The Assessment of Empathy Levels among Radiation Therapists

BY

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MHS, Washburn University, 2019

A PROJECT

SUBMITTED TO THE DEPARTMENT OF ALLIED HEALTH

OF WASHBURN UNIVERSITY IN PARTIAL FULFILLMENT OF THE

REQUIREMENTS FOR THE DEGREE OF MASTER OF HEALTH SCIENCE

WASHBURN UNIVERSITY OF TOPEKA

MAY 2019
THE ASSESSMENT OF EMPATHY LEVELS
AMONG RADIATION THERAPISTS

A Project
Presented for the
Master of Health Science Degree
Washburn University

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May 2019
Abstract

Empathy is an integral component of effective communication and successful patient care in the healthcare system. However, technological advancements, increased patient loads, and rising expectations have transformed health care professionals’ duties, including those of a radiation therapist. Upon identification of the changing workforce, one must consider whether intensifying stressors negatively impact the expression of empathy the radiation therapist demonstrates, thus decreasing the level of care he or she can provide to the patients. A 15-item questionnaire was developed to gain an understanding of the average empathy levels of practicing radiation therapists compared to individuals in radiation educational programs. Survey results showed a lower average in the empathy expressed by radiation therapy students compared to those employed in the field for varying lengths of time. However, although radiation therapists maintain a higher overall empathy average compared to radiation therapy students, supplemental findings identified a trend whereas the radiation therapist’s empathy levels began to decline as the time in the field increased. The findings of the survey are valuable as they identify a necessity to further implement empathy-enhancing opportunities in the educational programs to better prepare the graduates for the working world, as well as the need to implement empathy-related and professional self-care continued learning opportunities in the occupation to maintain stability once the professional is in the field.
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The Assessment of Empathy Levels among Radiation Therapists

When a patient enters the healthcare system, he or she is legally ensured various rights; including the right of respect, the right of privacy and confidentiality and the right to patient autonomy. Although not legally granted, patients also expect certain levels of compassion, care, and empathy from their healthcare practitioners. Many studies have linked practitioner empathy with improved healthcare outcomes and increased patient satisfaction and treatment compliance (Duarte & Pinto-Gouveia, 2017, p. 44). However, despite empathy being a vital trait in successful healthcare delivery, empathy remains a complicated concept for many due to the misconceptions as to what constitutes empathetic behaviors. In healthcare, empathy can be defined as an “ability or a capacity to share the other person’s experience by imaginative construction of his attitudes, by anticipation of his behavior, and/or by understanding his feelings, needs, perception and definitions of the situation, in a state of emotional readiness” (Panosky & Diaz, 2009).

Empathetic skills are an expectation of all healthcare professionals; however, it could be argued that due to the high stress a patient and their family is experiencing upon receiving a cancer diagnosis, such skills are increasingly important for professionals in the field of oncology. As the patient is entrusting the oncology team with his or her life, it is essential the patient feels a sense of trust and understanding from the medical staff, all of which is impossible without the demonstration of empathy.

Purpose/Problem Statement

Empathy is one of the most important communication skills in clinical practice, especially in the field of oncology. As the incidences of cancer diagnoses continue to increase, it is necessary that health care professionals, such as radiation therapists, show compassion,
practice effective communication and demonstrate the empathetic skills necessary to provide proper care to cancer patients and their families. With the expression of clinical empathy, healthcare providers can engage and empower their patients by acknowledging their emotional state and listening attentively to their complaints and concerns. However, with the growing responsibilities and expectations of radiation therapists, one must consider whether the increasing expectations of the job or additional employee and student stressors alter the empathetic skills one demonstrates to his or her patients.

**Significance of the Project**

The scope of this project aims to measure and evaluate the empathy levels among radiation therapy students versus those of practicing radiation therapists to determine whether empathy increases or decreases with time in the field. To ensure graduates are prepared for the growing workforce and patient needs, consideration should be taken as to whether empathetic behaviors may be strengthened or supported while individuals are in radiation therapy educational programs. Also, to address the potential variances of empathy in healthcare students and professionals, attention to influencing factors should be noted and addressed to enhance patient care and satisfaction outcomes.

**Project Objectives**

The objectives and the purpose of the project are to improve the understanding of the level of empathy that radiation therapy professionals possess as well as identify potential variations dependent on the years individuals work in the field of radiation therapy. The project’s objectives include the following:

- Evaluate what constitutes empathetic skills
• Examine and edit a current empathy survey to gather information on the empathy levels of healthcare professionals

• Compile survey results to determine the empathy levels of Washburn University Radiation Therapy students compared to the empathy levels of practicing registered radiation therapists

• Create a plan of action to increase empathy levels and improve patient care

**Background of the Problem or Activity**

In the context of patient care, empathy has a variety of definitions. Mercer and Reynolds (2002) define empathy as one's "ability to understand the patient's situation, perspective, and feelings" (p. S11). Hojat et al. (2002) identified empathy to be a cognitive attribute whereas the healthcare provider aims to understand the patient’s inner experience and perspective, as well as possess a capability to communicate this understanding. Without empathy in healthcare, or without the lack of the ability to understand another’s thoughts and feelings, it would be increasingly difficult for the patient to feel as though the practitioner is listening and recognizing his or her complaints or concerns. Studies have shown that empathy and support from healthcare practitioners leads to increased patient satisfaction and enhanced outcomes. However, in addition to patient satisfaction, provider empathy has also been found to increase fulfillment of the provider with improved patient compliance and decreased risk of liability (Bayliss & Strunk, 2015).

