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Learning Needs Perceived by the Patient Considering Radiation Therapy and the Radiation Oncology Nurse

Kathleen E. Bell
Grand Valley State University

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LEARNING NEEDS PERCEIVED BY THE PATIENT CONSIDERING RADIATION
THERAPY AND THE RADIATION ONCOLOGY NURSE

BY

Kathleen E. Bell

A THESIS

Submitted to
Grand Valley State University
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degree of

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Thesis Committee Members:

Jean Nagelkerk, Ph.D., R.N.

Ruth Ann Britnall, M.S.N., A.O.C.N., N.P.

Gordon Alderink, M.S., P.T.

ABSTRACT

LEARNING NEEDS PERCEIVED BY THE PATIENT CONSIDERING RADIATION THERAPY AND THE RADIATION ONCOLOGY NURSE

By

Kathleen E. Bell

The purpose of this study was to describe the congruency between what the patient who is considering radiation therapy perceives his learning needs to be and what the radiation oncology nurse perceives the learning needs of the patient to be. This descriptive design used convenience sampling. The subjects consisted of 56 patients and 8 radiation oncology nurses who were recruited from a regional hospital system with two separate radiation oncology settings.

Data were obtained after the radiation oncology nurse provided an overview of the (a) purpose of radiation therapy, (b) type of radiation prescribed, (c) mechanism of radiation action, (d) schedule for receiving treatments, (e) length of time for each treatment, (f) potential side effects, and (g) how to minimize the effects of treatment. Data analysis included a comparison of the raw summed scores of the patients and nurses. No significant differences were identified in the perceived learning needs between the two groups by a two-tailed paired t-test.

The perceived learning need items identified by the patients and nurses were analyzed using rank ordering of needs using the Wilcoxon signed-rank test. Generally, the mean rank was similar between the patients and nurses; however differences in the mean rank ordering were identified.

DEDICATION

This project is dedicated to my family, colleagues, and friends. But foremost my husband, Joseph, and our children, Elizabeth and Jennifer, who gave their love and patience when needed most.

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I would like to thank my past thesis committee members for their patience, encouragement, and willing assistance. I am thankful to Dr. Katherine Kim, Ph. D., R.N for her insight into theoretical concepts and fundamental persistence in quality and to Dr. Louette Lutjens, Ph. D., R.N for her incisive editorial skills.

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CHAPTER ONE

INTRODUCTION

The National Cancer Institute has estimated that there will be 1,221,800 patients diagnosed with cancer in the year 1999 (Landis, Murray, Bolden, & Wingo, 1999). Once informed of a malignancy, patients and their support systems discover a life defined by uncertainty. Receiving the appropriate amount and type of information is particularly important (Campbell, 1990; Harrison-Woermke & Grayon, 1993; Lauer, Murphy, & Powers, 1982; Luker, Beaver, Leinster, Owens, Degner, & Sloan, 1995). As with any chronic illness, patients need information to enable them to develop realistic expectations for receiving care, adapting to lifestyle changes, and coping with their diagnosis (Payne, 1993; Richardson, 1991; Wingate, 1990).

After confirmation of a cancer diagnosis, the health care provider and patient commonly engage in a comprehensive discussion about the patient's health status and recommendations of care. Valanus and Rumble (1985) found that informed patients with cancer tend to be active participants and cooperative with their care. Informed patients asked more suitable questions and also followed through with recommendations of care. Hinds, Streater, and Mood (1995) discovered the patient's support system benefited from the information provided as well. The information heightened the support systems level of understanding about the patients' illness as well as the expected treatment experience.

Radiation therapy is a common form of treatment prescribed for the cure or palliation of a malignancy. It is estimated that approximately 40-60% (Hilderly & Dow, 1992) of the patients diagnosed with cancer will require radiation therapy during their lifespan. Because of the projected increase in patients needing radiation therapy, many community radiation centers are being developed. In response, radiation centers have redesigned their programs and added nurses to augment their professional staff (Schulmeister, 1991).

King, Nail, Kreamer, Strohl, & Johnson (1985) studied the patient's knowledge about their experience while receiving radiation therapy. Researchers assessed 96 people over 30 months for symptoms experienced during and after radiation therapy. Information obtained by the researchers provided anticipatory guidance for patients receiving radiotherapy. Prior to this research, radiation oncology nurses commonly did not gather, or document, sufficient information about the patient's experience during recovery from radiation.

Other studies, (Pender, 1979; Cassilth, Volckmar, & Sutton-Smith, 1980; and Thorne, 1988) found that patients with cancer perceived nurses as an unlikely source of information. Authors presumed that nurses may have failed to meet the patient's informational needs by assuming that they knew what information the patient needed. From a sampling of 83 patients, Hinds et al. (1995) identified 36 patients who stated the nurse as a major source of information. The authors construed that throughout the patient's course of treatment, nurses provided information on a continuous basis.

Findings from the King et al. study (1985) were used to assist in the development of the educational standards of care for the Oncology Nursing Society (ONS) Radiation Oncology Special Interest Group (1992). The standards are recommended guidelines for nurses who practice in radiation oncology. These guidelines provide ongoing educational criteria of learning for both the nurse and patient. The employer can utilize them in designing an orientation plan and job description for the nurse. At the same time, the guidelines can be used for developing an educational experience for the patient. Studies that assessed the learning needs of the patient considering radiation therapy did not specify how nurses were educated for their role in the radiation setting (Harrison-Woermke & Graydon, 1993) or the studies were completed before the standards were developed (Campbell-Forsyth, 1990; Lauer, Murphy, & Powers, 1982).

Principles of teaching-learning are taught in National League of Nursing (NLN) approved schools of nursing and are operationalized in clinical practice. The transferring of usable information necessary to the learner is critical to effective communication in the teaching - learning process (King, 1981; Knowles, 1980). The significance of this study will assess the radiation oncology nurses ability to operationalize the teaching-learning process. It is also important to review the educational design for patients in any setting. The nurse's perception of what they think patients may need to know may not always be the same and therefore the teaching-learning session may not always be productive use of time. The purpose of this study was to compare the perceptions of learning needs that patients considering radiation therapy had, whether

they differed or were congruent, with the radiation oncology nurses' perception of the same patients learning needs at the time of consultation in the radiation oncology setting.

CHAPTER TWO

THEORETICAL FRAMEWORK and LITERATURE REVIEW

Theoretical Framework

In 1981, Imogene King published her conceptual framework and theory of goal attainment for nursing. Her framework describes how nursing interacts within the health care environment. According to King (1981), “the focus of nursing is human’s beings interacting with their environment leading to a state of health in the individual, which is an ability to function in social roles” (p. 143). This interacting system framework views human beings as existing within personal (individual), interpersonal (groups), and social (society) systems (King, 1981).

King’s theory of goal attainment was developed from this interacting system framework. The interpersonal system contains the major elements in the theory of goal attainment. Within the interpersonal system there are two people, usually strangers who come together in a health care setting to help or to be helped to maintain a degree of health that permits functioning in roles (p. 142). For the purpose of this study, the two strangers were the patients considering radiation therapy and the nurse in the radiation oncology setting.

Fawcett (1995) identified the metaparadigm concepts for the discipline of nursing as person, environment, health, and nursing. Although King’s theory (1971) was developed before Fawcett’s professional writing, King already had included these

concepts in her dynamic interpersonal system. The patient was conceptualized as an individual in a personal system utilizing information that would allow nurses to understand them. King (1975) identified a human being as a complex, open living system that “copes with a wide range of events, persons and things over time” (p.6). The human being has the following fundamental health needs: (a) “usable health information at a time when he/she needs it and is able to use it, (b) preventative care, and (c) care when ill” (King, 1971, p. 83). The patient in this study has a confirmed malignancy, without evidence of metastasis. Patients are conceptualized as rationale and able to feel and react to expectations, as well as to other individuals, events, and objects. They react on the basis of their “perceptions, expectations and needs” (King, 1981, p. 20). It is assumed that the patient is seeking information about their cancer and recommendations for health care.

The environment comprises social systems such as family, support system, work, religious, and/or belief system, and health care systems. Within this environment there are internal and external forces in constant motion causing influences on social interaction, perception, and health (King, 1981). The environment of the patient with a malignancy parallels King’s system. For this study, the radiation oncology facility within a health care system was the primary focus within the environment.

King defines health as “a dynamic life experience of a human being, which implies continuous adjustments” (King, 1981, p.5). Patients diagnosed with cancer have undergone a dynamic change in their life experience requiring adjustments in their life.

King (1981) believes that the goal of nursing is to help individuals and groups to attain, maintain, and restore health (p. 10). This goal provides focus for the radiation oncology nurse to assist patients and their support systems to maintain adequate balance with the environment throughout the course of radiation therapy treatments. The interaction process applies to patients under stressful situations such as a cancer diagnosis. Nurses use sensory skills of observation, listening, and interpretation of verbal and non-verbal communication to individualize the educational experience. Proficiency in understanding the principles of cancer, treatment options, and their purpose, management of treatment side effects, and information gleaned from the literature is necessary for the interaction process to be effective. Nurses also use the process of needs appraisal and together with their knowledge of the adult learning principles to understand accurately the learning needs of the patient with cancer (Knowles, 1980). The nurse in this study, the radiation oncology nurse, obtained expertise by: (a) successful completion of an oncology educational class, (b) certification (OCN) achievement by the oncology nursing certification corporation (ONCC) of the Oncology Nursing Society, and/or (c) successful completion of the radiation facility orientation.

