

Guest Editorial

Five Percent Is Not Enough! Why We Need More Qualitative Research in the Medical Radiation Sciences



Amanda Bolderston, BSc, MSc, RTT, FCAMRT*

British Columbia Cancer Agency, Fraser Valley Centre, Surrey, British Columbia, Canada

Research is one of the primary hallmarks of a profession. Medical radiation technologists (MRTs) are part of a “neophyte academic profession” [1] that has seen a relatively slow uptake of research and scholarly enquiry [2]. With the shift to baccalaureate education (and beyond) and the gradual increase in MRTs obtaining academic appointments, more practitioners are becoming research-active. Our knowledge base is still heavily reliant, however, on work done by other professions such as medicine, physics, and nursing [2]. There are important profession-specific gaps that need to be filled to inform practice, policy, and education which should be addressed by MRTs to establish a unique and distinct paradigm for our professional research.

When we do conduct research, we tend to focus on quantitative research that “reduce(s) experience to well-defined variables...for investigation” [3] or work that uses experimental designs, involves statistical analysis and deals with numbers as data. Our publications reflect this, for example only about 5% of submissions to the *Journal of Medical Imaging and Radiation Sciences (JMIRS)* in the last 8 years have been nonquantitative (qualitative) papers. Qualitative research is not driven by numbers; it involves examining the reality of individuals, their perceptions, and understanding of events or phenomena primarily using interviews, focus groups, and observation.

There are likely a few reasons for the lack of qualitative work in our profession, probably the most significant being that the scientific (quantitative) approach is the dominant paradigm and gold-standard in medical research, and as such holds the most value in imaging and radiation therapy departments. Our practice has been convincingly described as being placed firmly within “a biomedical model of health in a market-oriented service, driven by quantitative outcomes” [4]. Furthermore, it is easier (relatively speaking) to be part of the team in a physician-driven clinical trial or assist in a medical physics project than to be involved in a qualitative initiative that often falls into the domain of social work, nursing, or psychology.

As a further potential barrier, for a novice researcher, the approaches and methodologies of qualitative research can be a whole new language. Many MRTs have done statistics courses and may vaguely remember the difference between causation and correlation. How many of us are comfortable with the concepts and lexicon of qualitative research such as the differences between Husserlian and Heideggerian phenomenology? I am obviously exaggerating to make a point, but the roots of qualitative research lie in the traditions of the social sciences. Those of us in the applied health sciences, without a background in anthropology, sociology, or psychology have struggled to learn the rules and jargon of an approach that sometimes seems to be situated “inaccessibly high up in the misty mountains of academic discourse” [5].

It has not helped in the uptake of qualitative research that, until fairly recently, it has often been measured against quantitative research and been found wanting. The two approaches were traditionally posited as being diametrically opposed. In health care, the subjectivity and descriptive nature of the data often sat uneasily with more quantitative researchers [6]. In the 1970s and 1980s, we had quantitative researchers in one corner, discussing predetermined hypotheses and generalizability, occasionally taking pot shots at qualitative researchers’ “touchy-feely” methods. In the other corner, the qualitative researchers were defensively asserting that a so-called scientific approach is inherently flawed when dealing with subjective human beings [7] and waiting for theories and ideas to mysteriously “emerge” from their post-positivistic data. At the end of the 1980s, the two forms finally came to a sometimes shaky rapprochement, and at the beginning of the 1990s, the mixed methods movement was born. Mixed methods, using and blending the best elements of both approaches, has become far more common and is appropriate for many of our practice-driven questions.

Along with the emerging acceptance of the roles and value of both types of research, there has been a growing understanding that there is a disparity between the aims of the traditional qualitative approaches grounded in the social sciences (primarily ethnography, grounded theory, and phenomenology) and the goals of clinical health care researchers such as MRTs that may

* Corresponding author: Amanda Bolderston, BSc, MSc, RTT, FCAMRT, BC Cancer Agency, Fraser Valley Centre, 13750 96th Avenue, Surrey, BC V3V 1Z2.

E-mail address: Amandabolderston@bccancer.bc.ca

be seeking to use them. Social scientists are generally interested in theory building. Clinicians are often more interested in solving immediate clinical problems and helping the patients they see as the benefactors of their research. When qualitative research was initially adopted by health care practitioners, there was a strong belief that the complex rules and procedures laid down by the social scientists should be rigorously followed. Many of the first researchers were doctoral candidates, who were immersed in the tradition and idiom of their chosen approach. The limitations of using a rigid, theory-building approach in a clinical setting swiftly became apparent, and many researchers have adapted the qualitative research traditions into more flexible and suitable approaches for the health care practice environment [3, 8].