As the word empathy is often confused with pity or sympathy, it is essential to identify the differences between the terms. The term empathy is derived from the translation of the German word *Einfühlung*, meaning “feeling into,” while the word sympathy is derived from the Greek word *sympatheia*, meaning “to suffer with” (Spreng, McKinnon, Mar, & Levine, 2009).
Some argue that medical professionals that sympathize with their patients or share in their suffering, experience emotional fatigue or burnout at an increasingly higher rate, thus decreasing the level of care he or she can provide to the patients. Although sympathy and empathy may have overlapping characteristics, research has shown that patients respond positively to practitioner empathy while sympathy is viewed as “a pity-based response that was unwelcomed and in some incidences despised by patients” (Sinclair et al., 2017, para. 11). The display of sympathy has been found to leave patients feeling demoralized and depressed resulting in a decrease of patient empowerment. Although such feelings of despair are negative in any environment, this is increasingly harmful to an oncology patient who relies on hope and positivity to overcome the upcoming troubled times.

It is not uncommon for a patient to feel loneliness, desolation, and hopelessness upon receiving a cancer diagnosis. In addition to the fear of the unknown associated with the diagnosis, the patient is struggling with a reduced quality of life and deterioration in their overall health due to side effects from their disease and their treatments. Due to this, assisting and communicating with cancer patients is a challenge unlike that of any other patient groups. Elisabeth Kubler-Ross, a psychiatrist, known for her work with individuals and grief, introduced the theory that there are five stages of grief including denial, anger, bargaining, depression, and acceptance (Washington & Leaver, 2016). Though her work was initially focused on individuals who were facing death, the stages of grief are also applicable to any patient that is grieving their newfound cancer diagnosis. Although the patient may not linearly ascend the stages, it is imperative that a healthcare professional, such as a radiation therapist, understand the grieving process to comprehend and empathize with the emotions the patient may be experiencing or exhibiting.
The Empathy Scale was one of the first self-report measures recognized and accepted to assess cognitive empathy (Spreng et al., 2009). Cognitive empathy involves the rational assessment and understanding of the thoughts and feelings of others requiring perspective-taking and acknowledgment. Cognitive empathy is a conscious evaluation of another’s emotional state as opposed to emotional empathy, which is said to be spontaneous and often involuntary (Hunt, Denieffe, & Gooney, 2017). Emotional empathy consists of an emotive reaction to one’s feelings without appraising the reasons why the other person may be suffering. Since the creation of the Empathy Scale in 1969, a number of cognitive empathy scales have been created and tested for general use, along with those created for specific populations such as the Jefferson Scale of Physician Empathy, the Nursing Empathy Scale, the Autism Quotient and the Japanese Adolescent Empathy Scale (Spreng et al., 2009). Due to the multiplicity of options and the wide range of attributes associated with what constitutes empathetic behaviors, a group of researchers aimed to frame a consensus among the scales to assess such empathy-related manners. Through a series of three studies, Spreng, McKinnon, Mar, and Levine (2009) developed the Toronto Empathy Questionnaire (TEQ) to evaluate empathy utilizing 16 questions scored on a five-point Likert scale. Through additional tests to ensure validity, the TEQ was ultimately identified to be psychometrically sound, easily administered and an accurate self-report measure of empathy (Spreng et al., 2009). Additionally, it has proven to be a reliable assessment of empathy for different age groups, ranging from adolescents to adults and has been used in a number of studies throughout the world such as ones conducted in Canada, United Kingdom, the United States, France, Turkey, Romania and Tobao (Kourmousi et al., 2017).
As it has been proven to be a consistent assessment of empathy, the TEQ was used as the framework of this project to gain a better understanding of empathetic behaviors exhibited by radiation therapy students and certified radiation therapists. However, for this study, slight revisions were made to the TEQ to increase the relevance to individuals in the field of radiation therapy.

**Review of the Literature**

In order to understand the importance of effective communication, compassion, and empathy in successful oncologic patient care, one must first understand how cancer develops as well as the various treatment options available for patients, such as radiation therapy. Cancer is a significant health problem throughout the world; it is estimated that by the year 2020, the number of new diagnoses per year will be approximately 15 million (Sharma, Prakash, & Narayan, 2018). The term cancer refers to a collection of diseases that are characterized by abnormal cellular proliferation in the body. The body's cells have specific functions as well as a scheduled lifespan; however, when a cell loses control of its cellular division and apoptosis, or programmed cell death, abnormal cell growth occurs and often results in the formation of a tumor (See Figure 1). The collection of cancer cells harm the body by depriving the healthy cells of oxygen and nutrients, damaging the immune system and causing other adverse changes within the body, dependent on the tumor location. Researchers have identified that exposure to carcinogens, such

![Figure 1: Image of cancer cell formation. Reprinted from the Cancer Helpline by Ciphear Healthcare, n.d, retrieved from https://www.cancerhelpline.in/how-cancer-grows Copyright by Ciphear Healthcare](https://www.cancerhelpline.in/how-cancer-grows)
as viruses, tobacco, alcohol, sunlight or asbestos, can mutate the normal cell and cause abnormal cell growth in the body (Washington & Leaver, 2016). Although some factors can be preventable, there are some cancer causes that one cannot prevent, such as gender, age, or certain genetic factors.

Tumors are divided into two categories, benign and malignant. Malignant tumors are the ones of greatest concern as they often invade and damage adjacent tissue and can result in the death of the host if they go untreated. Malignant tumors are classified on their anatomic site, with the most common types of cancer being breast, lung and prostate cancers (Washington & Leaver, 2016). At the time of cancer diagnosis, a tumor is assigned a stage, which refers to the size of the primary tumor, the status, and extent of lymph node involvement, as well as the degree of metastatic disease in the body. Metastatic spread refers to the extension of the collection of cancer cells from the primary location to a secondary location in the body, whether through direct invasion, the bloodstream or the lymphatic system.