The two interacting individuals in King's Model bring multiple variables into the interaction process. According to King, "each individual in the situation brings personal knowledge, needs, goal expectations, perceptions and past experiences that influence the interaction" (1981, p. 60). Knowles theory of the adult learner (1980) resembles King's view and enhances understanding of the teaching-learning process with adult learners.

Knowles (1980) theory describes the adult learner as distinct from the traditional learner in the areas of self-concept, experiences, readiness to learn, and orientation to learning. Considering these assumptions, Knowles identified conditions of learning that are important for adults. According to Knowles, adult learners must (a) feel the need to learn, (b) perceive the goals of a learning experience to be their goals, (c) participate actively in the learning process, (d) have a sense of making progress toward goals, and (e) use their past experiences in the learning process. Therefore, recognition of the patient's perception of learning needs by the radiation oncology nurse may enhance the learning process for the patient.

King (1981) describes several concepts that make her theory practical for the radiation oncology nurse. Applicable concepts for this proposed study are (a) perception, (b) role, (c) communications, (d) stress, and (e) time. Perception represents each patient's view of reality (King, 1981). In this study, the patient could receive inappropriate and/or inaccurate information about radiation therapy from members of their social system. The perception of radiation therapy and the reality of treatments to one's environment are important for the information process. The perceptual process for people involves the following elements " (a) import of energy from the environment organized by information, (b) the transformation of energy, (c) process of information, (d) storing of information, and (e) export of information in overt behavior" (King, 1981, p. 146). The perception of agreement enables the patient to follow through with the recommendation

of care offered by the health care provider. An appraisal of information needs would be one way to compare the patient's perceived knowledge with actual knowledge of radiation therapy.

A role is "a set of behaviors expected of persons occupying a position in the social system" (King, 1981, p. 147). There are two roles identified in this study. The first role is the nurse as a teacher. For the radiation nurse, the teacher role included assessing learning needs, providing clarity, and supporting the patient and their support system. The patient who is considering radiation therapy assumes the role of the learner, and brings their unique interests and abilities to participate in the educational experience.

People have their own perception of what they need to know and what they already know. Communication serves as the dynamic process whereby information is given from one person to another either directly in face-to-face meetings or indirectly through telephone, television, or the written word (King, 1981). In this study, communication was the process by which the radiation oncology nurse discusses radiation therapy with patients considering radiation therapy. Commonly shared communication includes (a) the purpose of radiation therapy, (b) type of radiation prescribed, (c) mechanism of action of the radiation, (d) the schedule for receiving treatments, (e) the length of time for receiving treatments, (f) the potential side effects, (g) the actions to minimize side effects, and (h) the discussion of misconceptions and myths of radiation exposure.

Stress as a concept describes "an energy response of an individual to persons, objects and events called stressors" (King, 1981, p. 147). Patients seeking information in

the radiation setting faced multiple new health team members, new and unfamiliar language, and equipment. These added to the stress of living with a chronic illness. Likely, the impending decision to receive radiation therapy serves as stress.

Time is critical to the patient with cancer and their support systems because life-altering decisions are made over a short period of time (Siminoff, Fetting, & Abeloff, 1989). The concept of time is defined “as a sequence of events moving onward to the future, time is continuous” (King, 1981, p.148). Time impacts the patient and support system as they decide which treatment modality is appropriate for them. The radiation oncology nurse also struggles with the time constraint of departmental flow and optimal interaction with the patient and their support systems. For this study, time was the number of minutes the nurse utilized educating the patient and their support system.

Perceptions of the nurse and the patient serve as the major concepts used from King’s (1981) theory. Figure 1 depicts King’s theory of goal attainment as it relates to this study. The knowledge, experience, and skill in the communication process assisted the radiation nurse to individualize the teaching to what they perceived the patient’s needs to be. The perception of the nurse is shaped by knowledge gained from advanced certification (OCN credential), successful completion of an oncology core class, years of oncology experience, and favorable completion of the facility orientation. From previous experience, the nurse has insight into verbal and non-verbal communication of person. For this study, the nurse and patient functioned as separate personal systems, conveying personal perceptions of learning needs for the patient considering radiation therapy via questionnaires. Perceptions of the radiation oncology nurse with special knowledge and

skills and the patient in radiation oncology lead to transaction and, ultimately, mutual goal setting. Mutual goal setting is the optimum outcome of the interaction process described in King's theory of goal attainment (1981).

It is important for radiation oncology nurses to understand what information is useful for patients, while they consider radiation therapy. By determining what is useful from the patient's viewpoint, nurse's can incorporate this information to educate other patient's.

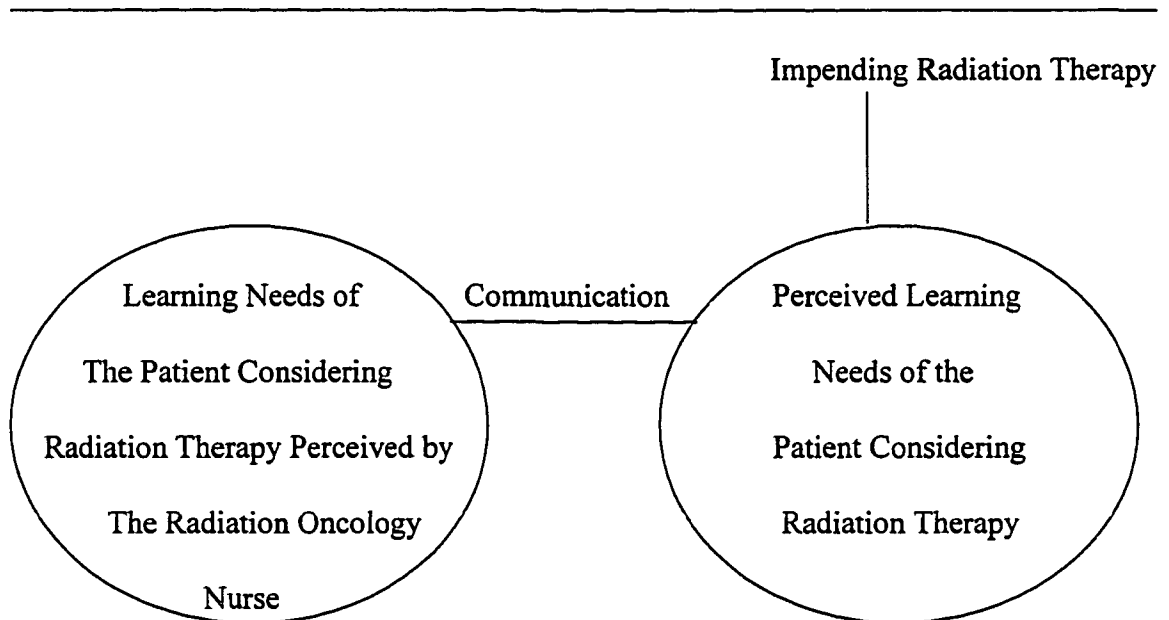


FIGURE 1. Nurse-Patient Interaction Process

Literature Review

A review of the literature reveals no information regarding the learning needs of the patient considering radiation therapy. Several studies, however, focus on the learning needs of the person receiving radiation therapy. The literature can be classified into three

groups. For the purpose of this discussion the literature will be grouped as follows (a) types of information preferred by the patient with cancer undergoing radiation therapy, (b) perceived learning needs of patient with cancer, and (c) congruence of perceived learning needs between the patient with cancer and the nurse.

Types of information preferred by the patient with cancer receiving radiation therapy. Israel and Mood (1982) used three audio slide presentations to increase knowledge about the radiation procedure, side effects, or common emotional reactions to radiation therapy. Thirty-six subjects were assigned to three groups (12 each), to view different content of audio slide presentations. Each patient was placed into a group according to his or her radiation plan. Each group viewed information about either (a) the radiation procedure, (b) the potential side effects, or (c) the common emotional reactions. After dividing the people into the three groups, they were separated again into subgroups. The subgroups then became the control and experimental groups, consisting of 6 people each. The control group received an orally administered questionnaire before viewing the presentation. The experimental groups were tested, using the same questionnaire, after viewing the presentation. The research findings suggested that the subjects were very aware of their lack of information. The most significant finding was that the experimental group responded correctly to 88% of the questions, whereas the control group gave correct answers to 27% of the questions. There was no published data regarding the validity or reliability of the instrument. Although the findings are generalized only to the sample, they suggest that people will answer questions accurately if given accurate information.

