td>Types of non-probability sample</td>
<td>268</td>
</tr>
<tr>
<td></td>
<td>Sampling in quantitative research</td>
<td>272</td>
</tr>
<tr>
<td></td>
<td>Sampling in qualitative research</td>
<td>273</td>
</tr>
<tr>
<td></td>
<td>Critiquing samples and sampling</td>
<td>275</td>
</tr>
<tr>
<td>16</td>
<td>Questionnaires</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td>Introduction</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td>Use of questionnaires in nursing</td>
<td>280</td>
</tr>
<tr>
<td></td>
<td>What is a questionnaire?</td>
<td>281</td>
</tr>
<tr>
<td></td>
<td>Questionnaires in nursing research</td>
<td>282</td>
</tr>
<tr>
<td></td>
<td>Question formats</td>
<td>283</td>
</tr>
<tr>
<td></td>
<td>Advantages and disadvantages of questionnaires</td>
<td>292</td>
</tr>
<tr>
<td></td>
<td>Validity and reliability of questionnaires</td>
<td>294</td>
</tr>
</tbody>
</table>
## Contents

17 Interviews  
- Introduction  
- Interviews in clinical practice  
- Research interviews  
- Structured interviews  
- Validity and reliability of structured interviews  
- Qualitative interviews  
- The qualitative interview process  
- The content of qualitative interviews  
- Rigour of qualitative interviews  
- Semi-structured interviews  
- Focus groups  
- Ethical implications of interviewing  
- Critiquing interviews  

18 Observations  
- Introduction  
- Observation and nursing practice  
- Observation in nursing research  
- Limitations of observations  
- Structured observation  
- Unstructured observation  
- Participation in observation  
- Ethical implications of observation  
- Critiquing observation  

19 Making Sense of Data  
- Introduction  
- What does making sense of data mean?  
- Quantitative data analysis  
- Levels of measurement  
- Statistical levels  
- Descriptive statistics  
- Inferential statistics  
- Qualitative data analysis  
- Computer-assisted qualitative data analysis  
- Ensuring rigour in data analysis  

20 Evaluating Research Studies  
- Introduction  
- Critiquing skills
21 Evidence-based Practice 389
Introduction 389
Justifying practice 389
Rationale for evidence-based practice 390
What is evidence-based practice? 392
Steps in evidence-based practice 393
Objectives of evidence-based practice 393
Difference between evidence-based practice and research utilisation 394
Types and levels of evidence 395
Evidence-based nursing 396
The nature of nursing knowledge 396
Implementing evidence-based practice 398
Nurses' use of research 399
Evidence-based practice: whose responsibility? 401

Glossary 404
Index 416
Chapter 1

Research and Nursing Practice

Introduction

This introductory chapter will examine the sources of knowledge for practice and the meaning of, and rationale for, nursing research. The role of nurses in research and the relationship between research and practice will also be explored.

Sources of knowledge for nursing practice

Much has been written about the variety of sources of knowledge from which practitioners draw. Of these, the main ones are tradition, intuition, experience and research.

Traditional knowledge

The bulk of our knowledge has been accumulated over centuries and passed down to us through literature, art, music, oral history and other such media. Traditional nursing knowledge is learnt mainly from books and journals, by word of mouth and by observing the practice of others.

Much traditional practice takes the form of rituals. For example, a traditional fasting rule for patients admitted for elective surgery is nil by mouth from midnight for a morning theatre procedure, or a light breakfast for an afternoon one (Rycroft-Malone et al., 2012). Yet there is robust evidence to show that ‘it is safe for healthy adult patients undergoing elective surgery to have clear water and clear fluids up to two hours before the induction of anaesthesia and food up to six hours prior to induction’ (Rycroft-Malone et al., 2012). While fasting times are generally prescribed by doctors, there are many rituals in nursing practice, such as routine blood pressure monitoring, set feeding times or putting all patients to bed at the same time, regardless of whether they want to go to sleep or not.
Jefford et al. (2009) explain that routinely performing a vaginal examination during birth to check for the nuchal cord is a ritual that started in the late seventeenth century when all aspects of birth were ‘medicalised through fear’. According to them, ‘when the midwife avoids routine invasive checking for the cord and instead makes individual clinical decisions for each particular woman and baby, this may be a marker of her willingness to practice as an autonomous decision maker and not just a follower of ritual’.

Traditions are important not only in passing down knowledge, but also in giving groups in society a sense of identity, belonging and pride. Through socialisation, we learn the culture of those who have gone before us. Similarly, traditional nursing knowledge and practice are learnt by novice nurses through the process of socialisation in educational institutions and clinical areas. Much of this traditional knowledge and many ritual practices are the outcomes of sound reasoning. Today’s new knowledge and practices will likewise eventually become traditional. The term ‘traditional’ is sometimes used in a negative sense, meaning backward, outdated or unprogressive. Knowledge in itself is harmless; it is the use people make of it that can be harmful or beneficial. It should neither be rejected too quickly nor clung to rigidly, if we are to benefit from the experiences of our predecessors and continue to make progress.

Debating ‘the pros and cons’ of routines, Barton (2011) explains that a routine can ‘be desirable, bringing comfort, certainty and quality to life, or constraining, monotonous and ineffective’. Semple (2011), on the other hand, sees ‘rituals as characterised by mechanistic repetitious actions that lack thought and detract from individualised care’. However, he concedes that some routines may have a role in healthcare. No one denies that routines can provide some structure to one’s practice, without which there could be confusion and misunderstanding. Guidelines and checklists can, to some extent, if used insensitively, lead to routine practice.

**Intuition**

Intuition by its very nature is not easy to define. It is a form of knowing and behaving that is not apparently based on rational reasoning. The use of intuition in nursing is only now beginning to attract nurse researchers’ interest, so not much is known about ‘how’ nurses come to know there is something ‘wrong’ or whether they have a ‘sixth’ sense that tells them what to do. According to Kenny (1994), nurses use empathetic intuition in their daily practice:

This type of intuitive thinking often occurs within the context of a nursing situation, and feeling, rather than conscious thinking, seems to predominate. Nurses know that there is something wrong but cannot explain what it is.

Intuition involves the use of all human senses such as touch, smell, hearing, sight and even taste, as well as previous experience (in the form of tacit knowledge) to assess, and react to, a situation. It happens in ways which seem to be beyond comprehension. McCutcheon and Pincombe (2001) studied nurses’ understanding
of intuition and their perceptions of their use of intuition, and assessed the impact of intuition on nursing practice. They found that intuition is the result of a complex interaction between a number of factors including knowledge, experience, expertise, personality and environment.

Greenhalgh (2011), who believes that intuition has a place in medical practice, explains that:

Intuition is not unscientific. It is a highly creative process, fundamental to hypothesis generation in science. The experienced practitioner should generate and follow clinical hunches as well as (not instead of) applying the deductive principles of evidence-based medicine.