Additionally, the grade of the tumor provides important information pertaining to the tumor's aggressiveness and the degree of cellular differentiation. When examined under a microscope, the tumor cells that appear vastly different from the original cells are considered the most aggressive and considered undifferentiated or poorly differentiated. Undifferentiated tumors have the highest grade as opposed to those that closely resemble the cells of origin and labeled as low-grade tumors. It is the combination of the tumor stage and grade that provides the most accurate information about the tumor as well as helps to identify the best treatment option necessary (Washington & Leaver, 2016).
Cancer Treatment Options

Although the incidence of cancer is on the rise, advancements in technology, detection, and early intervention strategies have led to a decrease in the number of deaths associated with the disease (Wrons, 2015). Additionally, innovative research has led to the expansion of various treatment options and medications available for both curative and palliative cancer care. The type of treatment a patient receives depends on the type of cancer, as well as how advanced the cancer is which is typically identified by the tumor stage. The patient’s physician may select a single treatment option or a multidisciplinary approach, which may involve a combination of available cancer treatments such as surgery, chemotherapy, immunotherapy, hormone therapy or radiation therapy. For this paper, radiation therapy will be the only treatment option further discussed.

Radiation Therapy

Wilhelm Roentgen, a German professor of physics, is the individual credited for the discovery of x-rays. In his lab, Roentgen conducted a series of experiments which involved the conduction of high-voltage electricity through a Crookes tube. The Crookes tube consisted of a negatively charged cathode and a positively charged anode plate. By surrounding the cathode ray tube with black cardboard, he identified that once energized, a glow emitted from the tube. This realization led to his theory that when the cathode rays struck the glass wall of the tube, unknown radiation was formed and caused fluorescence. Fluorescence is the "ability of phosphors to emit visible light when stimulated by energy, such as x-rays" (orth, 2017, p. 3). The first radiographical image of human anatomy occurred in Roentgen’s basement on November 8, 1895. Roentgen’s wife, Anna Bertha, was used as the model for the experiment, and although the exposure took several minutes to complete, it resulted in the delineation of the bones of her hand.
as well as the ring she was wearing at the time of the image (Orth, 2017) (See Figure 2). Ultimately, this led to the discovery that items of varying thicknesses interposed in the x-ray’s path showed differing transparency when recorded on a photographic screen. This monumental discovery paved the way for the diagnostic use of x-rays to identify varying densities such as bone or soft tissue abnormalities.

Shortly after the 1895 discovery of x-rays by William Roentgen, further experiments concluded that prolonged radiation exposure resulted in inflammation, erythema, and tissue damage. With this newfound knowledge, doctors began to use radiation to treat lesions or growths of the skin. The first x-ray treatment of cancer was performed in 1896 by a French physician, Victor Despeignes, who used radiation to treat cancer of the stomach. Although the patient ultimately succumbed to the disease, the course of treatment did provide the groundwork for the future of oncologic services and the therapeutic uses of radiation (Sgantzos & Tsoucalas, 2014).

Radiation therapy involves the use of targeted ionizing radiation to damage the DNA of the cancer cell, thus leading to cellular death in malignant tumors. Today, state-of-the-art advancements have transformed the treatment delivery of radiation to patients; radiation can be delivered with the use of sealed radiation therapy sources internally implanted near the tumor, or it can be delivered externally (Washington & Leaver, 2016). A linear accelerator is a device used for the distribution of external beam radiation therapy by generating and precisely delivering high-energy x-rays to target and kill cancer cells (See Figure 3).
One advancement in radiation therapy is the implementation of 120 lead lined leaves located in the head of the gantry of the linear accelerator, termed multi-leaf collimators. The individual leaves are controlled by a separate motor, which allows them to move and customize the radiation beams to conform to the tumor’s shape and destroy cancer cells while sparing the surrounding healthy tissues. Additionally, the use of computerized treatment planning, fractionation schedules, and motion management strategies have decreased the side effects the patient may experience and minimize the healthy tissue damage the treatment may cause. Such advancements have allowed for dose escalation to the tumor while lessening the harmful effects that once existed (Washington & Leaver, 2016).

**Radiation therapist.** An allied health professional, termed a radiation therapist is the individual responsible for the operation of the linear accelerator and the delivery of the radiation therapy treatments to patients. The therapist works closely with the Radiation Oncologist and other Radiation Oncology staff to operate the sophisticated radiation therapy equipment and
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ensure the accuracy of the prescribed radiation dose. Additionally, therapists are responsible for monitoring the condition of the patient, assessing if changes occur from day to day, and providing patient education regarding side effects from the treatments. As a result of the fractionation schedules of radiation therapy treatments extending over the course of several weeks, the radiation therapists often form a relationship with their patients and play a central role in providing the patient with emotional support and comfort (Washington & Leaver, 2016).

Attributable to the increase in cancer incidences, the aging population, and technological advancements, the field of radiation oncology is an ever-growing area of healthcare. According to the U.S. Bureau of Labor Statistics (2018), the ten-year national average for all occupations projects a growth of 7.4% but the projected growth for radiation therapists is 12.8% over the next ten years. Currently, 73.5% of practicing radiation therapists are female, making them the most common gender in the occupation and 84.8% of radiation therapists are white, making that the most common race or ethnicity in the occupation. As identified in Figure 4, the current median age of radiation therapists is 43.2, and male employees are generally 1.22 years older than the females in the field (U.S. Bureau of Labor Statistics, 2018).

**Radiation therapists and empathy.** As cancer is a life-changing disease, the radiation therapist must be equipped to not only treat the disease but address the patient’s intense emotions, fears and anxieties as well. Mercer and Reynolds (2002) have identified empathetic behaviors specific to a clinical setting, which may be utilized to provide better clinical outcomes.
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and enhance the therapeutic effectiveness of the radiation therapist-patient relationship. They defined clinical empathy as the process of:

- Understanding the patient's situation, perspective, and feelings
- Communicating that understanding with the patient and verifying its accuracy
- Providing care dependent on that understanding of the patient’s needs

Clinical empathy can be further characterized as a healthcare professional’s skill of identifying the patient’s emotional state and responding accurately to the unique needs of the patient. Before one can respond empathetically, one must first identify there is an empathetic opportunity. As radiation therapists often focus on the information the patient is providing, the risk of missing the patient’s nonverbal cues has significant implications for patient satisfaction and health outcomes. It is imperative to identify how the patient is feeling with the use of effective communication skills and assessing both the patient’s verbal and nonverbal cues, such as the patient’s facial expressions, posture, body language, a tone of voice, and other nonverbal forms of communication (Washington & Leaver, 2016).