Poroch (1995) tested the effectiveness of preparatory education in reducing anxiety and improving satisfaction during the course of radiation therapy. She designed a quasi-experimental time series study to compare two groups of 25 patients each who were receiving radiation therapy for the first time. The subjects were matched according to gender and treatment type. The experimental group received two structured teaching interventions incorporating sensory and procedural information designed to familiarize subjects with their radiation experience. The control group received the standard educational preparatory information that existed in the radiation facility. The State Trait Anxiety Inventory (STAI) tested the subjects' anxiety. When assessing anxiety prior to the intervention, no significant difference was found between the experimental and control groups for state anxiety ($p > .5$) or for trait anxiety ($p > .05$). The experimental group was significantly less anxious than the control group at Time 2 and Time 3 measurements, $t(47) = 4.48, p = .000$ and $t(47) = 4.23, p = .000$, respectively.

Poroch (1995) used the Pienschke Patient Satisfaction Questionnaire (PPSQ) to evaluate the person's satisfaction with the educational experience. Overall, the subjects in the experimental group were more satisfied with the visual/sensory representation of radiation and with their ability to articulate their fears and concern regarding the treatment itself. This was statistically significant at both time periods Time 2: $t(47) = 4.44, p = .000$; Time 3: $t(47) = 4.36, p = .000$. Poroch's study expanded published information on the type of information patient's need. Additionally, Poroch evaluated the patient's satisfaction with the educational experience provided by nurses. The study

results revealed that providing a structured educational plan, and increasing availability of nurses to answer questions, decreased the patient's anxiety level over time.

Fieler, Saidel-Wlasowicz, Mitchell, Jones, and Johnson (1996) studied the information preferences of 134 patients who completed radiation therapy. The Patient Experience Questionnaire (PEQ) was mailed to the subjects' homes. The data analysis was based on a larger sample size. The data reported were extrapolated from a larger sample size investigating a different question. The findings suggested that patients preferred concrete, objective information. Preferred information, ranked in descending order, included: (a) side effects (42%), (b) how the treatment kills the cancer (33%), (c) how to manage the side effects (29%), (d) and time frame for further tests or procedures (9%). While unreported reliability and validity of the instrument limit the generalizability of the study, findings complement the standards developed by ONS (1992) for educating the patient who received radiation therapy.

Perceived learning needs of the patient with cancer. Campbell - Forsyth (1990) evaluated differences in perceived knowledge and learning needs about radiation therapy between two age groups. The 80 subjects were equally divided into two groups. Subjects in the younger group ranged in age from 25-59. Subjects in the older group were 60 years old and older. Each subject completed two questionnaires before receiving any educational experience. One questionnaire was based on the patient's radiation therapy knowledge and the second one surveyed the patient's perceived learning needs. The questionnaires were adapted from the Assessment of Learning Needs: Oncology Instrument (Lauer et. al., 1982). The content validity index for perceived knowledge and

perceived learning needs were .66 and 1.0 respectively. Test-retest reliability was calculated using Pearson correlation coefficient ($r = .52, p < .05$) for perceived knowledge. The correlation for perceived learning needs was $r = .88 (p < .001)$. Campbell-Forsyth found that there were no significant differences in perceived knowledge and perceived learning needs between the two age groups. According to Polit & Hungler (1999), reliability coefficients above .70 are considered satisfactory, which make Campbell-Forsyth's scale useful for further inquiry

Harrison-Woermke and Grayson (1993) studied the perceived information needs of women with breast cancer receiving radiation therapy (RT) after an excisional biopsy and axillary lymph node dissection (ALND). Twenty women were interviewed the first week of RT (T1) and another 20 were interviewed at their first follow-up visit after completing RT (T2). The mean time between T1 and T2 was 84 days. The authors developed the Informational Needs Questionnaire-Breast cancer (INQ-BC). The coefficient alpha was computed to determine internal consistency. For the total INQ-BC the alpha for T1 and T2 samples were .92 and .96, respectively. Researchers found that the T1 sample had significantly higher scores, implying that more information was needed about the (a) diagnosis, (b) investigative tests, (c) treatment, and (d) physical information. Physical information about treatments included how the methods worked, how they were performed, sensations experienced, possible side - effects, and actions to minimize the side effects. The T2 sample had lower scores, suggesting that there were differing informational needs at different times in the treatment continuum.

There were some significant limitations to Harrison-Woermke, and Grayson (1993) study. The sample size was small and the statistical significance was unable to be determined because of the sample data. Therefore, the findings from authors need to be interpreted with caution. The subjects were at different moments on their treatment continuum. The results may have been different if a longitudinal design had been used. Implying, by using the same subjects throughout their course of radiation therapy it would strengthen the correlation of findings. In spite of the limitations, the findings suggest that women who have RT have high informational needs. This finding is consistent with recent research (Campbell-Forsyth, 1990; Lauer et. al., 1982; and Luker et. al., 1995). Knowing the patient's perceived informational needs before teaching may aid in planning educational programs for women.

Luker et al. (1995) studied the information needs of women newly diagnosed with breast cancer. This study placed emphasis on the content of information that was perceived as important at a specific time of diagnosis. The researchers focus was to identify the type of information needed by the patient at specific time periods in the course of their illness. Findings from this study suggested that nurses should educate patients at various intervals during the course of radiation therapy.

Luker et al. (1995) sampled 150 women consecutively who were newly diagnosed with breast cancer (mean of 2.5 weeks) and 200 women with newly diagnosed benign breast disease. These two groups were interviewed and asked to compare items of information. Thirty-six pairs of information topics were presented using a structured interview approach. The subjects were asked to state their preference for one item in that

pair. That one item was then ranked as to its importance. The rank ordering reflected the perceived importance of the information topic. Kendall's coefficient was used to assess the level of agreement between the two groups of women. The researchers found that information about (a) the likelihood of cure (.88), (b) spread of disease (.61), and (c) treatment options (.29) were perceived as important items at the time of their diagnosis. These three items was similar to the perceived learning needs identified in Campbell - Forsyths (1990) study.

Congruence of perceived learning needs between persons with cancer and nurses.

Lauer et al. (1982) are the only researchers who specifically elicited information about the learning needs of the patient with cancer from the perspective of the patient with cancer and that of the nurse. A questionnaire was developed by the researchers and was administered to 33 registered nurses. The questionnaire was given to 27 individuals with cancer who received either chemotherapy (n = 18) or radiation therapy (n = 9). Twenty-one nurses had less than four years experience caring for people with cancer. The remaining 12 nurses had more than four years. The nurses worked on three medical-surgical units. Reliability and validity were not reported. The authors divided the questions into 20 general items including areas such as financial concerns, diagnosis, ability to maintain activities of daily living, dietary concerns, and relationships with significant social systems. The treatment information items covered topics, such as the purpose and actions of chemotherapy and radiation therapy.

The analysis of the 20 general information questions revealed that nurses ranked information as more important (M = 4.55, SD = .39) than did the patient with cancer (M

= 3.72, SD = .81). The difference between these means was significant ($t(58) = 5.46, p < .001$). For the nurse subjects, the highest mean ratings were assigned: (a) availability of financial assistance ($M = 4.88$), (b) care for self at home and work ($M = 4.79$), (c) and discussion of concerns with social systems ($M = 4.76$). In contrast, the following items received the highest mean ratings for patients with cancer: (a) knowing their diagnoses ($M = 4.63$), (b) their plan of care ($M = 4.44$), (c) caring for themselves at home and work ($M = 4.30$), and (d) what they would experience during diagnostic procedures ($M = 4.30$). Lauer used a point-biserial correlation to examine relationships between the length of service and their perception ($r_{pb} = .10$); significance was not attained.

Overall, the rank order of the 20 general information items revealed that nurses and patients with cancer did not perceive the same informational or educational priorities. The radiation therapy nurse ($M = 4.44$) and patient ($M = 4.50$) concurred that it was very important to know the purpose of the therapy. The following areas: (a) minimizing the side effects of therapy, (b) length of time for receiving RT, and (c) schedule for receiving RT are priorities in which the cancer patient possessed the most knowledge (nurse $M = 3.5$ and the patient $M = 4.0$).

There was some consistency among the research cited. Research suggests that patients with cancer are very aware of their lack of knowledge about radiation therapy. Patients also prefer concrete objective information focusing on: (a) the cancer diagnosis, (b) understanding cancer treatment purpose, action, and (c) managing side effects. Research also implies that giving concise information before, during, and after the radiation therapy reduces anxiety (Poroch, 1995). Previously reported studies do not

identify the nurses' educational background or advanced certification. This study compared perceptions of learning needs of the patient considering radiation therapy with those of nurses who are educated and experienced in radiation oncology.

Research Questions

The following research questions were asked:

- (1) What are the perceived learning needs of the patient considering radiation therapy?
- (2) What does the radiation oncology nurse perceive the learning needs to be of the patient considering radiation therapy?
- (3) Is there congruence or a difference in perceived learning needs of the patient with cancer considering radiation therapy and the radiation oncology nurse?

Definition of Terms

The major concepts for this study are identified and defined below.

Patient considering radiation therapy. A person who has a pathologically confirmed diagnosis of a malignancy, without known evidence of metastasis, has never had radiation therapy before, and is considering radiation therapy. The patient may or may not choose to proceed with radiation therapy.

Radiation Oncology Nurse. A registered nurse who maintains licensure in the state of Michigan. He or she has demonstrated competency in the knowledge of cancer. This is evident by successful completion and test score $\geq 80\%$, of an oncology educational program, or oncology nurse (OCN) certification awarded by the Oncology

Nursing Certification Corporation (ONCC). The knowledge base may include years of experience practicing in oncology and/or successful completion of the radiation facility orientation.