Experience and reflective practice

Nurses and midwives base their practice on their own experience and on the experience of others. Experience is a useful way of learning. There is a wealth of untapped knowledge embedded in the practice and ‘know-how’ of expert nurse clinicians (Benner, 1984). It is also reckoned that what we learn by experience is more enduring than what we are taught. However, our experience in itself is rather narrow. For example, in treating depression, a nurse may use one or two approaches. While the experience obtained is invaluable, she will be unfamiliar with other treatments and may either be reluctant to try them or may reject them out of hand.

We also learn a lot from the people we care for, as they have a wealth of experience with the conditions we are trying to grapple with. Livesley (2004), in her paper on ‘How a personal account contributes to nurse knowledge’, argues that story-telling is an important tool for nurses seeking to explore and discover the meanings of their own personal and professional experience and the experiences of those with whom they work.

There is also a degree of trial and error when learning by experience. While this may be inevitable in some cases, there is, by and large, a risk of reinventing the wheel and a greater risk of unsafe practice. Experience is therefore an important source of nursing knowledge, but relying solely on it and overstating its importance can be detrimental to nursing practice.

A number of studies have shown that experiential knowledge and information gained by consulting colleagues are the main sources that nurses draw upon when making clinical decisions (Gerrish and Clayton, 2004; Pravikoff et al., 2005; Thompson et al., 2005). In a recent study in Ireland, Yadav and Fealy (2012) found that ‘psychiatric nurses in Ireland get most of their knowledge from their everyday experiences of nursing patients and from fellow practitioners, but few seem to get knowledge to guide their practice from sources such as published professional and research journals’.

We all engage in reflection in our daily lives. This type of informal, ad hoc reflection can be deliberate or may happen spontaneously. Reflective practice, on the other hand, is a formal reflection on our actions. Although there is no consensus of what reflective practice is, it is a term that can simply mean ‘adopting a thinking
approach to practice’ (Finlay, 2008). The degree of formality and the models, theories or frameworks that practitioners can use to guide their reflection vary between individuals and professions. Critical reflection is generally believed to be ‘a process by which practitioners can better understand themselves in order to build on existing strengths and take appropriate future action’ (Somerville and Keeling, 2004).

Reflective practice requires practitioners to think though the process of decision-making that leads to particular actions. The two types of reflective practice that are generally referred to are ‘reflection-on-action’ and ‘reflection-in-action’ (Schön, 1987). The former is a retrospective ‘analysis’ of an action that has already taken place, while the latter involves reflecting while the action is taking place. Now and then, we must stop and consider what we do, why and how we do it and to what effect, otherwise we will turn what we do into thoughtless routines. For progress to take place, we must ask if we are doing the right things and if there are alternative ways to make things better. According to Rolfe (2001), in order to become ‘knowledge generators’, practitioners can use reflective practice ‘to uncover the rich store of experiential knowledge that lies buried within their own practice’.

Reflective practice has its own limitations. It assumes that the practitioner is capable of reflecting in a meaningful way on his or her decisions leading to a particular action, despite the acknowledgement that the rationale for action can be intuitive and difficult to verbalise. It is also believed that we can examine our prejudices, which may underpin our practice. Yet people are generally reluctant to admit their prejudices, many of which they may not be conscious of. The process of group reflection can be a daunting and threatening experience with ethical and political implications. The use of diaries and journals for reflective purposes has been criticised by Mackintosh (1998) as giving rise to issues of confidentiality. Problems and poor practice, when identified, have to be addressed; otherwise this can lead to frustration, low morale and ethical dilemmas.

Reflection as a concept to learn about our actions and about ourselves has much to commend it. Despite its problems and limitations, it should not be rejected, nor should it be the only strategy for developing practice. It must be recognised that all methods of generating knowledge have limitations, and that closing our minds to other methods can be unproductive and often dangerous.

Reflective practice has the potential to raise questions that can thereafter be explored by other means, including research. In Paget’s (2001) study of practitioners’ views of how reflective practice has influenced their clinical practice, some of the respondents reported that reflective practice encouraged the use of research findings in their practice. Elliott (2004) describes how the use of the ‘critical incident technique’ (which involves reflection on a particular incident to find out what worked or did not) led to a literature review and the identification of a researchable topic in intensive care.

**Research**

Research, in contrast to tradition, intuition and reflective practice, is a systematic way of knowing and lays bare its methods for all to see. Researchers collect and
analyse data systematically and rigorously, and this process is described to others by means of oral and/or written presentations. Research findings by themselves are not solutions to problems. They provide new insight into phenomena or add to, confirm or reject what is already known. Decisions still have to be taken about whether the findings should be used (or not used), and how.

One may argue that, by using common sense, nurses can take the right decisions. However, they still need relevant and valid information in order to do so. What may seem simple and straightforward is not necessarily so. For example, in some cultures babies suffering from diarrhoea are not given fluids because it is believed that this will aggravate the situation. To the parents, it makes sense that in order to stop the baby from passing ‘watery’ faeces, they must stop the administration of fluids. In doing this, the baby is put at risk of dying from dehydration.

One of the important factors in decision-making is the availability of relevant and up-to-date information. Traditional knowledge, although an important source of information, needs to be updated. What was relevant a decade ago may not be so now. Research has the potential to provide up-to-date information that may facilitate decision-making. The perception of research data as superior to other forms of knowledge is not purely a matter of personal preference, but is dependent on the quality of the research itself. Traditional knowledge may have suited a world in which ‘authority’ was not questioned, people did what they were told and things were right because someone ‘important’ said so. However, we now live in an age when most clients are no longer the passive recipients of services, and those who hold the purse strings require business plans for the allocation and use of funds. The need to justify one’s practice is greater now than it has ever been.

**Using more than one source of knowledge**

By separating the sources of knowledge for the sake of explanation, the impression may be given that practitioners use one source to the exclusion of others. In practice, nurses and other practitioners use a combination of these, consciously and unconsciously, depending on what their interventions consist of. Referring to the lack of consensus about what kind of knowledge is at work in the actions of social workers, Nygren and Blom (2001) ask:

> What is the role of theoretical knowledge in the moment of action, when a child is separated from its parents, when a dialogue is opened with a drug abuser, or when the client is told how much money she or he will get? To what extent is it a question of personal talent, creativity or charisma that is crucial to what will happen? Is knowledge applied in a prescriptive or instrumental way, or does it take the shape of a ‘mass’ or a matrix of knowledge – a more or less conscious background against which social workers reflect their sensory impressions.

Benner et al. (2008) point to the relationship between experiential learning and scientific investigations:
Often experience and knowledge, confirmed by experimentation, are treated as oppositions, as either–or choice. However, in practice it is readily acknowledged that experiential knowledge fuels scientific investigations, and scientific investigations fuels further experiential learning. Experiential learning from particular clinical cases can help the clinician recognize future similar cases and fuel new scientific questions and study.

