

Original Article

Using a phenomenological perspective in radiation therapy research

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Abstract

Research in radiation therapy is developing as radiation therapists recognise the need for improved evidence-based practice and patient care. However, many radiation therapists have a limited background in the area of research practices and the methodology that may be utilised to answer specific research questions. The purpose of this paper is to describe the development of a research question and the steps involved in determining an appropriate methodology that can be used to answer that research question. To demonstrate application of the approaches and methodologies that are described, an example research question that focuses on the experience of treatment decision-making for early stage breast cancer is considered and referred to throughout the paper. Initially, quantitative and qualitative research paradigms are considered and described to demonstrate the approaches that can be used, the type of data that can be collected and the results that can be analysed and utilised to answer the research question. As a phenomenological approach was found to be appropriate to investigate the question, this approach is explored in greater detail.

Keywords

Phonological research; radiation therapy

INTRODUCTION

Research enables an increased level of understanding of practice and allows treatment techniques and patient care to be based on evidence that is gained from research studies.¹ Involvement of radiation therapists in research is increasing because the need for research to develop the radiation-therapy profession and to improve patient care and treatment techniques is now recognised. Radiation therapists are becoming more confident to

participate in research and are enrolling in post-graduate courses to increase their knowledge in research skills, and to discover and test new approaches to care for patients and treatment techniques so that patient care can be improved.^{2,3} Although the need for research in radiation therapy is recognised, many radiation therapists have little background in the research process and knowledge of how to develop a research question and determine which methodology to use to best address the research questions.⁴

The purpose of this paper is to demonstrate the development of a research project utilising qualitative research and the steps taken to determine an

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appropriate methodology to answer the research question. This paper aims to inform radiation therapists about research and to encourage them to participate in research in both, the clinical and academic settings.

This paper will show the chronological development of a research project and will also demonstrate how qualitative research can be utilised by radiation therapists to gain an in-depth understanding of the patient's perspective. This paper outlines the choices that need to be made in regards to choosing a topic and developing a research question. Following discussion of the choice between quantitative and qualitative research approaches, qualitative research methodologies are considered in relation to an example topic. The example topic that is considered is: *The experiences of women during treatment decision-making for early stage breast cancer*. Phenomenology is explored in detail as this approach was chosen to address the example research question. Aspects of sampling and data collection are also addressed.

Defining a research problem and determining a research question

The initial steps of a research project involve determining the area of interest and development of a research question. The researcher also develops specific aims to be addressed by the research.⁵ The development of a research project is a complicated process, which involves determining what the researcher's interests are, where there is a paucity of research or gaps in knowledge and what would be useful information for other professionals in the work force.⁶ The research question needs to be relevant and suited to the context and situation.

A literature review is initially conducted to establish the need for research considering women's decision-making about treatment. This literature review demonstrated that treatment decision-making is an important part of women's experience of care, particularly considering the current emphasis in Australia on patient participation in treatment decisions and informed consent.⁷ Recent research has demonstrated that the survival rates for early stage breast cancer using either mastectomy or wide local excision and

radiation therapy are similar.⁷ Research in this subject area has investigated the diagnostic period⁸ and the breast cancer experience⁹⁻¹² and demonstrated that women may experience fear, anxiety, shock and changes in their perspectives on life. Published literature has also focused on how women feel about: communication with health professionals,¹³⁻¹⁵ their own lives,^{9,16} and their needs during the period of breast cancer diagnosis and treatment,^{10,17} However, to date, research has not illuminated the experience of treatment decision-making for women with early stage breast cancer.

Research on breast cancer has demonstrated that women have different preferences for their level of involvement in treatment decisions and that doctors do not always consider the women's preferences or recognise that women may have a preference.^{18,19} However, there is a paucity of research that considers the experience of treatment decision-making for women with breast cancer. As many women are making treatment decisions and there is limited literature in this area, it is appropriate that further research is conducted so that health professionals can gain an understanding of the experience of treatment decision-making from the women's perspective. Therefore the research question that was developed is: *What is the experience of treatment decision-making like for women with early stage breast cancer?*

Choosing an appropriate approach to answer the research question

As in any profession, research in the field of medical radiation can utilise a variety of theoretical perspectives and methods to achieve valid and useful results that can be accepted and adapted into practice. There are two main research approaches, which can be utilised: quantitative and qualitative. Both of these approaches have strengths and weaknesses depending on the research question that is being addressed.