Perceived Learning needs. Information perceived to be important to learn by the patient considering radiation therapy and those of the radiation oncology nurse.

Radiation therapy. The use of high-energy rays or particles generated in a linear accelerator and administered from that source to treat cancers.

CHAPTER THREE

METHODOLOGY

Research Design

The purpose of the study was to describe the perceived learning needs of the patient considering radiation therapy and with those of the radiation oncology nurse. This study was organized using descriptive research. A descriptive design was chosen because researchers (Polit & Hungler, 1999) consider it an effective design for observing, describing, and documenting aspects of a situation as it naturally occurs.

Setting and Sample

Subjects were recruited from a regional hospital system found in the Midwest. The two radiation facilities which data were collected included: (a) a department of radiation therapy, and (b) a freestanding radiation oncology clinic

The radiation oncology department is located within the hospital grounds of a 529 acute care bed hospital. There were 800 patients who considered radiation therapy for their malignancy during the 1997 fiscal year. This department treated 590 newly diagnosed individuals with cancer during that same time interval.

The freestanding radiation oncology clinic is managed and partially owned by the hospital. It is located in the Midwest and is 30 miles west of the study hospital. Data were unavailable as to the number of people who considered radiation therapy for their malignancy during that same time period. In the 1997 fiscal year, this freestanding clinic

treated 290 newly diagnosed individuals with cancer.

This study sampled two convenient populations: (a) patients considering radiation therapy, and (b) radiation oncology registered nurses. To minimize extraneous variables, the patient considering radiation therapy must have met the following eligibility criteria:

1. Patients who had one of the following malignancies (a) breast, (b) gastrointestinal, (c) genitourinary, (d) gynecological, (e) the head and neck region, (f) lung, and (g) prostate.
2. Patients who were able to read, write, and speak the English language.
3. Patients who were oriented to time, place, and name.
4. Patients must have considered radiation therapy for their malignancy or had questions about radiation therapy.
5. Patients were naive to radiation therapy.

All eight nurses were registered nurses (RNs). There were four RNs at the department and two RNs at the freestanding radiation oncology clinic. The remaining two RNs were those who supported staffing at either area. The investigator anticipated that all nurses would participate, which they did. Each RN assessed seven patients who were considering radiation therapy. The registered nurse selection criteria was:

1. Demonstrated competency in the knowledge of cancer by successful completion of an oncology based educational program or OCN certification.
2. Prior employment in medical oncology.
3. Successful completion of the radiation oncology orientation.

The subjects were equally divided, with a 1:7 nurse patient ratio. There was a total sample size of 64 subjects in this study.

Instruments

The three instruments used in this study included:

1. The Radiation Therapy Subscale II of the Assessment of Learning Needs: Oncology Instrument (Campbell - Forsyth, 1990) modified to include both the patients (Appendix A) and nurses (Appendix B) perception.
2. Demographic data tool for the patients (Appendix C) and nurses (Appendix D).
3. The radiation oncology patient profile.

Radiation Therapy Subscale II of the Assessment of Learning Needs: Oncology Instrument. This instrument was developed by Campbell-Forsyth (1990). The Subscale II is an eight item Likert-type scale that ranges from 0 (don't need any information) to 5 (need a great deal of information). This scale measured the patients perceived level of learning needs about radiation therapy. The eight items are summed to yield one score that indicates the perceived learning needs about radiation therapy. The range for the scoring summation is 8 - 40 raw summed score. Higher scores reflect the greater perceived learning need.

The content validity index depicted by Campbell – Forsyth (1990) for Subscale II was 1.0. Test-retest reliability was calculated using Pearson correlation coefficient ($r = .52, p < .05$) for perceived learning need. Campbell - Forsyth was unable to provide any further data on Subscale II's use other than the published analysis (L. Campbell-Forsyth,

personal communication, April 15, 1997). For this study, the Subscale II was relabeled into IIA for the patient considering radiation therapy (see Appendix A) and IIB for nurses (see Appendix B). Permission for use of the Subscale II with any modifications for this study was obtained from the author (Appendix F). The reliability analysis, for both scales, was determined during data analysis. The Subscale IIA reliability was Alpha .967, and for the Subscale IIB it was Alpha .935. According to Poliet & Hungler, reliability coefficients above Alpha .70 are considered satisfactory (1999).

The questions asked of each subject were the same; the perspective of inquiry was different. Subscale IIA (Appendix A) measured the perceived learning needs the patient considering radiation therapy felt they possessed. The perspective of inquiry was “I believe I have good knowledge”. Subscale IIB (Appendix B) measured the learning needs the radiation oncology nurse perceived the patient considering radiation therapy to have. The perspective of inquiry was “I believe this person has good knowledge”. The range for the scoring summation was 8-40 points.

Demographic Data Forms. Appendix C was used to collect data on the demographic characteristics of the patient considering radiation therapy.

There were 24 males and 32 females (43 and 57 %, respectively) who volunteered to participate in the study. The patient subject’s range was 19 to 82 years of age (M = 60.6; SD = 13.1). Their age was a diverse characteristic with a range of 63 years.

Subjects included 86 % (n = 48) Caucasian, 11 % Hispanic (n = 6), and 4 % (n = 2) African-American. Seventy three percent of the patients were married (n = 41). The remaining 27 % (n = 15) were divorced, never married, or widowed.

Fifty-two percent ($n = 8$) reported an income of less than or equal to fifty thousand dollars, and 14 % ($n = 8$) reported greater than fifty thousand dollars per year and 34 % ($n = 19$) chose not to respond. Eleven percent ($n = 6$) had an eighth grade education or less and 39 % ($n = 22$) had graduated from high school. Twenty-two participants (39%) had some college, an associate or bachelors degree, some postgraduate school or completed a master degree. Nine percent ($n = 5$) of the patients responded that their educational experience was “journeymen” or “attended a trade school”.

A second demographic data form was used to describe the radiation oncology nurse (see Appendix D). In addition to the standard demographic items, the nurses were asked about their educational and experiential background relative to radiation oncology. All of the radiation oncology nurses (8) who were affiliated with the hospital system chose to participate in the study. The nurse subjects were homogenous in their gender and race; they were all female and Caucasian. Their ages in years ranged from 30 – 40 ($M = 32.88$; $SD = 3.1$).

There were six nurses who reported their highest level of nursing education to be a bachelors degree in nursing, whereas, one nurse reported an associate degree and one recorded a master in science. The combined years of distinct medical oncology experience for the nurses was a range of 4–12 years ($M = 7.8$; $SD = 2.3$). The nurses had a range of 1–5 years ($M = 3.38$; $SD = 1.4$) experience in radiation oncology.

The nurses’ knowledge of cancer can be measured on a standardized test. The OCN certification was earned by four of the nurses. Seven nurses participated and

successfully passed an oncology specific educational program, with a score $\geq 80\%$, and seven had attended a radiation oncology nursing specific workshop.

Radiation Oncology Patient Profile. The radiation oncology nurse completed one patient profile per patient. This tool allowed the nurse to assess both the patients' knowledge regarding their health situation, learning style and it served to clarify the patient's strengths and/or concerns the patient felt about their health care status.

Human Subject Considerations

In order to conduct this research study, permission was obtained from Grand Valley State University Human Research Committee, the Nursing Research Committee, and the Human Rights Committee at the Midwestern hospital system (See Appendix G).

Procedure

Both groups of subjects were recruited through non-randomized, voluntary participation from an accessible population at the radiation oncology department and free standing radiation oncology clinic. The radiation oncology nurse was recruited by means of a flyer posted at each facility. The nurses who provide supplemental staffing received the same flyer in the mail. Interested nurses verbally informed the investigator of their willingness to participate. The name of the patient with cancer was obtained from the daily master schedule at each facility. The patients' data sheets were also numerically coded the same as the nurses for ease of data analysis.

For consistency in the data collection procedure, all nurse subjects attended an educational inservice given by the researcher. The educational offering included information about (a) the purpose and nature of the study, (b) potential risks and benefits

to the person with cancer and nurse subjects, (c) how to approach potential test subjects, (d) time commitment (approximately 5 minutes to complete the instruments each time). The essential items of information about radiation therapy are currently taught at each facility, however this was reviewed. King's theory and Knowles principles of adult learning were also reviewed. To maintain consistency of information shared with the patient, the nurse was given an information sheet (see Appendix G), which summarizes critical points presented in the inservice. A verbal script was provided with a description of the purpose and how the information from the research project would be used.

Upon completion of the nursing inservice every radiation oncology nurse received a package. This package include all the coded forms and equipment necessary for the nurse to complete the study. To ensure nurse confidentiality, the investigator distributed the packages but did not have knowledge as to which numerically coded form each nurse received.