MRTs have been slow to seize the opportunities that this type of research presents. This may be for several reasons as discussed previously. Perhaps it is because the dominant medical paradigm is scientific research, unfamiliarity with the methods and traditions, difficulty in aligning a social science approach with clinical practice, or just a general feeling that qualitative research is somehow the “poor relation”. This needs to change! Consider our daily roles. We straddle the very different realms of patient care and technological competence; where people (who are often unwell and afraid) interact with the machines we use to do our jobs. While quantitative research can help us examine the technical aspect of what we do, using “hard data, objectivity and findings that are value free” [4] qualitative research is an ideal tool to look at the humanistic side of our practice and the relationships we have with our patients, our colleagues, and our students. Examples of such work include seeking to understand what patients think about their experiences with invasive imaging procedures such as barium enemas [9], how medical radiation sciences students who have English as a second language deal with their clinical practice [10] and how we feel about our jobs (and why we leave them) [11].

Research in the medical radiation sciences should contribute to our profession-specific knowledge base. Working with physicians, physicists, or other professional groups is important and sometimes a first step to working as a primary investigator on MRT projects. However, we also need to investigate and build evidence in our core areas of expertise and our professional identity. I would argue that no one can do this better than us. As an example, qualitative research can also provide compelling evidence to support what we already know, that MRTs have “a profound impact on the scanning experience” [12] and that radiation therapists “form important symbolic relationships with their patients” [13]. This is especially important because tasks and technology become quickly obsolescent, and centralizing our entire professional identity around technology alone is a risky business. In any patient encounter, it is the social interaction [14] that is remembered and valued by the patient.

There are many resources to get started in research in general and in qualitative research specifically [15–17]. This editorial is not meant to be a “how to”—but an important piece of advice is to find some real life support. Think outside

the MRT box—there are researchers in other professions with qualitative or mixed methods experience that would be willing to drink coffee with you and offer advice and support. Nursing is one profession that has enthusiastically embraced qualitative research; unsurprising for a group that has planted its flag firmly in the affective domain of patient care and advocacy. It has often been said that although qualitative research might look like the “soft option”, it undoubtedly isn’t. Qualitative research takes considerable time to plan and carry out. Even more time is needed to subsequently sort and analyse the small mountain of resulting data. It is, nevertheless, supremely satisfying to see the final readable and truthful representation of your participants’ voices presented for the reader.

There are a few general ground rules for well-conducted and well-written qualitative work. Many of these apply to any research approach, and some of the more important ones include:

- First and foremost, ensuring that the qualitative approach is appropriate and that the researcher addresses an important clinical problem using a clearly formulated question;
- Being clear about how the setting and the participants were selected;
- Describing and reflecting on the researcher’s perspective and how this was taken into account;
- Outlining what methods were used to collect data and ensuring that these are described in enough detail;
- Discussing how the data were analysed and what efforts were made to establish truthfulness to establish whether the results are credible and clinically important; and
- Ensuring that the conclusions that were drawn are justified by the results [17].

The completed manuscript should, ideally, be submitted to a journal with an interest in publishing qualitative work (such as *JMIRS*) because it is still unfortunately true that some journals continue “to use the criteria for quantitative research...to evaluate qualitative studies and criticize the latter over its small sample size and lack of hypothesis determination and statistical analyses” [3]. I know this from personal experience. For a article I submitted recently that used purposefully sampled interviews as a methodology, “Reviewer One” commented “the sample size was far too small to expect these results to be transferable to other settings or institutes”. Another reviewer (different article, different journal) asked why I hadn’t used graphs, and how could I demonstrate that the results were statistically significant given my chosen approach? Having editors and reviewers that appreciate the aims, objectives, and advantages of qualitative research is very important. This is also true, incidentally, with some research ethics boards as a number of their members may also view qualitative research proposals with a quantitative lens. Sometimes the bumps in the research road come well before peer review!

Qualitative research is an important and complementary part of our profession’s “human-technical science” [4]. It helps us to continue to build our unique profession-specific knowledge. It is disappointing that so few articles are submitted to *JMIRS* using

this approach—5% is not enough! Let us establish our Canadian journal as the publication of choice for qualitative (or mixed methods) research for national and international MRT researchers. We are here to help—now it is up to you!

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