The expression of provider empathy may be demonstrated both verbally and non-verbally as well. Verbal responses by the radiation therapist may include acknowledging or reflecting on what the patient may be experiencing; this may be accomplished by validating the patient’s feelings or emotions and confirming that it is understood and accepted. Non-verbal empathetic behaviors often occur automatically and may include standard cues such as open posture, facial expressions or eye contact (Reiss & Kraft-Todd, 2014). In order to show the patient the radiation therapist is listening and is sincere, he or she should maintain appropriate eye contact while the patient is talking, as well as when the professional is making an empathetic statement. Additionally, occasional pauses to allow the patient to digest the therapist’s question or statement
or nodding to show understanding are useful tools in non-verbal empathetic behaviors. Appropriate touch is often utilized by the radiation therapist to provide comfort and support to the patients, but one must consider the nature of the touch as well as the cultural context to determine what constitutes appropriate touch for the patient (Reiss & Kraft-Todd, 2014).

As empathy enhances communication, patient outcomes, and patient and provider satisfaction, it is an important concept for radiation therapists to acquire during their professional training. In order for educational programs to adequately prepare students for the evolving health profession, radiation therapy programs must not only consider the application of technical skill but all aspects of patient care, including interpersonal characteristics such as effective communication, compassion, and empathy. Introduction to such topics in the radiation therapy educational programs are required by the American Society of Radiologic Technologists (ASRT), the body responsible for the creation of the radiation therapy curriculum standards. To ensure proper patient care in the radiation therapy setting, the ASRT (2014) professional curriculum requires the students to demonstrate the following interpersonal characteristics:

- Explain the dynamics of communicating with the cancer patient and family
- Examine different psychological aspects of dying
- Identify factors that influence a patient’s emotional responses
- Identify challenges in patient communication
- Establish therapeutic relationships with the patients
- Demonstrate empathy

Additionally, the American Registry of Radiologic Technologists (ARRT) provides educators with minimum level didactic and clinical requirements for radiation therapy students to complete throughout the program. For each of the ARRT (2016) defined competency requirements,
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students must exhibit competence in the cognitive, psychomotor and interpersonal domain, which includes the demonstration of characteristics such as compassion and sensitivity for each patient's physical and emotional well-being.

**Employee Burnout in the Field of Oncology**

As the number of patients requiring daily radiation therapy treatments continues to rise, advancements in medical technology and increased quality assurance checks have further transformed the radiation therapist’s daily expectations presenting a challenge to maintain the utmost level of patient care while also fulfilling the increasing demands of the workforce. As a result of the emotional toll from working in oncology combined with decreased autonomy from a limiting treatment schedule, expanded hours, insufficient resources and increased expectations and pressure from others, employee burnout in the field of oncology is an ever-growing concern. Burnout is a state of exhaustion in the physical, mental and emotional facets which occurs as a result of chronic exposure to high levels of stress. Dr. Harold Freudenberger, a psychologist at the University of Carolina at Berkeley, identified employee burnout to exhibit physical signs such as exhaustion, headaches, fatigue, gastrointestinal problems and insomnia (Washington & Leaver, 2016).

Burnout occurs in three levels: emotional exhaustion, depersonalization, and a decreased sense of personal accomplishment (Washington & Leaver, 2016). As a result of the overwhelming levels of exhaustion the radiation therapist is experiencing, it is within the first stage of employee burnout that radiation therapists find they can no longer provide the proper level of care the patient deserves. Depersonalization, or the psychological withdrawal from relationships, further detaches the radiation therapist from the patient and the decreased sense of personal accomplishment experienced in the final stage results in total disgust in the field, as a
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whole. As a result of stresses and the emotional capacity required of those employed in the field of oncology, radiation therapists have higher levels of emotional exhaustion and depersonalization as compared to other healthcare professionals (Washington & Leaver, 2016).

Although not specific to radiation oncology, researchers have aimed to identify if there is a relationship between employee burnout and empathy in a healthcare setting. Oncology nurses often carry similar emotional burdens and stress as that of a radiation therapist, such as exposure to patient suffering and the responsibility to provide physical, emotional, and psychological support to their patients. One study in Shanghai, China evaluated oncology nurses to explore the prevalence of compassion satisfaction, burnout, and compassion fatigue in their field. Compassion fatigue refers to one’s loss of ability to nurture and often results from direct exposure to suffering (Yu, Jiang, & Shen, 2016). Using versions of the Professional Quality of Life Scale for Nurses, the Jefferson Scales of Empathy, the Simplified Coping Style Questionnaire, and the Perceived Social Support Scale, 650 questionnaires were collected for statistical analysis. The survey results showed that oncology nurses that had more experience in clinical nursing had higher scores of compassion fatigue and employee burnout, likely as a result of being exposed to greater quantities of patient misfortunes and suffering (Yu, Jiang, & Shen, 2016).

The literature demonstrates that burnout hinders the expression of clinical empathy as well as identifies the two have an inverse relationship with each other; the higher the level of burnout, the lower the empathetic behaviors exhibited. By reason of this inverse relationship, individuals that have a higher self-reported cognitive empathy score also reveal lower scores for burnout and compassion fatigue (Picard et al., 2015). Emotionally exhausted healthcare practitioners will be less capable of putting themselves in another's position nor demonstrating
empathetic listening to his or her patients. As a means of psychological and emotional protection, the practitioner may withdraw from the patient, thus keeping him or her at a distance and depersonalize them (Picard et al., 2015). Depersonalization can be detrimental to a patient who is undergoing oncologic care and needs to feel safe and confident in their medical team. One can hypothesize that as the radiation therapist experiences burnout in the field, the empathetic behaviors he or she expresses to their patients declines, thus decreasing the level of support an oncology patient receives.