The researcher instructed the nurse to complete the demographic and the consent form (see Appendix H). The nurses placed completed forms into the envelope provided and seal it. The sealed envelope was placed in a box labeled "completed forms" by the participating radiation oncology nurse. The nurses requested the collection box be checked at an interval verses every day. They felt it would enable them to anonymously place their completed forms without the knowledge of the researcher. It should be noted that the researcher only kept a numerical tabulation of the returned forms. The sealed envelopes were not opened until all participants completed the forms. The researcher did

not open the envelopes. An informed individual, who did not participate in the study, opened them.

The researcher also monitored for potential patients who were considering radiation therapy and were admitted in the hospital setting ($n = 9$). The radiation nurse was unable to recruit these patients due to staffing constraints. The nurses at the freestanding clinic did not have these same issues. Overall, 66 patients, during 70 working days met selection criteria. The sample size for the patient considering radiation therapy was 56.

Data collection began when the radiation oncology nurse approached the patient with cancer considering radiation therapy. The nurse appraised the patient based on selection criteria. If the patient met the subject criteria, then the nurse approached them for consent (see Appendix I) in a private examination room. Each facility was able to meet this criterion.

The hospital-based department recruited thirty-two patients in 70 working days. It would have taken less time except there were 21 days which eligible nursing staff did not work when potential subjects could have been recruited. The freestanding clinic completed their patient selection ($n= 14$) in 20 working days. That clinic had no disruption in recruitment efforts.

The environment was designed to be non-threatening by aesthetic arrangement. All invasive equipment was concealed and the décor was soothing. The nurse then read the purpose statement to the patient. After the patient verbally agreed to participate, the nurse proceeded to obtain informed consent (see Appendix I). There were two patients

who met the selection criteria but deferred to participate citing they each “had too much going on”. One nurse rejected a patient after they met criteria and signed the consent form. This patient did not realize the cobalt treatment she received in 1948 was a form of radiation therapy.

The patient received a copy of their consent form and the nurse placed the signed form in the envelope. The patients were advised they could refuse to participate and that refusal would not affect their educational process while in the radiation facility or any subsequent treatment, or refusal would not impact their care if admitted within the hospital system.

The radiation oncology nurse proceeded with the interview and completion of the assessment tool. The interview included a review of the patient’s diagnostic story as well as a review of the patients personal system. The intent of this interaction was to assess the patients’ understanding of their cancer and treatment recommendations, and to seek clarity of information obtained from the referring physician and the patient’s hospital record. The patient’s learning style was also assessed during this interaction process. Based on the nursing assessment, the nurse gave a brief overview of the (a) purpose of radiation therapy, (b) type of radiation prescribed, (c) mechanism of radiation action, (d) schedule for receiving treatments, (e) length of time for each treatment, (f) potential side effects, and (g) how to minimize the effects of treatment. For consistency, the nurse applied the booklet, *About Radiation Therapy* (Bette, C., 1993) during the teaching–learning process. This educational booklet augmented the nurses’ overview by supplying a written and a pictorial view to compliment learning process for the patient

considering radiation therapy. A study by Snow, Inc. (1997) found that the educational materials, found in the Bette series, were highly effective in transferring knowledge and influencing readers' intention to act in positive ways. The information outlined in the About Radiation Therapy booklet, contains information which Fieler et. al. (1996), Poroch (1995), Harrison–Woermke and Grayson (1993), Lauer et. al. (1982) identified, as information which patients preferred to learn about.

Upon completion of the educational session, the nurse proceeded with administering the demographic data sheet and the Subscale IIA to the patient. The patient answered the demographic data sheet and the Subscale IIA to the best of their knowledge. While the patient with cancer completed Subscale IIA the nurse finished Subscale IIB. This method was used to decrease the threat of history. The patient, from other resources may have gained knowledge, if the Subscale IIA was completed at a different time after the nurse-patient interaction. The data from Subscale II B may not reflect the nurses' true perception of the patient if the tool was completed at a different time. Overtime, the nurse might forget the patient. The threat of history would enable changes in perception of the patient and the nurse.

The Radiation Oncologists were informed of the study. Each received a letter outlining the purpose and nature of the study before the beginning of data collection. The researcher offered to attend the Radiation Oncologist corporate meeting to further explain of the study and the instruments if requested, however each physician chose to seek the researcher out for individualized clarity.

CHAPTER FOUR

DATA ANALYSIS

A descriptive design and convenience sampling was used to examine the learning needs perceived by the patient considering radiation therapy. The purpose of this research was to (a) identify the perceived learning needs of the patient considering radiation therapy, (b) identify the radiation oncology nurse's perceive the learning needs of the patient considering radiation therapy, (c) describe the differences between the perceived learning needs of the patient considering radiation therapy and those of the radiation oncology nurse.

Data analyses were accomplished using the Statistical Package for Social Sciences (SPSS/WIN) software. Significance was set at $p < .05$ for all statistical analysis. Analysis was accomplished in order to describe the demographic characteristics of the sample and to answer the research questions. Data analysis included summation of raw scores of each subject group and paired-t testing to evaluate the significance. The Wilcoxon signed-rank tested the difference in mean ranking of the nurses and patients summed scores.

Research Question One

The first research question emphasized the perceived learning needs of the patients who considered radiation therapy. To answer this question the subjects were given the Radiation Therapy Subscale IIA of the Assessment of Learning Needs: Oncology Instrument, The Patient. The scale is an eight item Likert-type scale that

ranges from 1 (don't need any information) to 5 (need a great deal of information). This scale measures the perceived learning needs about radiation therapy from the patient perspective. The eight items were summed to yield one score that indicates the perceived learning needs that all (n = 56) the patients considering radiation therapy had. The score summation range for an individual patient is 8-40 points. For this study, all of the patients' scores were summed together. By summing them together the potential range for scoring allowed an aggregate score of 8-320. Higher scores reflect the greater perceived learning need. During data analysis, the scores were then tabulated for the number of times, or the frequency, that the raw summed score occurred. The results of the patients summed scores are in Table 1.

Table 1

Patient's Perceived Learning Needs.

Learning Need	Raw Summed Score	Frequency
Don't need any more	8	21
Need a little	9-16	17
Need Some	17-24	10
Need a lot	26-32	5
Need a great deal	34-40	3

Note: Frequency equals the number of times the individual patient raw summed score occurred.

The overall score, demonstrated that the patients considering radiation therapy perceived they needed a little to some information ($M = 14.77$, $SD = 8.52$). It should be noted that due to small sample size, the observable summation range might not have been large enough to detect significant results.

Research Question Two

The second research question asked the radiation oncology nurse to determine their perception of what the patient considering radiation therapy learning needs were. The nurse's perception was gained through verbal and non-verbal queues that the patient expressed throughout the educational session. To describe the nurses' perception, the Radiation Therapy Subscale IIB of the Assessment of Learning Needs: Oncology Instrument, The Nurse, was utilized. The scale is an eight item Likert-type scale that ranges from 1 (does not need any information) to 5 (needs a great deal of information). This scale measured the perceived learning needs that the nurses believed the patients to require. The potential raw summed score for the nurses' responses were the same as the patient subjects, 8–320 points. Higher scores mirror a greater perceived learning need of the patient. See Table 2.

Table 2

Nurses Perceived Learning Needs of the Patients.

Learning Need	Raw Summed Score	Frequency
Don't need any more	8	5
Need a little	9–16	36
Need Some	18–24	9
Need a lot	29	3
Need a great deal	32–37	3

Note: Frequency equals the number of times the individual nurse raw summed score occurred.

The overall summed score observed the nurses perceived that the patients needed little to some information ($M = 15.196$ and the $SD = 6.887$).

Research Question Three

The third and final research question asked if a difference existed in the learning needs of the patient considering radiation therapy and the radiation oncology nurse. The first method of exploration during data analysis was to perform a paired t-test on the patient and nurse raw summed mean scores. The results of the paired t-test is summarized in Table 3. There was no significant difference between the patient considering radiation therapy and the radiation oncology nurse and the amount of perceived informational needs ($t = -.38$, $df = 55$, $p = .05$). It should be again noted that

due to the small sample size, statistical description might not have been large enough to detect significant results in the two related group means.

Table 3

Data Analysis of the Raw Summed Score

Variable	M	SD	t – value	P
Patient Score	14.77	8.15	- .38	.71
Nurse Score	15.20	6.89		

The Wilcoxon signed-rank test was used to compare the nurse and the patient’s response to each item. Whereas the paired t-test compared the mean raw summed scores the Wilcoxon signed rank specifically examined the eight items of perceived learning need. Since the two groups of subjects were disproportionate, the non-parametric test of the Wilcoxon signed-rank test can account for specific items of agreement between the two related groups of subjects on the relative ranking of values between the pairs (Polit & Hungler, 1999).

The results of the Wilcoxon signed-rank demonstrated that the patients considering radiation and the radiation nurses did not have the same mean rank on any one particular need item. The patients’ ranges of mean ranking were 10.30–16.45 and the nurses were 14.07–21.70. The nurses mean rank, on any one need item, was always greater than the perceived patients need. Overall, there was no significant difference

between the patients and nurses using the Wilcoxon signed-rank test in measurement of central tendency. Interesting enough, the nurses consistently perceived the patients to need a little more information. The only agreement of rank ordering of needs was the name and the purpose of radiation. See Table 4 and 5.