It must be acknowledged, however, that there can be potential conflict when knowledge drawn from various sources is different and contradictory.

**The meaning of nursing research**

‘Nursing research’ is a broad term for all research into nursing practice and issues. It aims to provide insights into, and an understanding of, nursing practice and its effects on patients and their families and on the use of resources. Other areas of nursing research include the education and training of nurses, the organisation and delivery of services, the conditions in which nurses work, their influence on the work environment and the effects of work on the nurses themselves.

Definitions of nursing research are difficult to find mainly because of the lack of consensus in the definition of nursing and because nurses’ roles are constantly evolving and expanding in order to meet new demands. The definition of nursing research is often implicit in the goals of nursing organisations. According to the National Institute of Nursing Research (NINR; 2013), one can define nursing research simply as research that supports and develops the work that nurses do in order ‘to promote and improve the health of individuals, families, communities and populations’. Nursing research develops knowledge to:

- build the scientific foundation of clinical practice;
- prevent disease and disability;
- manage and eliminate symptoms caused by illness;
- enhance end-of-life and palliative care.

Healthcare is delivered not by nurses alone, but by multiprofessional teams whose aim is to provide the best possible care for patients and their families. It follows, then, that multidisciplinary research should be an approach of choice. Yet there are boundaries around the areas that each professional group deals with, and although these areas can overlap, health professionals generally are aware of what constitutes their domain of practice. There are aspects of care that are entirely or mostly delivered by nurses, and it is legitimate that nurses seek to develop their practice with the use of research. Both multidisciplinary and unidisciplinary research are important, and one should not be developed at the expense of the other.

One can ask whether nursing research should be carried out only by nurses. In theory, it may not seem important that research is ‘produced by members of the professions to whose practice it is directly or indirectly relevant’ (Higher Education Funding Council for England [HEFCE], 2001). In practice, it would be odd if
members of these professions did not engage in researching their practice. Clinically relevant questions can be developed mainly by clinicians themselves.

Clinicians are also well placed to decide on priority areas for research. According to the Department of Health (2000), there are ‘two principal dimensions to influencing the research and development agenda: ensuring that important areas of research about nursing receive appropriate priority; and ensuring that general priority setting benefits from a nursing perspective’. The HEFCE (2001) explains that because it ‘recognised the importance of maintaining healthy links between research, practice and teaching, it would be concerned if entire sub-fields became dominated by researchers from outside the professions’.

Nursing research uses designs and methods taken mainly from the natural and the social sciences, since nursing is concerned with the physical, psychological, social, environmental and spiritual aspects of patients and their carers. In return, nursing also provides fertile grounds for testing the theories and methods of these sciences. Nursing research is eclectic (that is, it uses a variety of methods and approaches) and sometimes modifies these methods to suit its own ends. In doing so, nursing research further develops these approaches and methods, and often gives them particular ‘slants’ or interpretations more suited to the context and the reality of nursing practice. Thus, nursing research makes a unique contribution to the development of approaches and methods for the study of its core issues.

The rationale for nursing research

Nurses are the largest professional group among healthcare workers worldwide. How such a workforce fulfils the health service agenda and what use they make of the sizeable budget they consume should be of concern to those responsible for the health of the population, to nurses and to society itself. Nurses are the health professionals who have most person-to-person contact with patients. They carry out thousands of interventions with patients and their carers, and their decisions and actions affect the lives of whole populations. It makes sense, therefore, that nursing practice should be based on sound evidence. As the UK Clinical Research Collaboration (2006), observes:

Nurses play a pivotal role within the NHS (National Health Service), providing front line services and support to patients, and they can make a unique contribution to health research. In particular, they can bring distinctive patient-focused insights to the kind of research which offers greatest benefits to patient care, and to the practical methodological issues which need to be addressed for research to produce relevant outcomes.

If what nurses do is important, it needs to be done well. To ensure that nursing practice is efficient and effective from the perspectives of both patients and nurses, it has to be questioned and, where necessary, improved. Research is one of the main tools available to question practice and seek answers. Aristotle differentiated between two types of knowledge: ‘know-how’ and ‘know-why’ (Laudan, 1996). Put
simply, ‘know-how’ is the knowledge that the craftsman possesses, for example when a shipbuilder knows that wood, when properly sealed, floats (Laudan, 1996). ‘Know-why’ would require him to know the principle by which wood floats over water (buoyancy). ‘Know-why’ knowledge is mainly generated by research, both basic and applied. Basic research involves answering general questions such as, for example, why, and in which circumstances, do people conform? This type of knowledge can be used to understand why patients conform. Applied research focuses on a specific question in an area of practice: for example, why do patients with diabetes comply (or not) with professional advice?

‘Know-how’ knowledge is necessary but not enough for progress. This type of knowledge involves learning by ‘trial and error’, which can be costly and time-consuming. If practitioners are reasonably satisfied with their work, it could lead to a tendency to leave things as they are, thus maintaining the status quo. ‘Know-why’ knowledge, on the other hand, can be divorced from practice. This is why this type of knowledge needs to be generated in collaboration with practitioners, otherwise it could remain in its ‘ivory towers’. Together, ‘know-how’ and ‘know-why’ knowledge are necessary for the enhancement of nursing practice.

Nurses are at the front line in the battle for better healthcare. They have first-hand experience of working directly with the public, and as such they are aware of the needs of their clients. They can act as advocates for patients, and nurses’ full potential for advocacy can be realised if they support their arguments with research evidence.

Another reason for using research to generate knowledge for nursing practice is to contribute towards the development of nursing as a profession. One of the hallmarks of a profession is the possession of a body of knowledge based on research. The accumulation of knowledge on different aspects of nursing constitutes a ‘body of knowledge’ that nurses and others can draw upon and contribute to. This body of knowledge is the sum total of nursing knowledge (theories, research findings, experience and so forth) contained mainly in books, journals, reports, theses and other audiovisual forms. The progress made in the creation of nursing’s body of knowledge can be gauged by the availability of books on different aspects of nursing and the number of nursing journals currently on the market compared with the early 1970s, when the number of books on nursing in the UK probably amounted to only a handful. The creation of a body of knowledge distinct to nursing is an important step in establishing nursing as a profession. Nursing relies heavily on knowledge from other disciplines, such as biology, chemistry, sociology, philosophy and psychology. While nursing will continue to draw upon, and contribute to, knowledge from these other disciplines, it is imperative that it continues to create a body of knowledge to inform its own practice.