**Implementation Plan/Methodology**

A Radiation Therapist Empathy survey was provided to Washburn University Radiation Therapy students as well as practicing radiation therapists throughout the United States to examine their empathetic levels and identify potential areas of improvement. Prior to the distribution of the survey, an application for research (See Appendix A) was submitted to and approved by the Institutional Review Board (IRB) at Washburn University (See Appendix B). The IRB is an administrative body responsible for monitoring the rights and welfare of human research subjects and further ensuring that the requested survey is conducted in accordance with all federal, institutional and ethical guidelines (Institutional Review Board, n.d.).

Upon approval from the IRB, an email (See Appendix C) was sent to select study participants which identified the purpose of the study as well as provided an electronic link to the Radiation Therapist Empathy survey (See Appendix D). The study participants solicited included 42 Washburn University Radiation Therapy students and 55 practicing radiation therapists throughout the United States. The Washburn University Radiation Therapy students had completed one semester of the program, including 420 clock hours in the radiation therapy clinical setting. The practicing radiation therapists comprised individuals in different roles in the
radiation oncology department, including staff radiation therapists, chief radiation therapists, Washburn University clinical supervisors and clinical/office managers.

**Survey Method and Background**

The Radiation Therapy Empathy survey was developed with the use of Microsoft Forms. The participants were asked to complete the Radiation Therapy Empathy survey voluntarily and were informed that their responses would remain anonymous as all data collected through Microsoft Forms provided no identifying information. There were two determining factors for participation in the study; participants were to be a current radiation therapy student or carry a professional certification of registered radiation therapist (R.T.T.) The participants solicited to take part in the survey included Washburn University radiation therapy students, staff radiation therapists, chief radiation therapists, clinical supervisors associated with Washburn University, as well as practicing radiation therapists in management and administrative roles in the department.

Potential participants used the link embedded in the email invitation to access the Radiation Therapy Empathy survey and indicated their consent upon review of the informed consent statement. Once the participant selected to participate in the survey, they were provided multiple choice questions which required reflection and identification of his or her empathetic skills in the healthcare setting. To maintain consistency with the TEQ, the participants completing the Radiation Therapy Empathy survey were required to select a rating based on a five-point Likert scale ranging from “Strongly Disagree” to “Strongly Agree.” As a result of the survey consisting of only multiple choice selections which were numerically counted, quantitative data collection was used for the empathy assessment.
The Radiation Therapy Empathy survey consisted of a total of 15 questions. Twelve questions pertained to empathetic skills and three questions related to participant information such as gender identity, the number of years employed in the field and the individual’s role in the department. The participants were instructed to read the following statements and rate their feelings of each, using a scale ranging from “Strongly Disagree” to “Strongly Agree”:

1. When my patients are excited about completing their treatment, I tend to get excited too.
2. A patient’s misfortune does NOT disturb me a great deal.
3. It upsets me to see someone being treated disrespectfully.
4. I remain unaffected when a patient is happy.
5. I enjoy making my patients feel better.
6. When a patient starts to talk about his/her problem, I try to steer the conversation towards something else.
7. I can tell when my patient is sad even when they do not say anything.
8. I find that I am “in tune” with other people’s moods.
9. I do NOT feel sympathy for patients who have contributed to their diagnosis.
10. I get a strong urge to help when I see a patient or a patient’s family member is upset.
11. I find it silly when a patient cries out of happiness.
12. I become irritated when I see a patient cry.

**Survey Results**

The study produced 27 responses out of the 42 radiation therapy students surveyed and 44 responses from the 55 radiation therapists surveyed, which resulted in a 64% completion rate.
for students and an 80% completion rate for practicing radiation therapists. Survey data showed that 60 of the 71 participants identified themselves as being female, resulting in an 85% response from females and 15% from males. The quantitative survey question reported in Figure 5 classified the number of years the participant had been practicing in the field. Although the total number of practicing radiation therapists exceeded the number of radiation therapy students who participated in the survey, when categorized into subsections dependent of years practicing in the field, the results identified that students were the highest category of participants followed by individuals who have been a practicing radiation therapist for 26 years or greater. The other respondents fell into the categories of being employed for 1-6 years, 6-10 years, 11-15 years, 16-20 years or 21-25 years.

![Participant Responses Dependent on Length of Years in Radiation Therapy](image)

**Figure 5**: Participant’s number of years employed in the field of radiation therapy

The survey question pertaining to the participant’s role in the department identified that 28 of the 44 practicing radiation therapists that responded were staff radiation therapists (64% of practicing radiation therapist responses and 39% of total participant responses). Eleven were chief radiation therapists (25% of practicing radiation therapist responses and 16% of total...
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participant responses), 5 were clinical managers (11% of practicing radiation therapist responses and 7% of total participant responses), and 27 participants were radiation therapy students (38% of total participant responses). As illustrated in Figure 6, the highest number of individuals that participated in the survey were staff radiation therapists followed by radiation therapy students.

![Figure 6: Participant's role in the radiation therapy department](image)

The remaining survey questions focused on participant reflection of empathetic behaviors he or she possessed. To figure the empathy score, a numeric value was attached to each rating in the five-point Leikert scale to assess the average empathy level the participant obtained. The numeric rating varied dependent on the content within the question, as sometimes a 5 point rating was attached to the “Strongly Disagree” option and other questions had a 5 point rating attached to the “Strongly Agree” option. The survey identified that the average empathy score of radiation therapy student participants was 52.44 out of 60 possible points or 87%. This rating was identified to be slightly lower than that of practicing radiation therapists, who had a compiled average of 53.74 out of 60 available points or 89.5%. Figure 7 further illustrates the individual
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Empathy level averages for radiation therapists dependent on the number of years he or she had been employed in the field.