Quantitative or empirical research provides a single reality about the theory or hypothesis that is being researched.⁶ Quantitative research may be experimental or quasi-experimental and involves the collection of numerical and categorical data, which can be statistically analysed to form

generalisations and draw conclusions about a particular subject group.⁵ The aim of quantitative research is to generalise results beyond the sample to the wider population.²⁰ For example, quantitative research could be used to quantify the number of patients who experience side effects following their cancer treatment. Quantitative research could also be used to determine why a particular treatment was used to treat a specified group of patients. To achieve reliable or accurate results quantitative research aims to use research designs that enable the researcher to have a high degree of control over variables that are being tested.²⁰ Research validity can be demonstrated by showing that the measurement that is being carried out actually measures what it aims to measure. The sample is selected so that the results can be generalised to the whole population of subjects that are being tested.²⁰ To accomplish this, subjects in the sample are often selected randomly from the group of interest.

In contrast, qualitative research considers multiple realities and is used to gain an in-depth understanding of how people feel, think and what the experiences are like for them.²¹ Qualitative research acknowledges that humans are complex individuals with their own unique understandings of life situations.²² Therefore, qualitative research may be used to gain an understanding of the everyday-life of people in society.²³ Examples of qualitative research could include asking a patient how they feel about a particular aspect of their treatment or asking a fellow colleague to describe their perceptions of a particular aspect of their work or life. Qualitative research involves the collection of descriptive data through observation and open-ended questions which may be presented in interviewing or alternatively in a survey. Qualitative research focuses on developing a broader understanding of the experiences in people's lives.⁵ Qualitative research requires rigorous and credible research methods that may include identifying and bracketing previous understanding, validation of data by checking it with participants, establishing an audit trail and publication of results that can be verified by other researchers.²⁴

Quantitative and qualitative research approaches can also be used to complement each other in projects that require both measurement and

description to answer the research questions posed. For example, a qualitative research approach may be used to provide an initial description of a phenomenon and then be followed up with quantitative research to address specific aspects of the research problem and demonstrate the prevalence of the phenomenon.⁶ Alternatively, a quantitative study may be conducted to measure a particular clinical component and a qualitative study may then be used to provide a deeper description of the clinical component that has been measured.

The decision about the approach to be used to address a research question should consider what approach answers the research question most effectively. Each approach plays a valuable role in research and can be used to successfully collect and analyse data relating to a specific question of inquiry. Each approach can also be used to provide rigorous, reliable and valid data, which can be analysed and interpreted in a way that can be used to inform health professionals about practice.

To investigate the example research question, it was necessary to choose an appropriate research approach that would provide the required data and results. Because the project aims to understand the women's experiences during treatment decision-making, it was appropriate to use a qualitative approach to interview the women to gain an understanding of their perspective. A quantitative study could be conducted if we knew the key features of women's experience and sought to quantify and generalise the incidence of these by surveying women to determine which responses or feelings were more prevalent. The question proposed here is directed at a more fundamental issue and focuses on understanding what the key features of the experience are among the participants in the study. The women are all individuals and have had different life experiences. Therefore qualitative research is more appropriate as it can be used to identify the features of the lived experience for each individual subject and lay the foundation for future research.

Choosing an appropriate qualitative methodological perspective

Methodology provides a theoretical understanding and interpretation of the social world and

people in the world, whereas methods are the techniques that are used to collect and analyse the data.²⁵ There are a number of different methodological or theoretical perspectives that can be taken to inform the research project that is being described. To ensure that qualitative research is rigorous, researchers need to clearly demonstrate why they have chosen a particular methodology and explain the underlying components of the methodology that they have chosen.²⁵ Qualitative research methodologies can be separated into two paradigms: interpretive and critical. The interpretive paradigm is used to generate meaning by explaining and describing the area of interest, whereas critical research is used to change practice by working through problems and attempting to solve them.²³

Research into the experience of treatment decision-making needs to be designed to enable health professionals to gain a better understanding of the women's experiences. Therefore, an interpretive paradigm was chosen so that the researcher could hear the women's experiences and interpret these to form an in-depth description of the actual events that occurred and the associated perceptions and feelings that the women had between diagnosis and treatment.