Forty-one (73%) patients felt that the radiation oncology nurse was helpful to their educational experience. This finding supports the research of Poroch (1995), the nurse was perceived as a useful source of information. Overall, there were 44 patients who identified the nurse as a helpful source of information. The patients identified a friend or doctor was 4 and 5 %, respectively (n = 2 and 3). Seven patients (13%) gave more than one response that was either the radiation oncology nurse or a doctor, as a helpful source of information.

Table 4

Rank Ordering of Needs Identified by the Patient

Item Rank	Percent of Respondents					Mean
	Don't Need Any (1)	Need a Little (2)	Need Some (3)	Need A Lot (4)	Need a Great Deal (5)	
1. Skin Care	57.1%	17.9%	14.3%	3.6%	7.1%	16.45
2. Schedule for Receiving TX	53.6%	17.9%	14.3%	8.9%	5.4%	16.06
3. Decrease Side Effects	57.1%	16.1%	16.1%	5.4%	5.4%	15.94
4. Length of Time of Radiation	51.8%	14.3%	23.2%	5.4%	5.4%	14.85
5. Side Effects and Problems	57.1%	16.1%	16.1%	5.4%	5.4%	14.38
6. Actions of Radiation	64.3%	14.3%	8.9%	7.1%	5.4%	13.98
7. Name of Radiation	57.1%	19.6%	16.1%	5.4%	1.8%	12.73
8. Purpose of Radiation	69.1%	12.5%	5.4%	7.1%	5.4%	10.30

Note: Mean rank is the measure of central tendency, computed by summing all patient scores and dividing by the number of subjects (n=56) then ranking the mean values.

Table 5

Rank Ordering of Needs Identified by the Nurse.

Item Rank	Percent of Respondents					Mean
	Don't Need Any (1)	Need a Little (2)	Need Some (3)	Need A Lot (4)	Need a Great Deal (5)	
1. Schedule for Receiving TX	44.6%	39.3%	10.7%	4.5%		21.79
2. Length of Radiation	51.8%	35.8%	5.4%	7.1%		18.40
3. Actions of Radiation	41.1%	26.8%	17.9%	8.9%	5.4%	17.69
4. Side effects and Problems	46.4%	28.6%	16.1%	7.1%	1.8%	15.77
5. Skin Care	39.3%	28.6%	21.4%	7.1%	3.6%	16.59
6. Decrease Side Effects	41.1%	25.4%	21.4%	8.9%	3.6%	16.08
7. Name of the Radiation	51.8%	30.4%	12.5%	3.6%	1.8%	14.27
8. Purpose of Radiation	51.8%	17.9%	19.6%	3.6%	7.1%	14.07

Note: Mean rank is the measure of central tendency, computed by summing all nurse scores and dividing by the number of subjects (n=56) then ranking the mean values.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

The findings of this descriptive study supported the observation that a nurse who has additional education and experience in medical and radiation oncology has the ability to interpret the patient's verbal and non-verbal queues of communication and apply them to a learning session. Although, there was no significant differences in the patient's and the nurse's perceived learning needs ($t = -.38, df = 55, p = .05$), the information given to patients was perceived as useful. The discussion will begin with a description of the results of each of the research questions, limitations of this study, and finally suggestions for further research.

Research question one. The first research question sought to describe the perceived learning needs of the patients considering radiation therapy. The data implies that patients considering radiation therapy needed a little to some more information. This information supports the findings of Israel and Mood (1982), their subjects were very aware of their lack of information about radiation oncology.

Research question two. The second research question asked the radiation oncology nurses to establish their belief of what the patients' considering radiation therapy perceived learning needs to be. The nurses' perceived the patients to need a little to some information. These data compliment the ONS Radiation Special Interest Group (1998) educational standards of care for the patients who are in at a radiation oncology facility.

Research question three. The last research question asked if there was a difference in the learning needs of the patients' considering radiation therapy and the radiation oncology nurses. By virtue of raw summed scoring, there were no differences between the patients and the nurses' who participated in the study in their perceived learning needs. In contrast, the results of the Wilcoxon signed rank demonstrated that there were some differences in the mean rank order of the perceived learning needs.

Understanding the care of the skin surrounding and within the radiation treatment area was perceived by the patients as their highest mean rank item (mean rank = 16.45). Skin care had the greatest aggregate of the patient responses (7.1%) that believed they needed a great deal of information. Whereas, the patients mean ranked skin care first, the nurses' mean ranked this item fifth. The results are suggestive that the nurses may need to furnish more information to the patients about the care of the skin surrounding and within the radiation therapy treatment area.

Seventy five percent of the patients perceived they did not need or need a little more information on their schedule for receiving radiation therapy treatments. There were 85% of nurses who agreed or believed the same as the patients. This result comparison implies that the nurses need to provide the patients with more information about their schedule for receiving radiation treatments.

The patients mean ranked how to minimize any side effects that may occur during radiation therapy as their third important need. The nurses' mean ranked this need as number six. Approximately, 75% of the patients believed that they either "don't need or need a little" information about minimizing the side effects. Sixty-six percent of the

nurses agreed. The available figures demonstrated that the patients and nurses perceive the same need of information.

The patients identified the length of time ($M=14.85$), that they will receive radiation therapy treatments as forth in their ranking of need items. Twenty three percent of the respondents believed they need some more information. This was the largest number for this response as compared to any one item. The nurses ranked ($M=18.40$) this same item as their second highest perceived learning need of the patient considering radiation.

The fifth item that the patients' ranked ($M=14.85$), were understanding the side effects and potential problems associated with radiation therapy. The nurses' mean ranked this item as fourth ($M=15.77$). The results suggest that there is no difference in this perceived need.

The final area of dissimilarity which the patients and the nurses had was the learning need item of the action of radiation therapy. Although the mean ranking suggests that there is a difference, overall, there was a mutual perceived need for a little more information.

There were two need statements that the patients and the nurses agreed in their perceived mean ranking of needs. By virtue of the mean rank, the patients' and nurses' selected the name and purpose of radiation therapy as seventh and eighth ranking. Approximately 57% of the patients and 52% of the nurses perceived the patients did not need any more information about the name and purpose of radiation therapy.

Relationship of Findings to the Conceptual Framework

King (1981) believes that the goal for nursing is to help individuals and groups to attain maintain, and restore health (p. 10). According to the research findings, the radiation oncology nurses were able to assist patients to maintain adequate balance as the patients' were considering radiation therapy. The nurses' were also able to individualize the educational experience by using sensory skills of observation, listening and interpretation of verbal and non-verbal communication. The nurses were competent in the process of needs appraisal and together with their knowledge of the adult learner were able to understand the patients' needs.

The research suggests that the patients were active learners. There were only two subjects who did not want to participate. The other patients were ready to learn. They participated via active listening, and interacted by verbal and non-verbal queues.

Relationship of Findings to Previous Research

Interesting enough, the data which Fieler, Saidel-Wlasowicz, Mitchell, Jones, and Johnson (1996) retrieved from patients who completed radiation therapy, is similar to the ranking of the patients' in this study. The information gleamed from this study contradicted the analysis of Lauer et.al. (1982). Whereas, Lauer et. al. found that the nurses and patients did not agree on their mean ranking of needs. The data analysis from this study supported the patients' and nurses' mean ranking of need items. Detailed data analysis demonstrated that there was no difference the patients' and nurses' mean rank ordering. A factor in Lauer et. al. al. study was that the nurses who participated were from various medical surgical nursing units, who provided direct care to a variety of

illnesses. The nurses who participated in this study had specific oncology education; certification and seventy-five percent of the nurses were primarily employed in a radiation oncology facility.

Limitations and Recommendations

The findings of this research study are from a small, non-random sample (patient: n = 56; radiation nurses: n = 8), therefore the findings cannot be generalized beyond the present sample. Generalizability would be facilitated using random sampling and a larger sample size.

The patient with cancer may experience test anxiety, especially if they are unsure of an answer. Therefore, the nurse reminded the patient to answer the questions to the best of their knowledge. The radiation oncology nurse could have experienced evaluation apprehension. Especially since the researcher is their supervisor. All nurses were informed at the educational session that their performance evaluation would not be affected if they decided not to participate in the study.

Threats to external validity that were considered when evaluating the data include (a) the Hawthorne effect, (b) novelty effect, (c) interaction of history and treatment effect, and (d) experimenter effects. The Hawthorne effect infers that the participant in a study may behave in a certain manner due to the fact that they are in a study. The patient considering radiation therapy may have answered all or some of the questions with a low score. They may have believed that they should know more. Thus, they would answer with a stronger belief of perceived knowledge. Radiation oncology nurses, in turn, believe they have a sense of what all patients need to know and may not be actually

communicating with the patient. They may not have been sensitive to the verbal and non-verbal queues that the patient expressed.

The performance of the subjects may be affected by characteristics of the researcher. The investigator worked alongside the radiation oncology nurses and is their supervisor. This might have made the nurses feel that they must participate in the study. The nurses were informed that the researcher would not favor any nurse that does or does not participate. The patients may also have felt affected by the researcher. They may have felt they could not say no and thus felt impelled to participate for fear of injuring the relationship of the nurse, who was the researcher and their supervisor.