Per the survey results, the radiation therapy students had a lower empathy score when compared to each of the practicing radiation therapist subsets identified above. Individuals who reported as practicing in the field for 1-6 years demonstrated the highest level of empathy among all participant groups. The findings among practicing radiation therapists did not demonstrate a significant difference in empathy levels between those that were staff radiation therapists, chief radiation therapists or clinical managers. Figure 8 illustrates the average empathy levels of participants dependent on whether he or she identified as male or female; female radiation therapy students and female radiation therapists received a higher empathy level than that of male radiation therapy students and male radiation therapists.
Summary of Key Findings / Action Steps

Despite the supplementary findings of the study, the survey’s primary aim was to assess the empathy levels of radiation therapy students compared to individuals who had been a practicing radiation therapist for varying periods of time. Per the survey results, radiation therapy student participants obtained a lower empathy score than participants who were certified practicing radiation therapists. Despite radiation therapy programs following the ASRT curriculum standards, which include criteria related to effective communication and empathy-related behaviors, students maintain a lower average of empathetic behaviors than practicing radiation therapists. It can be concluded that to meet the future demands and challenges the students may face upon graduation, development of additional empathy-enhancing learning opportunities for students in their educational programs may increase the therapeutic relationship between the health care professional and the patient.

Whereas it can be assumed from the survey data that radiation therapy students will develop empathetic skills as they gain employment in the field, explicit training in clinical empathy in their educational program is limited. As effective communication skills are a
necessary component in the development of empathetic behaviors, emphasis on communication skills training is imperative for students in a radiation therapy program. However, due to the emotional nature of the field of oncology, students must not only attain basic communication skills but be prepared to interact and respond to patients during difficult conversations, such as those related to patient treatment declination, hospice, or end-of-life. In preparation of discussions, he or she may face in the radiation therapy department, simulated patient encounters may be utilized to guide students in proper responses and behaviors during emotionally difficult situations. For assessment purposes, the radiation therapy educators would measure the student’s abilities to observe nonverbal cues, hear what the patient is saying, and respond uniquely in each situation, dependent on the patient. Factors such as the student’s body posture, eye contact, and nonverbal and verbal expressions during the simulated patient experience will be considered. Having the opportunity to practice reactions and responses prior to the student’s clinical exposure may decrease his or her anxiety as to what constitutes the proper response and provide the opportunity to be more empathetic to the patient during emotionally troubled times.

Through the use of additional role-playing opportunities, whether led face-to-face or through a video communication tool, educational programs may simulate various experiences where students are required to put themselves in the patient’s shoes to experience how the patient may be feeling. When a radiation therapy student is required to envision things from the patient’s perspective, it may reveal ways to improve their level of care which may not have been previously identified. For radiation therapy students, role-playing activities could include the required use of a wheelchair for a day to gain a better understanding of the strains of a patient suffering from debilitating bone disease. For patients who struggle with incontinence of bowel control, the student may be instructed to briefly wear an adult diaper to understand the
embarrassment the patient may feel daily as a result of the disease. Additionally, due to the creation and wearing of thermoplastic masks being a cause of anxiety for many patients undergoing head and neck or brain treatments, the student could be required to participate in the construction and wear of a thermoplastic mask to further empathize as to what the patient feels and experiences in this process (See Figure 9).

As the radiation therapy student often sees the patient for a brief amount of time each day, he or she is not privy to the issues the patient may face outside of the department. Arranging guest speakers to present to the radiation therapy students on emotionally raw topics may assist to sensitize the student to the patient experience beyond the specific diagnosis. Presenters could include topics such as the fears and anxieties the patient experiences after receiving a diagnosis, the decision to withdraw treatment and begin hospice care, end-of-life preparation, what the patient’s loved one experiences through the process, as well as the impact the loss of a loved one to cancer has on the family member.
Although the practicing radiation therapists had a higher empathy level average than radiation therapy students, when excluding the subset of radiation therapists who had been in the field for 21-25 years, the practicing radiation therapist’s empathetic behaviors decreased in participants as the time in the field increased. Perhaps this is due to the complexities of the modern-day radiation therapy treatments, the extended hours the radiation therapists work to encompass the growing population requiring treatments, or the ever-growing responsibilities and completion of paperwork. Regardless of the reasoning for the decline in empathy, special consideration should be taken in radiation therapy departments to encourage professional self-care behaviors to decrease employee burnout. Additionally, refresher courses on clinical empathy similar to what was expressed for radiation therapy education programs would be beneficial to increase patient and provider satisfaction.

**Summary of the Project**

The scope of the Radiation Therapy Empathy Survey was to assess empathy levels of individuals who were radiation therapy students compared to those employed in the field as a practicing radiation therapist. Research methods were quantitative as all responses were easily measured with the use of multiple choice questions and a five-point Liekert scale. Although the 73% survey response rate surpassed primary investigator expectations, the primary limitation to the study was the varying sample sizes within the subsets. To increase the accuracy of the data, future research should incorporate a greater sample size of individuals who have been employed in the field less than 26 years, as individuals employed in the field for 26 years or higher was the largest group of participants among radiation therapists. In addition, growth in the number of male participants may increase the validity of future data regarding the assessment of empathy levels among male and female radiation therapists.
The data obtained from the Radiation Therapy Survey will be useful for both radiation therapy educational programs and radiation therapy departments as it concluded that empathy-enhancing learning opportunities could be beneficial for all parties in radiation therapy, with particular emphasis placed in the healthcare professional's educational training.