The researcher needs to choose an appropriate qualitative methodology that can be used to provide a theoretical understanding and interpretation of the social world and people in the world. The methodology that is used provides an understanding of the assumptions and predictions that the researcher makes about the world and the experiences that the research participants have.²⁶ Through the use of a methodological perspective, it is possible to gain an understanding of the subjects who are being researched and explain and interpret the meaning that they place on events in their lives and the experiences that they have. Examples of interpretive methodologies include: ethnography; grounded theory; and phenomenology.²²

Ethnography is used to provide a portrait of people in a social group by describing their culture and considering the behaviours of people having the experiences.²³ As the current research question is not considering the influences of

culture, the impact on groups of people or the behaviours of the people involved, ethnography is not an appropriate methodology.

In comparison, grounded theory is used to generate a theory or may be used to explain how and why something happens.^{6,27} Grounded theory may be used to develop theories about social or psychosocial aspects of human action.²⁷ Grounded theory could perhaps be used to develop theory on how the treatment decision occurs. However, the aim of the research relating to the experience of treatment decision-making is to gain an understanding of the women's perspective rather than to theorise about the actual experiences.

Phenomenology is an approach that explores the lived experience of people who have had the experience.²⁸ Phenomenology provides a way of understanding and interpreting the world, people in the world and the interactions that occur. Researchers are able to gain an understanding of people's lived experiences through observations, interviews and focus groups with people. Phenomenology is a methodology that can be used to understand the experience of treatment decision-making from the women's perspective as it provides the opportunity to explore the women's experiences during treatment decision-making. Research utilising phenomenology will provide health professionals with an interpretive and descriptive account of the women's experiences during treatment decision-making. By using phenomenology, it will also be possible to gain an in-depth understanding of the women's perceptions, meanings, attitudes and feelings towards the treatment decision-making experience.²⁹ Phenomenology has previously been used to provide a theoretical perspective in studies related to breast cancer¹⁰ and for nursing research studies³⁰ however, the treatment decision-making experience for women with early stage breast cancer has not been explored using phenomenology.

Effective use of phenomenology

Phenomenology is a way of understanding lived experiences. Phenomenology takes several forms and has evolved from philosophy to provide methodological perspectives that can be used to inform data interpretation. Hermeneutic

or interpretive phenomenology was originally developed by Heidegger³¹ and has been more recently expanded.^{28,32,33} Heidegger³¹ suggests that hermeneutic phenomenology is a reflective and interpretive practice that explores the nature of being and what it means to be a person. Hermeneutic phenomenology provides an understanding of how the research participants interpret their own lives and construct meanings of experiences in their lives involving exploration of the whole lived experience as well as individual aspects of the experience.³⁴ This study will consider how the women feel about the experience of treatment decision-making. As a number of women from diverse backgrounds will be interviewed, it will be possible to explore the phenomenon from a range of different vantage points.³²

As the researchers have previous understanding and beliefs about the research topic, it is necessary to consider these prior to data analysis so it is clear what impact the researcher's prior knowledge has on the analysis of data. Therefore, previous understandings of the treatment decision-making experience will be explored and described and any prejudices which may influence the understanding of the researchers and the people involved will be identified.³²

The main concepts of Heideggerian phenomenology^{35,36} that may influence the interpretation of the results include:

- **Awareness of 'being'** (How aware are the women of their own existence and mortality?).
- **'Being in the world'** (How do the women exist in the world with other people, particularly when they are making a treatment decision?).
- **Relationships between people in the world** (What are the structures of the relationships between people and objects?).

These concepts suggest that individuals are aware of their own existence and mortality and question their lives and existence.³⁵ This may be particularly relevant when a woman is first diagnosed with breast cancer. People having experiences are likely to question and interpret what happens and the meaning of the events that occur in their lives.³⁷ 'Being in the world' suggests that people are

making sense of their lives and the world through their own existence within the world.³¹ Relationships between people are possible within the world and these may also be significant during difficult times or perhaps when women are making treatment decisions.³⁵