The status of nursing as a profession will be enhanced when other professions recognise that nursing is not just common sense but is based on knowledge derived from research and organised in the form of concepts and theories. The creation of a body of knowledge is the means by which parity with other professions can be achieved, and research is the process by which this knowledge can be developed and
validated. Below is an editorial that appeared in the *New York Medical Journal* in 1914 (quoted in Messer, 1914):

Nursing is not, strictly speaking, a profession. A profession implies professed attainments in special knowledge as distinguished from mere skill (Century Dictionary); nursing is an honorable calling, nothing further, implying proficiency in certain more or less mechanical duties; it is not primarily designed to contribute to the sum of human knowledge or the advancement of science. The great and principal duty of a nurse is to make a patient comfortable in bed, something not always attained by the most bookish of nurses. Any intelligent, not necessarily educated woman can, in a short time, acquire the skill to carry out with implicit obedience the physician's directions. The graduate of the unregistered hospital or sanitarium or of the short term school, or any woman who reads conscientiously a course of instruction in nursing and practises assiduously at home what she learns, is fully competent to undertake any ordinary case of illness. Where special skill is required, as in a major surgical case, a laparotomy for example, we admit that hospital training is, if not indispensable, at least highly desirable, and for such cases the hospital-trained nurse might exclusively reserve her services at a wage higher than the ordinary. Nursing is an honorable, a remunerative, a noble calling, but efforts to exalt it into a profession or to rank it with the higher branches of learning and culture are the apotheosis of the absurd.

This was written at the beginning of the twentieth century. While there is no doubt that the status of nursing as a profession has been raised considerably in many countries since then, there is still a view among some members of the public, politicians and nurses themselves that nursing does not require its practitioners to be trained at degree level. In response to this, uninformed perception, Watson (2011) defends the need for an all-graduate profession in the UK:

In reality, nursing is a complex subject reflecting the complexity of the job. Biology, psychology, medicine, pharmacology and – to the horror of many – sociology all contribute to the unique mixture that is nursing. Clearly, nurses need to know how the body works in sickness and in health, and how it responds to treatment. Nurses – like doctors – need to be able to contextualise their work, thus the sociology. Nurses need to understand why children with chronic illnesses living on sink estates have different health-education needs than the children of middle-class parents. Are they stupid? Don't they care? Or do they simply face competing pressures and have fewer role models? The more you know, the less judgemental you will be. The less judgemental care is, the greater its effect.

Research is an integral and important part of nursing degree curricula. It has a central role in contributing to safe and efficient practice based on evidence. It is unacceptable that, in the twenty-first century, nurses have to justify why they need to be properly trained for them to deliver the quality of care that their clients deserve.
The role of nurses in research

As explained above, nurses have an important role in creating a body of knowledge and using it to inform their practice. This is what is meant by nursing being a research-based profession (Briggs, 1972). Yet it is not always clear to nurses what exactly they are expected to do. With competing demands on their time and the need to acquire a range of skills, they may wonder whether they are expected to be researchers as well as nurses. This perception may be based on the fact that research is relatively new to nursing.

Nurses’ primary duty is to give the best possible care to patients. This involves creating and maintaining a safe, caring environment and using interventions that, to the best of their knowledge, are the most appropriate and effective in bringing about the desired effects. To do this, they should question the knowledge and rationale on which they base their practice and seek to develop new ways to improve what they do. The answers to some of these questions can be obtained in various ways, including research. An important step in integrating research and practice is for nurses to be research-minded.

To be research-minded involves an attitude and an ability to ask questions of one’s practice that can be answered through the process of research. While the next step involves finding the answers to those questions, it does not mean that all practitioners are expected to carry out research studies. The answers may already be available in the form of published research. In this case, a literature search and review would be undertaken. In cases where there is no research, the role of nurses is to identify and work with those who have research experience and who are in a position to carry out a new study. To complete the process, the findings of the literature review or the research study should be critically appraised and, where appropriate, they should be disseminated and implemented.

Nurses’ role in research extends beyond asking questions, and seeking and implementing evidence. It includes protecting patients’ rights by ensuring that patients are fully informed of the implications of participating in research, that informed consent is sought, that no pressure is exerted – directly or indirectly – on them to participate, and that their right to withdraw at any time is respected. This advocacy role applies throughout the duration of the project and beyond (see Chapter 6 for more discussion of these issues).

The methods and skills used by researchers can also be of use to nurses and midwives in their daily practice. These health professionals and others consistently collect and analyse data in the assessment of patients and in the evaluation of outcomes. The skills of interviewing and observing in clinical practice can be sharpened though learning some of the research method skills. Hayes (2002) explains how her research experience prior to starting nurse training was useful to her as a nurse:

My research background has helped me develop an enquiring mind and the ability to see the broader picture. It helps me question my practice and its impact on patients. The skills I developed while working as a researcher are relevant to everyday practice
on the wards. For example, they give me the confidence to tackle new information and communicate with people. Interview skills help me to sensitively obtain information for patient assessments and analytical skills help me develop care plans.

Although it is rare that a student nurse would have research experience before undertaking nurse training, this example shows how learning research skills can benefit practice.

Maximising the potential contribution of research to practice requires knowledge of what research means, its strengths and limitations, knowledge of the research process (including the main research designs) and an appreciation of the ethical and political implications of research. Knowledge of the resources available to support research is often very important. The skills required include the ability to identify aspects of practice that would benefit from research, to formulate research questions, and to differentiate between questions that can be answered by research and those which can be answered by other means such as audit and reflection on practice (or by a combination of these).

Another fundamental skill for research-based practice is the ability to search and critically appraise research studies. Information technology has greatly facilitated access to research and other literature. To fully reap the benefits, nurses need the skills to search, obtain and critically read appropriate and relevant literature. Critical appraisal skills are likely to be more useful to most nurses than the skills to carry out research. Finally, the skills to implement findings and to manage and evaluate change are crucial if research is to have any impact on practice.

How nurses should acquire these fundamental skills remains a subject for discussion. Anecdotal evidence in the UK suggests that this has been interpreted differently by different institutions, with the result that some courses require students to carry out a literature review on a topic related to practice, while others expect students to formulate a research proposal or even carry out a small-scale project. The consensus in the nursing profession seems to be that qualified nurses should be able to read and use research critically and have a sense of the need for research to underpin their practice. The task of conducting research should rest with those who have acquired further education and training, especially in research methodology.

The role of nurses in research-based practice, as described above, applies to all nurses, since they should all identify researchable questions and seek and implement evidence. However, depending on the nature of their jobs, positions or responsibilities, some nurses may put more emphasis on certain aspects of these roles than others. For example, nurse managers may have more of a leadership role in encouraging and facilitating others to enhance their practice through research and by supporting them with the necessary resources. Nurses play a pivotal role within the National Health Service (NHS), providing front-line services and support to patients, and they can make a unique contribution to health research. In particular, they can bring distinctive patient-focused insights to the kind of research that offers greatest benefits to patient care, and to the practical and methodological issues that need to be addressed for research to produce relevant outcomes.
It is important in any profession that some of its members focus their attention on research. In the UK, Briggs (1972) proposed that the ‘active pursuit of serious research must be limited to a minority within the nursing profession’. To carry out in-depth research, nurses need a degree of knowledge and skills that is not usually attainable in basic training. The research training of undergraduate nurses varies in the UK, as explained earlier. Anecdotal evidence, as well as a perusal of the nursing literature, shows that more and more staff nurses in the UK conduct research, often in collaboration with members of multidisciplinary teams and academics. Practising nurses are frequently asked to collect data for other researchers, be they nurse researchers, doctors, psychologists or others. Their clinical nursing experience can be valuable to the research enterprise. Nurses are also in a position to identify problems that need investigation through research.