**Conclusion**

Empathy has been recognized to be an indispensable element for a successful radiation therapist/patient relationship as it allows the radiation therapist to understand the patient’s experiences, feelings, and concerns as well as react appropriately. In addition, effective practice of empathy from healthcare professionals has been linked to increased patient satisfaction and compliance. The findings of this study support the importance of learning activities in the radiation therapy education program to strengthen the empathetic behaviors for students and better prepare them for the workforce. Although the data demonstrated that practicing radiation therapists maintain a higher empathy level than radiation therapy students, on average, a decline was noted in participants dependent on time in the field. The present study opens up a pathway for future research, posing questions as to how, or if, factors such as increased workload, emotional stress, and employee burnout are the cause of variances in radiation therapist empathy. Also, consideration should be taken as to whether the emphasis of professional self-care activities could counter the decline in one’s empathetic behaviors and increase the level of care provided to patients.
References


Reiss, H., & Kraft-Todd, G. (2014). EMPATHY: a tool to enhance nonverbal communication between clinicians and their patients. *Academic Medicine, 89*(8), 1108-1112


Institutional Review Board (IRB)
Application for Project Approval (revised August 2017)

PLEASE COMPLETE THIS FORM IN ITS ENTIRETY

NOTE: This is a Microsoft Word form document. Please open and save the completed document using Microsoft Word. Click on Text Boxes ( ) and begin typing to provide written information.

Investigator Information
1. Name of Principal Investigator: Kristina Collins
   a. Email address of Principal Investigator: Kristina.collins@washburn.edu
2. Name(s) of Additional Investigator(s):
   a. Email address(es) of Additional Investigator(s):
3. For student projects, name(s) of Supervising Faculty Member(s): Vickie Kelly
   a. Email address(es) of Supervising Faculty Member(s):
      Vickie.kelly@washburn.edu
   b. Campus Phone Number(s) of Supervising Faculty Member(s): 785-670-2280
   c. Departmental Affiliation and Location: Allied Health - Benton Hall

4. Have ALL of the individuals listed in items 1 - 3 above completed and passed all six (6) IRB Training Modules?
   X - Yes.
   No. If "No," then do not submit this IRB application. IRB applications must be submitted only after all of the individuals listed in items 1 - 3 above have completed and passed all six (6) IRB Training Modules.

Project Narrative
5. Is this project a Quality Assurance Initiative?
   Yes
   X - No

6. Which of the following groups will you be intentionally recruiting in your study?
   Check ALL that apply.
   Children (individuals under the age of 18)
   Prisoners
   Individuals with developmental disabilities
Pregnant women, fetuses, and/or neonates
Potentially at-risk individuals, such as undocumented immigrants or LGBTQ individuals
X - None of the above will be used in the proposed study

7. Will you be asking participants questions or exposing them to stimuli about sensitive topics that could have more than minimal risk of emotional harm? Sensitive topics might include mental health, child abuse, sexual/domestic violence, or other topics that may be considered "triggers."
Yes
X – No

8. Does this research entail more than "minimal risk" (the risk of harm anticipated in the proposed research is not greater, considering probability and magnitude, than that ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests)?
Yes
X - No

9. Title of Project: Empathy in Radiation Therapy for MHS Program Practicum (AL-726)

10. Funding Agency (if applicable):

11. In 2-4 paragraphs, describe the project's purpose(s) and benefit(s). Discuss the importance of conducting the proposed study. In particular, explain why the proposed study should be conducted (purpose) and what will be gained from conducting this study (benefit).

   The purpose of this survey is to assess empathy levels in radiation therapists to track the increase or potential decrease of one's empathy dependent on the years of employment in the field. The survey will be sent via e-mail to both radiation therapy students as well as employed radiation therapists professionals in the field.

   The results of the survey will be outlined in a paper for AL-726 MHS Program Practicum as well as used in determining whether additional course content should be implemented into the Radiation Therapy program to increase the level of empathy in students prior to entering the field.

12. Describe the proposed subjects:
   a. Number - 42 Radiation Therapy Students; 50 Radiation Therapists

13. Describe how subjects are to be selected/recruited. All recruitment material (i.e. email text, social media text, posters, etc.) must be submitted with this application.
An email will be sent to the current radiation therapy students as well as practicing radiation therapists across the United States in both the Clinical Supervisor and Staff Radiation Therapist role.

14. Describe the proposed procedure in the project. Any proposed experimental activities that are included in evaluation, research, development, demonstration, instruction, study, treatments, debriefing, questionnaires, and similar projects must be described. Use simple language; avoid jargon.

Subjects will receive an electronic Microsoft Forms link to a survey that will ask questions utilized to assess empathy levels. The survey is based upon the Toronto Empathy Quiz but has been slightly modified to be relevant to healthcare.

The studies participants/subjects will be asked to complete the Washburn University Radiation Therapy Empathy survey voluntarily. The subject's identify will be anonymous to eliminate biases and maximize the validity of the study results. The results will be used to determine the potential increase or decrease of empathy levels among radiation therapists dependent on the length of time working in the field. Additionally, it will assist in identifying whether course content should be implemented into the Radiation Therapy program to increase empathy levels in students.

15. Have you included with your IRB application all questionnaires, tests, recruitment material, or related research instruments that are to be used?
   Yes
   No
   X - Not applicable

16. If you are conducting your study at a site outside of Washburn University, a letter of approval written on the agency letterhead or an email (from the agency's official email address) from the authorized individual must accompany the proposal. The letter/email should make it clear that the person is aware of the topic, task, and procedures of the study. The letter/email should also include the title/position of the authorizing individual. Have you included letter/email of approval from the outside agency/institution?
   Yes
   No
   X - Not Applicable

17. The data will be analyzed in:
   Individual form
   Aggregate form
   X - Both individual and aggregate form

18. Please read completely: You must include a copy of the informed consent statement you plan on having participants read and sign. If participants are under 18 years of age, a consent form must be created for parental signature. If information other than that provided on the informed consent form is provided, attach a copy of such
information. In the consent form, explain how the identifying information will be
either anonymous (meaning the principal investigator cannot tie participants to their
data) or confidential (meaning the principal investigator can tie participants to their
data). The consent statement cannot include exculpatory (absolving from fault)
language through which the subject is made to waive, or appear to waive, any legal
rights, or to release the institutions or agent from liability for negligence.

Have you attached a copy of the informed consent statement?