Further relevant phenomenological perspectives are demonstrated through the work of van Manen²⁸ (1990) who suggests that there are four components of the life-world that should be considered. The four components of the life-world are *spatiality* (lived space), *temporality* (lived world), *corporeality* (lived body) and *relationality* (lived other). Each of the life-worlds has an effect on the way that people experience the world and events in their lives. Van Manen²⁸ explored *spatiality* or lived space as somewhere the individual feels comfortable and safe, which may be, for example 'home'. The concept of lived space is described by Miklaucich³⁸ who suggested that individuals like to deal with their own illness in their own way and in their own space, often in the comfort of their own home. *Temporality* or lived time is a subjective concept, which considers the past, present, and future.³⁹ Lived time affects our way of 'being in the world' and everything that we are involved in.²⁸ Lived body or *corporeality* refers to the way that we interact with people and meet them for the first time through their world and through their body. *Relationality* or lived other refers to how we relate to other people within the interpersonal space that we share with them.²⁸ Each of the 'life-worlds' are interrelated⁴⁰ and are influential in the interactions between the women and medical professionals. There are a number of other phenomenological perspectives that can further the researcher's view of the world and interpretation of data; however, an in-depth analysis is beyond the scope of this paper.

Research methods for research using phenomenology

Research methods are the techniques that are used to collect the data that can be analysed by the research. The main data collection methods for research using phenomenology include in-depth interviews, focus groups, observations, and may also include analysis of open-ended written responses by the subject participants. These data collection methods may also be used for other

qualitative studies that utilise different theoretical perspectives.

In-depth interviews will be used in the current study to gain an understanding of the treatment decision-making experience for early stage breast cancer.⁴¹ This method will provide women with the opportunity to tell their stories about the treatment decision-making experience. These stories will be heard and interpreted from the women's perspective and provide useful insight for health professionals and others involved in caring for these women.

As hermeneutic phenomenology aims to understand how people interpret their own life and world, it is necessary to have an understanding of where the people are coming from, what else the people are experiencing in their lives and how they describe experiences in their own lives.⁴² It is necessary to determine subject exclusion and inclusion criteria to fit the research question and the data that needs to be obtained to answer the research question.²⁷ As research using phenomenology aims to gain an understanding of the lived experience rather than to represent the population and achieve statistical significance, the sample size varies depending on the phenomenon that is being studied, the question that is being asked and the quality of the data collected.⁴² Data for research using phenomenology is collected until a point of saturation, which is when the researcher believes that they have an in-depth understanding of the phenomenon and that any further data that they collect will be repetitive and confirm previously collected data.⁴³ At the point of data saturation, an in-depth description of the phenomenon can be demonstrated.

Data analysis for research using phenomenology

Data analysis can vary considerably for research using phenomenology depending on the theoretical perspective that is used and the data that has been collected. Therefore, this section briefly describes analysis that will be used to explore the treatment decision-making experience.

Full transcripts of the interviews will be constructed. The data will be analysed by reviewing the whole transcript and then by looking at

sections of the transcripts. A reflective process will be used to draw themes out of the transcripts.²⁸ The themes will then be analysed in relation to the experience of treatment decision-making. These themes will provide a way of understanding the structures or parts of the experience,²⁸ which will then be related to the treatment decision-making phenomenon. Through reading and rereading the transcripts,⁴⁴ it will be possible to identify themes or experiential structures which recur as commonality or possible commonalities in the descriptions that the women have provided.²⁸ By exploring and examining the themes that are identified, the meaning of the lived experiences will be identified and an in-depth understanding of the experience will be possible.²⁸ The data will be explored and the researcher will attempt to go beyond the original data to formulate themes while considering the phenomenon and the data.³³ The themes will be presented with descriptions that illustrate aspects of the phenomenon. The themes will be combined to provide an exhaustive description of the phenomenon.³³

The results that can be expected will be used to answer the research question and address the aims of the study. Considering the treatment decision-making example, the results and analysis will provide health professionals with an in-depth understanding of the treatment decision-making experience. Research on treatment decision-making will provide a new perspective of treatment decision-making, which will help to inform medical, nursing, and allied health interactions with these women and perhaps provide insight into what actions could be taken to improve the experience of treatment decision-making for women.

CONCLUSION

Radiation therapists need to develop their research knowledge so that they can effectively participate in research projects. This paper has demonstrated the development of a research question and the steps taken to choose an appropriate research methodology that can be used to answer the research question and inform future clinical practice. Through the use of a research example this paper has also demonstrated the use of phenomenology and considerations that need to be made for data collection and data analysis.

The results of the study can be used to inform clinical practice if they are analysed effectively and can be published through research journals or presented at conferences.⁴³ Research studies conducted in a wide range of disciplines and answering numerous questions provide health professionals with the opportunity for lifelong learning and professional development, which improves clinical practice and is beneficial for health professionals and patients.

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