It must be understood that the results of the study may be generalized only to this particular group of subjects. The background data may not apply to another group of people who will not be exposed to the same data collection procedures. The majority of the patients were Caucasian. Further research is indicated to determine the influence of ethnicity of the patients on perceived learning needs. There are many influences that different ethnic backgrounds have on patients, many of which include distrust of the medical field. All of the nurses were female. Additional research is required to determine the affect which gender may have from the male nurses' point of view.

The demographic descriptive analysis did not delineate the number of service hours that the nurses worked in each area of oncology. Future studies should include variables that would describe the nurse's service time more precisely. It would be of interest to correlate data to a larger population of nurses. By doing so, the characteristic

of the nurses' experience and educational background may offer more sound analysis of data.

Implication for Nursing

Generally, the patients perceived that they "needed little to some information" at the one moment of nursing interaction. It is meaningful to note that even though an overall summed score statement was identified at the initial nursing contact, needs or summed scores, may increase in importance overtime. Nurses need to continually assess the patients learning needs throughout the course of the patient's radiation treatments.

Caring for your skin, understanding the schedule for receiving radiation treatment and knowing how to decrease side effects of treatment were identified as the three greatest needs by the patients in this study. By consistently validating and incorporating these perceived needs identified by patients into the overall education design, radiation oncology nurses can be sensitive to the patients perceived impact that the radiation may have on their skin, the time constraints which are imposed on the patient, and how the patient wishes to minimize their potential side effects.

Another finding in this study was that the radiation oncology nurse was the most important source of information for patients who were considering radiation therapy. It was the patient's perception that nurses provided enough information that was perceived as needing a little to some more information.

Administrators of radiation facilities should be cognizant of the abilities which nurses who have medical oncology, OCN certification and who are successful in the radiation orientation, can perceive patients learning needs. Nurses need to incorporate the

patients perceived learning needs into the plan of care and educational documentation. Validation of learning needs is an ongoing process that will always exist for patients.

It is important to note that the focus of this study was to determine the perceived learning needs of the patient that they are considering radiation therapy. At this particular time, it is not known whether the patient may or may not be offered radiation therapy. The nurse in this setting spends thirty minutes with the patient at the consultation appointment. It is critical to know if the nursing staff is using this time wisely to determine the learning needs of the patient. Future research needs to evaluate the perceptions of the patient and the nurse at specific key intervals of education in the radiation oncology setting. The teaching-learning process perceptions may even evolve to appraising the patient–radiation oncologist interaction. The ONS guidelines recommend that education by nurses is ongoing throughout the patients course of radiation treatments. Research is needed to validate which need items are more important to the patient at different intervals in time, during their treatment course. This study evaluated a small sample at the initial visit. Continued research in this area will contribute to the existing body of nursing knowledge and facilitate a defined plan where learning is needed most, as perceived by the patient.

Appendices

APPENDIX A

Radiation Therapy Subscale IIA of the Assessment of Learning Needs: Oncology Instrument, The Patient.

Directions: The purpose of this questionnaire is to find out what information you believe you need to know about radiation therapy. To the right of each statement circle the number which best describes you. Only one number should be circled for each item. Please answer all questions to the best of your ability.

I believe I need more information about:

	I don't need any information	I need a little information	I need some information	I need a lot information	I need a great deal of information
1. The purpose of radiation therapy.	1	2	3	4	5
2. The name of radiation therapy.	1	2	3	4	5
3. The actions of radiation therapy. (What it is, what it does)	1	2	3	4	5
4. The schedule for receiving radiation therapy treatments.	1	2	3	4	5
5. The length of time I will undergo radiation therapy.	1	2	3	4	5
6. The side effects and potential problems associated with radiation therapy.	1	2	3	4	5
7. How to minimize any side effects occurring due to radiation therapy.	1	2	3	4	5
8. Care of the skin surrounding and within the radiation therapy treatment area.	1	2	3	4	5

APPENDIX B

Radiation Therapy Subscale IIB of the Assessment of Learning Needs: Oncology Instrument, The Nurse.

Directions: The purpose of this questionnaire is to find out what you believe the patient considering radiation therapy learning needs are. To the right of each statement circle the number which best describes what you believe the patient’s learning needs to be. Only one number should be circled for each item.

I believe that this patient I assessed and shared information with needs information on::

	The patient does not need any information	The patient needs a little information	The patient needs some information	The patient needs a lot of information	The patient needs a great deal of information
1. The purpose of radiation therapy.	1	2	3	4	5
2. The name of radiation therapy.	1	2	3	4	5
3. The actions of radiation therapy. (What it is, what it does)	1	2	3	4	5
4. The schedule for receiving radiation therapy treatments	1	2	3	4	5
5. The length of time the person will receive radiation therapy.	1	2	3	4	5
6. The side effects and potential problems associated with radiation therapy.	1	2	3	4	5
7. How to minimize any side effects occurring due to radiation therapy.	1	2	3	4	5
8. Care of the skin surrounding and within the radiation therapy treatment area.	1	2	3	4	5

APPENDIX C

APPENDIX C

Demographic Data Sheet for the Patient Considering Radiation Therapy

Please answer all the questions to the best of your ability.

What is your gender? (Please circle one)

1. Male 2. Female

()

What is your age? _____(years)

()

1. Do you consider yourself, (please circle)

1. African American 4. Hispanic
2. Asian 5. Pacific Islander
3. Caucasian 6. Other, _____
Please specify

()

2. What is your current marital status?

1. _____ married 4. _____ never married
2. _____ separated 5. _____ widowed
3. _____ divorced 6. _____ partnered

()

3. What is your level of education ?

1. _____ 8th grade or less
2. _____ completed High School
3. _____ some college
4. _____ Associate degree
5. _____ Bachelors degree
6. _____ some post graduate
7. _____ Master's degree
8. _____ Other, please specify _____.

()

4. What is your annual household income ? (check only one)

1. _____ less than \$10,000/year
2. _____ \$10,001 - \$20,000/year
3. _____ \$20,001 - \$30,000/year
4. _____ \$30,001 - \$40,000/year
5. _____ \$40,001 - \$50,000/year
6. _____ more than \$50,001/year
7. _____ I do not wish to answer

()

5. At this moment, which of the following sources have been most helpful to gain information about radiation therapy? (check only one)

()

1. _____ family member 6. _____ Doctor
2. _____ friend. 7. _____ Radiation Nurse
3. _____ article in magazine 8. _____ Other, please list
4. _____ TV
5. _____ Nurse at another office

APPENDIX D

Appendix D

Demographic Data Sheet for the Radiation Oncology Nurse

Please complete this form which will help to determine your background and compare it with other participants of this study. You may refuse to respond to any part of this form.

1. What is your age _____ (years). _____
()
 2. How many years have you been a registered nurse _____
(years). _____
()
 3. How many years have you practiced in medical oncology
_____ (years). _____
()
 4. How many years have you practiced nursing in
radiation oncology _____ (years). _____
()
 5. Are you certified in oncology nursing (OCN) _____
()
 1. _____ yes
 2. _____ no
 6. Have you ever successfully pass an oncology based
educational program? _____
()
 1. _____ yes
 2. _____ no
- If so, where did this occur _____
()
_____ ?
when did this occur 19 ____ (year).
7. Have you ever participated in a workshop/seminar focused on
radiation oncology nursing? _____
()
 1. _____ yes
 2. _____ no
 8. What is your highest level of nursing education? _____
()
 1. Diploma 3. Bachelors 5. Masters in Nursing
 2. Associate Degree 4. Masters 6. Other,

(please specify)

APPENDIX E

Appendix E

Topical Outline for Nursing Data Collection Inservice

Objectives

Upon completion of the data collection inservice, the nurse will be able to:

1. Recall the basic principles of Imogene King's theory for nursing.
2. Recognize Malcolm Knowles' teaching learning principles within their own practice.
3. Demonstrate skills to recruit test subjects.

Outline

- I. Introduction
 - A. Introduction of the nurse investigator
 - B. Introduction of potential nurse participants
- I. Purpose of the inservice
- II. Theory to Practice
 - A. Imogene King's Theory for Nursing
 1. Review of nursing assessment tool
 2. Application of assessment tool to practice
 - A. Malcolm Knowles' Adult Learning Principles
 - B. Basic concepts of radiation oncology
- I. Criteria for Selection
 - A. Subject criteria
 - B. Role-play for subject procurement.
- I. Nurse agreement
 - A. Distribution of Packages
 - B. Nursing Consent Form

Verbal Script

Hello _____ ,

My name is _____. I am a R.N. at Butterworth Hospital or Lakeshore Area Radiation Oncology Center. I am assisting Kathleen Bell who is an R.N. and is employed in the radiation facility. She is a student in the master's degree nursing program at Grand Valley State University. Kathleen is conducting a research study for her thesis involving the patient who is considering radiation therapy. She is interested in the patients understanding of radiation therapy after the nurse has interviewed and reviewed the principles of radiation therapy.

Kathleen would like your help in this study. If you agree to participate it would involve completing 2 questionnaires today. Together, both questionnaires will take less than 5 minutes. I will also be answering one questionnaire, the same time that you fill out your answers. The questionnaire will be given to you after I ask you some questions about your health and your understanding of your health care needs. Any information you provide on these questionnaires will be considered confidential and your name will not be used. You will also be given a self-sealed envelope to place your completed questionnaires in.