On the other hand, the researcher can also bring her detached perspective to bear on the problem being researched. This is illustrated by the following example. A researcher was called upon to help to improve care in a ward of older people through research. She had a hunch that constipation might be a problem in this group of patients. The ward sister did not think so until they both examined the notes and found that 11 out of 19 patients were prescribed laxatives, some three times daily. While discussing each patient individually, the ward sister also observed that those who were not prescribed laxatives were also the most confused patients on the ward and would probably not have been able to ask for medication. Without clinical insight, the researcher would have missed this important observation. This highlights the important and unique contribution that nurses can make to the research enterprise in nursing.

The American Nurses Association’s (ANA; 2003) position statement on education for participation in nursing research states that, at undergraduate level, ‘an attitude of enquiry, as well as an introduction to the research process should be initiated’. Nurses should also learn about how to look for, critique and utilise research in their practice. According to the ANA (2003), the responsibility for the conduct of research begins at master’s level, when nurses are prepared to be active members of research teams. At doctoral level, nurses should be able to contribute to knowledge through ‘the conduct of research aimed at theory generation or theory testing’ (ANA, 2003).

The danger of leaving the conduct of research to a minority of nurses within the profession is that practitioners may not see research as integral to their practice. While there is some evidence from the nursing journals of staff nurses conducting research, it is too much to expect first-level nurses to do so, even though many are very capable of it. Whether they conduct research or not often depends on their research training, their interests and their skills, and on the available resources and opportunities. Although nurses should collaborate with others, they should seek to become full members of the research team. The opportunities to register for a higher degree must also be considered. Nurses have grown in confidence from the early days when they were mostly handmaidens to medical and other researchers, collecting data with little to show for it.
A number of triggers and reasons can make you question your practice. These include:

- when you carry out a task even though you have doubts about whether it is effective, harmful or even necessary, as shown in Research Example 1;
- when you want to know more about something that arouses your curiosity (Research Example 2);
- when you wonder whether there is a better way to care for patients (Research Example 3);
- when you want to introduce a new policy or practice (Research Example 4).

### Implementation of fasting guidelines through nursing leadership  
**Lorch (2007)**

One of the most enduring ‘common’ practices is the policy of fasting patients for longer periods than necessary before an anaesthetic for surgery. In her role as a specialist nurse coordinator in trauma and orthopaedics, the author was concerned about the ‘long periods of starvation of the very young and elderly’ on the three wards within the trauma unit. She carried out a ‘snapshot study’ of 50 patients over the age of 60 with limb fractures. She found that ‘16 patients were inappropriately starved with the average fasting period of 7–12 hours’. Following this, she embarked on a study on ‘the implementation of fasting guidelines through nursing leadership’.

### Nasogastric tube feeding – which syringe size produces lower pressure and is safest to use?  
**Knox and Davie (2009)**

Knox and Davie (2009) explain that ‘the impetus for this study was a combination of curiosity about the safety issues relating to feeding via different syringe sizes and the rising cost of syringes for nasogastric feeding’. They questioned the National Patient Safety Agency’s recommendation on the size of syringes for use in adults (50 ml) and children (20 ml or 50 ml). To Knox and Davie, it ‘seemed illogical, as the use of smaller syringes ought surely to be safer in larger patients’.

### An action research project to improve the quality of nursing documentation on an acute medicine unit  
**Lees (2010)**

The aim of this action research study was to improve nursing documentation and the quality of nursing assessments. The rationale for the study was that, despite regular audits of nursing documentation and assessment (in one foundation trust), nurses continued to experience ‘challenges in upholding the established standards’.
The development of nursing research

It is beyond the scope of this chapter to give a detailed account of the development of nursing research worldwide. The origins of nursing research can be traced back to the time of the Crimean War, when Florence Nightingale collected data on mortality rates in the hospital where she worked. However, it was not until the beginning of the twentieth century in the USA, and in the 1950s in the UK, that nursing research began to develop.

Although the pace and extent of the development of nursing research worldwide vary from country to country, there are remarkable similarities in the way nursing research began and progressed thereafter. This is mainly due to some of the similar issues faced by nurses everywhere, namely the low status of nursing relative to other health professions, the education and training of nurses at the margins of higher education and the lack of resources to carry out research.

In 1985, nursing research in the USA became part of the National Institutes of Health (the US medical research agency and the largest source of funding in the world for health and medical research) despite political opposition at the highest level of government and differences of opinions among nurse leaders about the creation of the National Centre for Nursing Research (NCNR). Since then, nursing research in the US has made a significant contribution to nursing and to society as a whole. Cantelon (2010) explains that:

since 1986, the NINR (National Institute of Nursing Research) and its predecessor the NCNR, have served as the nucleus for the advancement of nursing science, providing the profession with national leadership on the federal level and financial support for research initiatives throughout the country.

Tierney (1997, 2005) offered an insightful analysis of the development of nursing research in some European countries, including the UK. She described the 1960s as the emerging years in which ‘lone pioneers’ played a great part. The 1970s are credited with the ‘beginnings of collective activity’, both internationally and nationally, throughout Europe. Tierney (1997) explained that collaboration among pioneer nurse researchers across Europe led to the formation of the Workgroup of
European Nurse Researchers in 1978. The 1980s are described as the period of ‘growth of activity and infrastructure’, underpinned by the nursing profession’s expanding association with universities. Finally, the 1990s was an era in which ‘the development of research in nursing in Europe’ was steered ‘strategically and with a greater sense of political acumen’.

Tierney (1997) also recognised that the advancement of nursing research has occurred more rapidly in countries with strong and stable economies. Not surprisingly, therefore, the development of nursing research in less developed countries has lagged behind. The *International Journal of Nursing Studies* (volume 27, issue 2, 1990) published a series of papers on the development of nursing research in the UK, Norway, Sweden, Denmark, Finland and Canada. In Canada, nursing research has experienced inconsistent growth over the past four decades, although from 1980s onward funding became available from the Medical Research Council of Canada and the National Health Research and Development Program (Jeans et al., 2008). For more information on the development of nursing research in Canada, see Stinson et al. (1990), Kerr (1996) and Pringle (2004). Australia has also experienced positive growth in nursing and health research (see Wilkes et al., 2002; Australian Nursing Federation and Royal College of Nursing, Australia, 2007).