Yes
No
X - Not applicable

19. What steps have you taken to ensure that individual names or personally
identifying information will not be associated with the data you will
collect?

Each person/subject will be sent a survey via electronic link sent in an email.
No identifying information will be on the survey itself. Results of the survey are
then collected through Microsoft forms with no identifying information. Only
the primary investigator (Kristina Collins) will have access to the survey
response data.

20. Will electrical or mechanical devices be applied to subjects?
Yes - If "Yes," use the text box that follows to provide a detailed description of the
steps that will be taken to safeguard the rights, safety, and welfare of subjects.
X - No

21. Participants in the proposed study will be:
Audio Recorded
Video Recorded
Both audio and video recorded

X – None of the above are applicable to the proposed study

IMPORTANT: If you audio and/or video record participants, your consent form must contain a
statement stating that participants will be recorded. The consent form should contain detailed
information about how the recordings will be stored in a secure location and what exactly will
be done with the recordings. Also, there must be two (2) signatures line on the consent form: (1)
where the participant agrees or does not agree to being recorded and (2) where the participant
agrees to participate in the study.

I agree to conduct this project in accordance with Washburn University's policies and
requirements involving research.

Kristina Collins
_________________________________________________
Name(s) of Principal Investigator(s) (type your full name above)
TO BE COMPLETED BY FACULTY SUPERVISING STUDENT RESEARCH:

22. "I have reviewed this IRB application and deem it acceptable for IRB review."
   X - Yes
   No
   Not a student project.
Good afternoon,

I received the review of your IRB application entitled, “Empathy in Radiation Therapy for MHS Program Practicum (AL-726)” (#18-82). Your IRB application has been approved and you are welcome to begin your study as soon as you see fit. Good luck with your project!

Dr. Mike Russell
IRB Chair
Appendix C

Good Morning,

Empathy is an integral component of providing the utmost of care to our patients but do one’s empathetic skills change with time? Dependent on the number of years in the field, does one’s empathy tend to increase or decrease?

As part of my final project in the Master of Health Science Program at Washburn University, I aim to assess the empathy levels in radiation therapy students and practicing radiation therapists. Dependent on the results of the survey, I will then work to identify ways to increase empathetic skills in the Washburn radiation therapy students to improve the level of care they provide to their patients.

Please take a minute to complete the attached survey. I ask that you please complete this by January 10, 2019. Your participation is solicited, but strictly voluntary. Do not hesitate to ask any questions about the study. Be assured that the survey is completely anonymous and your name will not be associated in any way with the research findings. I appreciate your cooperation very much. Your participation is greatly appreciated. Please feel free to share with other therapists at your facility.

By clicking the link below you are indicating your willingness to participate in the study.

https://forms.office.com/Pages/ResponsePage.aspx?id=7Wn3jmCVpUOWbSvHjAvQBrUQSrnpy-ZPieXSlyxEYcVUOTcyQjFYWks4VksXWVNEVEdTN1U3TFhVRy4u

*This study has been approved by the Washburn University Institutional Review Board, IRB#18-82

Kristina Collins, BHS, R.T. (R)(T)
Washburn University
Radiation Therapy Clinical Coordinator
1700 SW College
Topeka, KS 66621
Phone: 785-670-1414
Fax: 785-670-1027
Appendix D

Washburn University Radiation Therapy Survey
Empathy Analysis

1. CONSENT STATEMENT: The Department of Allied Health and the School of Applied Studies at Washburn University support the practice of protection for human subjects participating in research. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate you are free to withdraw at any time, without penalty. The survey is based upon the Toronto Empathy Questionnaire but was modified to be relevant to healthcare professionals. The study aims to assess empathy levels in radiation therapists and track the increase or potential decrease of one's empathy dependent on the years of employment in the field. Your participation is solicited, but strictly voluntary. Do not hesitate to ask any questions about the study. Be assured that the survey is anonymous and your name will not be associated in any way with the research findings. We appreciate your cooperation very much. Sincerely, Kristina Collins Principal Investigator kristina.collins@washburn.edu 785 670-1414 Vickie Kelly Faculty Supervisor vickie.kelly@washburn.edu 785 670-2280 If you wish to participate, click "Yes", if you do NOT wish to participate click "No" and proceed to close the form.

- Yes
- No

2. When my patients are excited about completing their treatment, I tend to get excited too.

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly Agree

3. A patient's misfortune does NOT disturb me a great deal.

- Strongly Disagree
- Disagree
- Neutral
4. It upsets me to see someone being treated disrespectfully.

☐ Strongly Disagree

☐ Disagree

☐ Neutral

☐ Agree

☐ Strongly Agree

5. I remain unaffected when a patient is happy.

☐ Strongly Disagree

☐ Disagree

☐ Neutral

☐ Agree

☐ Strongly Agree

6. I enjoy making my patients feel better.

☐ Strongly Disagree

☐ Disagree

☐ Neutral

☐ Agree

☐ Strongly Agree

7. When a patient starts to talk about his/her problem, I try to steer the conversation towards something else.
8. I can tell when my patient is sad even when they do not say anything.

9. I find that I am "in tune" with other people's moods.

10. I do NOT feel sympathy for patients who have contributed to their diagnosis.
11. I get a strong urge to help when I see a patient or a patient's family member is upset.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

12. I find it silly when a patient cries out of happiness.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

13. I become irritated when I see a patient cry.

☐ Strongly Disagree
☐ Disagree
☐ Neutral
☐ Agree
☐ Strongly Agree

14. In terms of gender identify, do you see yourself as:
Female/Woman

Male/Man

15. Please identify the number of years you have been employed in the field:

- Current Radiation Therapy Student
- 1-5 Years
- 6-10 Years
- 11-15 Years
- 16 - 20 Years
- 21-25 Years
- 26 or Greater Years

16. Please identify your role in the radiation therapy department:

- Radiation Therapy Student
- Staff Radiation Therapist
- Chief Radiation Therapist
- Clinical Manager/Office Manager