The risks involved in participating are minimal. Completing the questionnaires may cause you some fatigue or raise some concerns within yourself. Should this occur, I would be available to talk with you and/or refer you to appropriate resources. You may withdraw from the study at anytime without any effect on your care or the information that will be provided to you.

The benefits to you are limited. By participating you will be assisting other radiation facilities to understand the role of the radiation oncology nurse and the educational program which Butterworth Hospital or the Lakeshore Area Radiation Oncology Center provides.

You may ask questions at any time. Kathleen can also be reached at (616) 391-1830 from 8:00 am to 4:30 PM Monday through Friday.

The Human Research Review Committee of Grand Valley State University and the Research and Human Rights Committee of Butterworth Hospital have approved this study.

Your signature on the consent form shows that your participation in this study has been explained to you to your satisfaction and that you freely consent to participate. A copy of the signed consent form will be given to you. A summary of the results of this study will be provided to you if you so desire.

Do you have any questions about the study?

Would you be interested in participating?

APPENDIX F

Kathleen E. Bell, RN, BSN, OCN
Coordinator of Nursing Services
Radiation Oncology
Butterworth Hospital
100 Michigan St. NE
Grand Rapids, Michigan 49503-2560

Dear Ms. Bell:

I am pleased that you will be utilizing the Radiation Therapy Subscale II from my research. You may retile the subscale. You may utilize it for your research.

I believe at least one other person has utilized the subscales. Unfortunately, I have recently purged many of my old files and am unable to locate the pertinent correspondence. I know several researchers have cited my work in various publications.

I wish you good luck in your endeavor to obtain a MSN. It has certainly stood me in good stead.

I will be interested to see your results. If I may be of further assistance please let me know.

Sincerely,


Lindsay Campbell, MS, ARNP-CS

APPENDIX G

April 27, 1998

Kathleen E. Bell, BSN, RN
7215 Packer
Belmont, MI 49306

Dear Ms. Bell:

By means of the expedited review process your project, "Learning Needs Perceived by the Patient Considering Radiation Therapy and the Radiology Nurse", was given approval by the Butterworth Hospital Research and Human Rights Committee.

Please be advised this does not include any budgetary items. Should you require funds from the Research and Human Rights Committee at any time, you will need to present the entire project to them. The Butterworth Hospital number assigned to your study is #98-51.

Please be advised that any unexpected serious, adverse reactions must be promptly reported to the Research and Human Rights Committee within five days; and all changes made to the study after initiation require prior approval of the Research and Human Rights Committee before changes are implemented.

The Research and Human Rights Committee and the F.D.A. requires you submit in writing, a progress report to the committee by March 1, 1999, and you will need reapproval should your study be ongoing at that time. Enclosed are some guidelines, entitled "Protocol Points", for your convenience in working with your study.

If you have any questions please phone me or Linda Pool at 391-1291\1299.

Sincerely,



Jeffrey Jones, M.D.
Co-Chairman, Butterworth Hospital Research and Human Rights Committee

JJ/jfn

c: Linda Urden, DNSc, R.N., CNA
File



**GRAND VALLEY
STATE UNIVERSITY**

1 CAMPUS DRIVE • ALLENDALE, MICHIGAN 49401-9403 • 616/895-6611

April 7, 1998

Kathleen E. Bell
7215 Packer
Belmont, MI 49306

Dear Kathleen:

The Human Research Review Committee of Grand Valley State University is charged to examine proposals with respect to protection of human subjects. The Committee has considered your proposal, "*Learning Needs Perceived by the Patient Considering Radiation Therapy and the Radiation Oncology Nurse*" and is satisfied that you have complied with the intent of the regulations published in the Federal Register 46 (16): 8386-8392, January 26, 1981.

Sincerely,

A solid black rectangular box redacting the signature of Paul Huizenga.

Paul Huizenga, Chair
Human Research Review Committee

APPENDIX H

Appendix H

Consent form for the Radiation Oncology Nurse

You are asked to participate in a research study. In order to decide whether or not you should agree to be part of this research study you should understand enough about its risk and benefits to make a judgement. This process is called informed consent.

This consent form gives information about the research study that will be discussed with you. After an explanation of the study, you will be asked to sign this form if you wish to participate. You will have a copy for your records.

PURPOSE OF STUDY

The purpose of this study is to establish if there is a difference in perceived learning needs between the patient considering radiation therapy and the radiation oncology nurse. There have been few studies that have utilized similar nurses but no study has investigated a nurse who has advanced education in oncology care. Approximately 56 people will participate.

BENEFITS AND RISKS

There are no direct benefits to you for participating in this study. The questions that are asked may encourage you to appraise your method in which you evaluate and educate the patient considering radiation therapy. Other potential benefits of this study may affect other oncology nurses. Information gleaned may enhance information to others about the employment criteria and the role of nurses in a radiation oncology setting.

The possible risk to you may be psychological discomfort while knowing that you are participating in a research study. Participating in this study mayl augment evaluation criteria. By choosing not to participate the researcher will not demonstrate any bias. There is no anticipation of physical harm.

OTHER INFORMATION

I understand that participation in this study is strictly voluntary and will involve answering a questionnaire with eight questions and another one that will describe characteristics about myself. I have been selected to participate because I am a registered nurse who works in a radiation oncology setting.

_____ Nurse's Initials

I understand that I will receive no payment for my participation. I have been assured that my confidentiality will be preserved and my name will not be revealed in a report or publications resulting from this study. Should I have any questions regarding my right as an employee of Butterworth Hospital, I may call the Human Rights Committee representative, (Linda Pool), at the following number, (616) 391-1291. If I have any further questions about the study I may call Dr. Paul Huizenga, the chairperson of the Human Research Review Committee at Grand Valley State University, (616) 895-2791.

I understand that I have the right to refuse to participate in this research study (thereby refusing to sign this consent form) if I so desire without any fear of prejudice by the investigator. In addition, I understand that I may refuse to participate without fear of an unbiased evaluation by the researcher. I acknowledge receipt of a copy of this consent form, and my signature indicates that I have volunteered to participate in the study having read the information provided.

Signature of the Nurse

Witness

Date

Date

For the investigator:

I have fully explained to the nurse the nature and purpose of the above-described study and the risks involved in its performance. I answered and will answer all questions to the vest of my ability.

Investigator

Witness

Date

Date

APPENDIX I

Appendix I

Consent Form for the Patient Considering Radiation Therapy

You are asked to participate in a research study. In order to decide whether or not you should agree to be a part of this research study you should understand enough about its risks and benefits to make a judgment. This process is called informed consent.

This consent form gives information about the research study that will be discussed with you. After an explanation of the study, you will be asked to sign this form if you wish to participate. You will have a copy for your records.

PURPOSE OF STUDY

The purpose of this study is to establish if there is a difference in perceived learning needs between the patient considering radiation therapy and the radiation oncology nurse. There have been a few studies that have examined similar people but no study has investigated a nurse who has advanced education in oncology care. Approximately 56 people will participate.

BENEFITS AND RISKS

There are no direct benefits to you for participating in this study. The questions that you answer may encourage you to ask for more information that may improve your understanding of radiation therapy. Other potential benefits of this study will affect future patients considering radiation therapy. Increased knowledge may increase/improve understanding for other people and enables health care providers to inform others with improved insight.

The possible risk to you may be psychological discomfort while knowing that you are participating in a research study. There is no anticipation of physical harm to you.

OTHER INFORMATION

I understand that participation in this study will involve answering a questionnaire with eight questions and I have been selected for participation because I am seeking information about radiation therapy and not necessarily going to receive radiation therapy treatments.

_____ Patient's Initials

I understand that I will receive no payment for my participation. The investigator and/or delegated representatives from Spectrum Health may inspect my medical records for informational purposes where appropriate and necessary. I understand that my participation is voluntary. I have been assured that my confidentiality will be preserved and that my name will not be revealed in any reports or publications resulting from this study. Should I have any questions regarding my right as a patient, I may call the Dr. Paul Huizenga the Chairman of the Human Research Review Committee of Grand Valley State University at (616) 895-2791 or the Human Rights Committee representative at Butterworth Hospital, (Linda Pool), at the following number, (616) 391-1291.

I understand that I have the right to refuse to participate in this research study (thereby refusing to sign this consent form) if I so desire without any fear of prejudice to additional treatment. In addition, I understand that I may refuse to continue to participate in this study at any time after the start of the study without fear of prejudice to additional treatment. I acknowledge receipt of a copy of this consent form, and my signature indicates that I have volunteered to participate in the study having read the information provided.

Signature of Patient

Witness

Date

Date

For the Nurse:

I HAVE FULLY EXPLAINED THE NATURE AND PURPOSE OF THE ABOVE-DESCRIBED STUDY AND THE RISKS INVOLVED IN ITS PERFORMANCE. I HAVE ANSWERED AND WILL ANSWER ALL QUESTIONS TO THE BEST OF MY ABILITY.

Investigator or delegated representative

Witness

Date

Date

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