Not much has been written about the development of nursing research outside Europe, Australia and North America. In India, there are positive signs, such as research being part of the basic nursing curriculum, that nursing research is being embraced by the nursing profession, yet the ‘research base in nursing is yet to develop’ (*The Hindu*, 4 January 2011). In Turkey, where nursing education has been offered at university level since 1955, nursing research has been growing slowly, but not ‘sufficient in relation to the development of global nursing research’ (Özsoy, 2007). Researchers in countries such as Taiwan, Hong Kong, Thailand and Malaysia, as well as the in Middle East, are increasingly publishing in highly rated journals. In mainland China, nursing research has been growing rapidly in the last 10 years, although this varies between regions (Li at al., 2009). The lack of investment and the low status of nursing are contributory factors for the slow development of nursing research in many of these countries. There are, however, positive signs that progress is being made, such as the increase in the number of research conferences and publications and the provision of doctoral programmes.

There are real benefits of investing in nursing research. For example, in Ireland, the Department of Health and Children (2003) published the first ever *Research Strategy for Nursing and Midwifery in Ireland*. It recognised the ‘considerable importance’ of research in providing a solid base for nursing and midwifery practice. It also made a number of recommendations including the provision of funding. A review of what the strategy achieved (Department of Health and Children, 2010) reported that ‘the capacity of the professions to generate and utilise research has expanded inextricably since the strategy commenced’ and that ‘champions of research are emerging within the professions and across the sectors both in developing research generation and in its utilisation’. The report also noted ‘the concentration of activity on producing research to inform nursing and midwifery practice and enhance the service or care provided to patients and clients’.
The role of research-based knowledge in decision-making is crucial for effective practice, and the need to have a sound rationale for one’s practice has increased over the last decade. It is not incumbent on every nurse to carry out research, but all should be research-minded enough to value the contribution of research to practice, identify problems that can be explored through research, be aware of research findings, collaborate with others in research activities and protect the rights of patients with regard to their involvement in research projects.

While nursing research must be carried out by nurses in order to create a nursing body of knowledge, a multidisciplinary and multiprofessional approach is also required as nurses work with other health professionals and share the same goal.

Nursing research has come of age in some countries, while in others it is still in its infancy. The momentum created by nursing research must be maintained and increased if it is to contribute positively to patient care and achieve the recognition it deserves.

References


Lees L (2010) An action research project to improve the quality of nursing documentation on an acute medicine unit. *Nursing Times,* 106:37 (early online publication).


# Index

abstract, 377, 404  
accidental sampling, 268–9, 404  
action research, 19–20, 178–9, 404  
aims and purpose (of research study), 150  
alternate-form test, 300–1, 404  
analysis  
  qualitative data, 367  
  quantitative data, 353  
anonymity, 72, 102–3, 347, 404  
attribute scales, 292–7, 301–2  
attribution, 170, 404  
audit trail, 238–9, 384, 404  
axial coding, 236, 404  
bar charts, 357–8  
belief systems, 26–8  
beneficence, 102  
between-subject design, 189–90, 415  
bias, 57, 79, 199, 297–8, 380–1, 404  
blind techniques, 197–8  
body of knowledge, 14–15, 178  
bracketing, 214, 216–18, 404, 411  
captive population, 270, 278  
case study, 168, 225, 405  
categories, 120, 234  
cause and effect, 35, 137–8, 185  
central tendency measures, 356, 359–61  
  chi-square, 366  
  mean, 359–61  
  median, 359–61  
  mode, 359–61  
clinical effectiveness, 393  
clinical trials, 185–6  
closed questions, 283  
cluster randomisation, 196, 405  
cluster random sampling, 267, 405  
codes, 370  
coding, 370–1, 405  
cohort, 169  
combining methods, 81  
comparative studies, 175–6, 405  
conceptual definition, 146, 156  
conceptual framework, 137, 141–6  
  in qualitative research, 144–6  
  in quantitative research, 141–4  
conceptual model, 137  
current validity, 299  
confidentiality, 103, 304, 347, 405  
confounders, 199, 405  
confounding variables, 199–200  
consent, 16, 101, 105  
consistency, 31, 72, 157, 316  
constant comparison, 234, 405  
construct validity, 299–300, 405  
content validity, 399, 309, 405  
  of observation schedules, 340  
  of questionnaires, 299, 302  
content validity index, 298  
control, 187–9, 405  
control groups, 189–90  
convenience sampling, 268  
correlation, 29–30  
correlational study, 165  
covert observation, 347–8, 406  
credibility of qualitative research, 220, 316–17, 406  
criterion-related validity, 299, 406  
critical realism, 35  
critiquing  
  experiments, 206  
  interviews, 328  
  literature review, 120  
  observations, 348  
  operational definitions, 161  
  qualitative studies, 72  
  quantitative studies, 51  
questionnaires, 302  
questions, 161  
research process, 101  
sampling, 275
skills, 375
theory, 146
crossover design, 190–1
cross-sectional design, 171
culture, 8, 60–1, 244–6, 406
data, 352, 406
data analysis
computer assisted, 370–1
frameworks, 369–70
qualitative, 367–9
quantitative, 353
textual, 367
database, 112, 406
data collection 164–5, 167–8
qualitative, 58–9
quantitative, 48–9
data saturation, 218, 353
deduction, 30, 140, 406
degrees of freedom, 365
Delphi technique, 176–7, 406
dependent variable, 152, 415
descriptive studies, 165–6, 406
statistics, 356–7, 362, 406
theories, 136–7
design
between-subject, 189
factorial, 194, 408
random block, 196–7
types, 167
within-subject, 190, 415
determinism, 35, 406
disclosure, 72, 103, 314
discourse analysis, 61–3, 180–1, 407
dispersion, 361, 407
dissemination of findings, 393, 407
double-barrelled questions, 297
double-blind techniques, 198, 413
double-negative questions, 297
eidetic reduction, 214–15, 407
emergence 232–3, 240, 407
ethical issues
in experiments, 204
in interviewing, 325
in observations, 347
in qualitative research, 103
in quantitative research, 103
for questionnaires, 303
ethical principles, 102
ethnographic process 250
ethnography, 60, 244, 407
contemporary, 247
key features, 249
online, 247
traditional, 247
evaluation
abstract, 377
conceptual frameworks, 146
experiments, 206
interviews, 328
literature review, 377
methodology, 378
observations, 348
operational definitions, 157
questionnaires, 302
research process, 101
research questions, 180–1
results, 379
sampling, 275
evaluative studies, 174–5, 407
event sampling, 338, 414
evidence-based nursing, 397
evidence-based practice, 392
background, 390
definition, 392
main steps, 393
objectives, 393
experience as a source of knowledge, 9
experiments
control in, 189
ethics of, 204–5
external validity, 198–9, 409
internal validity, 198–9, 409
meaning of, 184–5
purpose of, 184–5
quasi-, 193
single-subject, 191–2
explanatory trials, 185, 407
ex post facto research, 168
external validity, 198–9, 409
extraneous variables, 189, 407
face-to-face interviews, 309
face validity, 298, 407
factorial design, 194, 407
feminist research, 68, 407
fidelity, 103
<table>
<thead>
<tr>
<th>Term</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>fittingness</td>
<td>384, 407</td>
</tr>
<tr>
<td>focus group interviews</td>
<td>321–2, 408</td>
</tr>
<tr>
<td>frequency distribution</td>
<td>357, 408</td>
</tr>
<tr>
<td>generalisability</td>
<td>126, 408</td>
</tr>
<tr>
<td>grounded theory</td>
<td>229, 408</td>
</tr>
<tr>
<td>key features</td>
<td>231</td>
</tr>
<tr>
<td>versions of</td>
<td>230</td>
</tr>
<tr>
<td>Hawthorne effect</td>
<td>335</td>
</tr>
<tr>
<td>hermeneutics</td>
<td>216</td>
</tr>
<tr>
<td>historical studies</td>
<td>172, 411</td>
</tr>
<tr>
<td>history effects</td>
<td>200</td>
</tr>
<tr>
<td>homogeneous population</td>
<td>260</td>
</tr>
<tr>
<td>hypothesis</td>
<td>151</td>
</tr>
<tr>
<td>inverse</td>
<td>152</td>
</tr>
<tr>
<td>null</td>
<td>153</td>
</tr>
<tr>
<td>positive</td>
<td>152</td>
</tr>
<tr>
<td>hypothetico-deductive</td>
<td>35, 408</td>
</tr>
<tr>
<td>independent variables</td>
<td>153, 415</td>
</tr>
<tr>
<td>induction</td>
<td>29, 140, 408</td>
</tr>
<tr>
<td>inferential statistics</td>
<td>356, 363, 408</td>
</tr>
<tr>
<td>informed consent</td>
<td>16, 101–5, 408</td>
</tr>
<tr>
<td>instrumentation effects</td>
<td>201</td>
</tr>
<tr>
<td>intentionality</td>
<td>213–14</td>
</tr>
<tr>
<td>internal validity</td>
<td>198–9, 408</td>
</tr>
<tr>
<td>interpretation</td>
<td>216–17, 220–2, 224</td>
</tr>
<tr>
<td>interpretive phenomenological analysis</td>
<td>223–5</td>
</tr>
<tr>
<td>interpretivism</td>
<td>39, 409</td>
</tr>
<tr>
<td>inter-rater reliability</td>
<td>340–1</td>
</tr>
<tr>
<td>interval scale</td>
<td>355, 409</td>
</tr>
<tr>
<td>intervention</td>
<td>187, 409</td>
</tr>
<tr>
<td>interviewer presence</td>
<td>311–12</td>
</tr>
<tr>
<td>interviews</td>
<td></td>
</tr>
<tr>
<td>content of</td>
<td>315</td>
</tr>
<tr>
<td>ethical implications of</td>
<td>325–8</td>
</tr>
<tr>
<td>focus group</td>
<td>320–1</td>
</tr>
<tr>
<td>qualitative</td>
<td>313–14</td>
</tr>
<tr>
<td>research</td>
<td>309</td>
</tr>
<tr>
<td>rigour of</td>
<td>315–16</td>
</tr>
<tr>
<td>semi-structured</td>
<td>318–19</td>
</tr>
<tr>
<td>structured</td>
<td>311–12</td>
</tr>
<tr>
<td>telephone</td>
<td>309–10</td>
</tr>
<tr>
<td>intra-observer reliability</td>
<td>340, 409</td>
</tr>
<tr>
<td>intuition</td>
<td>8–9, 409</td>
</tr>
<tr>
<td>journals</td>
<td>112–13</td>
</tr>
<tr>
<td>justice</td>
<td>103</td>
</tr>
<tr>
<td>key informants</td>
<td>275</td>
</tr>
<tr>
<td>knowledge</td>
<td></td>
</tr>
<tr>
<td>metaphysical</td>
<td>27</td>
</tr>
<tr>
<td>scientific</td>
<td>28–9</td>
</tr>
<tr>
<td>supernatural</td>
<td>28</td>
</tr>
<tr>
<td>laws</td>
<td>138</td>
</tr>
<tr>
<td>Likert scale</td>
<td>289–90</td>
</tr>
<tr>
<td>limitations</td>
<td></td>
</tr>
<tr>
<td>interviews</td>
<td>328</td>
</tr>
<tr>
<td>observations</td>
<td>335</td>
</tr>
<tr>
<td>questionnaires</td>
<td>292</td>
</tr>
<tr>
<td>literature</td>
<td>111</td>
</tr>
<tr>
<td>literature review</td>
<td>115</td>
</tr>
<tr>
<td>critiquing</td>
<td>120</td>
</tr>
<tr>
<td>purpose of</td>
<td>115</td>
</tr>
<tr>
<td>longitudinal studies</td>
<td>16, 409</td>
</tr>
<tr>
<td>manipulation</td>
<td>409</td>
</tr>
<tr>
<td>matched pairs</td>
<td>195–6, 409</td>
</tr>
<tr>
<td>maturation effects</td>
<td>200</td>
</tr>
<tr>
<td>mean</td>
<td>360, 409</td>
</tr>
<tr>
<td>measurement levels</td>
<td>353</td>
</tr>
<tr>
<td>interval</td>
<td>355, 409</td>
</tr>
<tr>
<td>nominal</td>
<td>353–4, 410</td>
</tr>
<tr>
<td>ordinal</td>
<td>354–5, 410</td>
</tr>
<tr>
<td>ratio</td>
<td>355, 412</td>
</tr>
<tr>
<td>measurements</td>
<td></td>
</tr>
<tr>
<td>objective</td>
<td>44–5</td>
</tr>
<tr>
<td>role of</td>
<td>44</td>
</tr>
<tr>
<td>subjective</td>
<td>44–5</td>
</tr>
<tr>
<td>measuring attitudes</td>
<td>48</td>
</tr>
<tr>
<td>median</td>
<td>360, 409</td>
</tr>
<tr>
<td>memory distortion</td>
<td>295</td>
</tr>
<tr>
<td>memory gaps</td>
<td>295</td>
</tr>
<tr>
<td>meta-analysis</td>
<td>124, 409</td>
</tr>
<tr>
<td>metaphysical beliefs</td>
<td>27</td>
</tr>
<tr>
<td>methodology</td>
<td>160, 165, 378, 382</td>
</tr>
<tr>
<td>mixing approaches</td>
<td>80</td>
</tr>
<tr>
<td>mode</td>
<td>360, 410</td>
</tr>
<tr>
<td>modernism</td>
<td>38</td>
</tr>
<tr>
<td>molar units</td>
<td>410</td>
</tr>
<tr>
<td>molecular units</td>
<td>410</td>
</tr>
<tr>
<td>multiple-choice questions</td>
<td>283</td>
</tr>
<tr>
<td>multistage sampling</td>
<td>283</td>
</tr>
<tr>
<td>mythical beliefs</td>
<td>26–7</td>
</tr>
</tbody>
</table>
naïve realism, 36
nominal group technique, 324–5, 410
nominal scale, 353, 410
non-maleficence, 102
non-parametric tests, 364
non-participant observation, 351
non-probability sampling, 262–3, 411
accidental, 268
convenient, 268
purposive, 269
quota, 271–2
snowball, 271
volunteer, 269–70
non-respondents, 278, 410
normal distribution, 363, 410
null hypothesis, 153, 410
nursing process, 96
nursing research, 12
development of, 20
focus of, 22
funding, 23–5
meaning of, 12
rationale, 13
role of nurses in, 16
objectives (research), 151
objectivity, 44–5, 383, 410
observation
checklist, 345–6
cover, 369–70
critiquing, 371–2
ethical implications of, 368–70
limitations of, 335
in nursing practice, 332
participation in, 345
structured, 336
unstructured, 342
validity and reliability of, 340–1, 344–5
observer effect, 335, 410
observer fatigue, 336
open-ended questions, 285–6
operational definition, 154–5, 410
in qualitative research, 160
in quantitative research, 154–5
ordinal scale, 354, 410
paradigms, 33–4, 410
parallel groups, 189
parametric tests, 364–5
participant observation, 230, 251, 406
participatory action research, 178
Pearson product moment correlation
coefficient, 364–5, 410
peer review, 113
phenomenological approach, 211
phenomenological descriptive method,
217–18
phenomenological reduction, 214
phenomenology, 212–13, 411
Heideggerian, 215–16
Husserlian, 213–15
piloting questionnaire, 97, 339
placebo, 197, 411
population, 256–8, 471, 473
captive, 270
target, 260–1
units of, 259–60
positivism, 33–4, 411
postmodernism, 38–9, 411
postpositivism, 35–6
post-test, 191–2
predictive validity, 299
prestige bias, 295
pre-test, 191–3
primary sources, 111, 411
privacy, 206, 255, 304
probability sampling, 263–6, 411
cluster random, 265–6
simple random, 264
stratified random, 264–5
systematic random, 266–7
probing in interviews, 57, 104, 314
prospective studies, 169–70, 411
purposive sampling, 269, 382
p value, 366
qualitative analysis, 368–70
qualitative exploration, 56
qualitative interview, 313–15
qualitative research, 55
characteristics of, 56–7
limitations, 78–82
process, 57–8
quantitative research, 42
limitations, 51
value of, 50–1
quartile, 361
quasi-experiment, 193, 412
question formats, 283  
  checklist, 283  
  closed, 283  
  hypothetical, 297  
  leading, 297  
  multiple choice, 288  
  open-ended, 285–6  
  rank order, 284  
questionnaires, 280  
  advantages, 292–3  
  critiquing, 302–3  
  disadvantages, 292–3  
  ethical aspects of, 303–5  
  fatigue, 297  
  use of, 280  
  validity and reliability of, 294–9  
questions (research), 149–51  
quota sampling, 271–2, 412  
randomisation, 195–7, 412  
randomised controlled trials, 395, 412  
random sampling, 264–6, 412  
  cluster, 267–8  
  simple, 264  
  stratified, 264–5  
  systematic, 266–7  
rang e, 361, 412  
  rating scales, 288–9  
  ratio scale, 355, 412  
reductionism, 34, 412  
reflective practice, 9–10  
reflexivity, 253–4, 412  
reliability, 36, 475  
  alternate-form, 300  
  definition of, 31  
  external, 198–9, 408  
  inter-rater, 340–1  
  intra-observer, 340–1  
  split-half, 301–2  
  test–retest, 300  
replication, 32, 412  
research, 30–2, 412  
research-based practice, 17, 412  
research designs, 164, 412  
research ethics committees, 103  
research governance, 105–6  
research-mindedness, 386  
research process, 95  
  critiquing the, 101  
  meaning of, 95  
  in qualitative research, 98  
  in quantitative research, 96  
  stages of, 97–8  
research questions, 149–50, 413  
research training, 18  
response rate, 177, 278, 413  
retrospective designs, 172–3, 411  
rigour, 36, 372–4, 383, 413  
  in ethnography, 253  
  in grounded theory, 239  
  in phenomenology, 220  
sample, 259–60, 413  
  frame, 261–2, 413  
  non-probability, 268–72  
  probability, 262–7  
  selected and achieved, 261–2  
  size, 272–3  
science, 34  
  and knowledge, 29  
  and non-science, 32–3  
  and research, 29–30  
  scientific beliefs, 27  
  scientific method, 29–31  
searching the evidence, 126–7  
secondary sources, 111, 411  
selection effects, 201  
  semantic differential scale, 290–1  
  semi-interquartile range, 362, 413  
  semi-structured interviews, 318–20, 413  
  simple random sample, 263–4, 413  
  single-blind techniques, 198, 413  
  single-subject design, 191–2  
  snowball sample, 271, 413  
  social desirability, 295  
  split-half test, 300–1, 413  
  standard deviation, 362, 413  
  statistical analysis, 356–9  
    descriptive, 356  
    inferential, 363–7  
  statistical regression, 202  
  stratified random sample, 264–5, 413  
  structured interview, 311–12, 414  
  structured observation, 336–9, 414
subjectivity, 128, 201
surveys, 167–9, 414
systematic random sample, 266, 414
systematic review, 122–8, 414
  appraisal of, 131–3
  process of, 124–8
target population, 262, 414
tertiary sources, 111
testing effects, 200–1
test–retest, 300, 414
themes in qualitative research, 222, 368
theoretical framework, 99, 146, 405
theoretical sampling, 273–4
theoretical sensitivity 232, 237–8
theories of change, 398
theory, 135–40, 414
  definition, 135
  generating, 141, 414
  levels of, 137–8
  planned behaviour, 138
  practice and, 153–4
  research, 140
  testing, 140, 414
  types of, 136–7
time sampling, 337, 414
tradition as source of knowledge, 7–8
trial and error, 9, 14, 185
triangulation, 89–90
$t$-test, 364–5
type I and type II error, 363
units of observation, 336–7, 410
unstructured interviews, 313–14
unstructured observations, 342
utilisation of research, 394
  barriers to, 398–9
validity, 73, 415
  concurrent, 299, 406
  construct, 299–300
  content, 298
  criterion, 299, 406
  external, 202
  face, 305
  internal, 199
  predictive, 299, 406
variables, 85, 135, 152–3
  confounding, 199
  dependent, 152
  extraneous, 189
  independent, 152
variance, 361
veracity, 103
verbatim, 317
video-taping in observation, 339
visual analogue scales, 291
volunteer sampling, 269–70, 415
within-subject design, 190–1, 415