

THE RELATIONSHIP BETWEEN PAIN EXPERIENCE AND ROY ADAPTATION MODEL: APPLICATION OF THEORETICAL FRAMEWORK

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Introduction

Roy Adaptation Model (RAM) is one of the most frequently used conceptual frameworks to guide nursing research, education and practice; the contributions of this theoretical framework are that it will lead to more systematic, researcher guided and increased quality of nursing practice. It could foster nursing knowledge through organized research and it could provide a more organized curriculum.

The model provides a way of thinking about people and their environment that is useful in any setting. Also, Models give nurses autonomy and accountability in their practice, promote communication among nurses and guide implementation of research, practice, education and administration.

The RAM was found useful in practice in medical, surgical, emergency, maternity and psychiatry nursing. It provides a systematic way of care through Roy's six-step nursing process. Also it is useful in nursing education; in curricula synthesis and setting goals for nursing education, and distinction of the nursing profession from other health professions. In addition, the RAM generated a number of hypotheses that guide nursing research in studies of cancer, cardiac cases, childbirth experience, chronic illness and emergency cases. But since the RAM focuses on individuals it was used very little in administration. It has been used mainly in leadership, mentorship and quality assessment.

RAM is a highly developed and widely used conceptual description of nursing. It is accepted by the nursing community, in nursing practice, education, and research. It is commonly used in different countries to guide studies that

Abstract

Roy Adaptation Model (RAM) provides knowledge and broad understanding of the person as both a physiological being in a physical world and thinking. According to RAM, the overall goal of nursing is to focus on promoting health of the individual and group by promoting adaptation in each of four adaptive modes: physiological-physical, self-concept, role function, and interdependence. It could foster nursing knowledge through organized research and it could provide a more organized curriculum. The cancer patients who are under treatment with chemotherapy and radiotherapy may experience a physical self-disruption such as fatigue, altered skin integrity, fluid and electrolyte imbalances and physical changes (hair loss). This experience in physiological changes may influence the role function of the patient (social interaction with peers) and changes in the interdependence mode (family); if the families understand how to support the patient, the patient may have an integrated adaptation level. By understanding the relationships among self-concept, family functioning, functional status, and psychological adaptation, the

nurse can identify the factors that lead to mal adaptation, and supportive services can be implemented during the course of cancer treatment. Research that studied the experience of cancer-related pain confirmed that pain is a multidimensional symptom that consists of feelings of hopelessness, helplessness, emotional distress, and has a negative impact on coping mechanism. Also, cancer pain was confirmed by researchers as a complex phenomenon associated with adverse physiologic, psychosocial consequences, (depression, anxiety), cognitive, behavioral, and socio-cultural dimensions. There are many factors associated with cancer related pain such as type of cancer, stage of disease, type of treatment received and location of cancer. Such findings have raised the importance for researchers to study the experience of cancer related-pain in a comprehensive approach using the multidimensional aspects of cancer pain experience.

Keywords: Roy Adaptation model, pain, cancer, adaptation, and theoretical framework

address adaptation concepts. Understanding Roy's theory is extremely significant for researchers because it helps them in building theoretical frameworks to guided research study that reflects enhancement of adaptation for individuals and groups in the four adaptive modes.

The aim of this paper was to use RAM as a theoretical framework in my research study that evaluated pain experience among patients receiving cancer treatments.

Overview of Theory

The Roy Adaptation Model for Nursing had its beginning with Sister Callista Roy who entered the masters program in pediatric nursing at the University of California in Los Angeles in 1964. During Roy's first seminar in pediatric nursing, she proposed that the goal of nursing was promoting patient adaptation. Dorothy E Johnson, her tutor, encouraged her to develop her concept of adaptation as a framework for nursing throughout the course of her master's program.

RAM has five main concepts of nursing theory: the health, the person, the nurse, the adaptation and the environment. Roy views the person in a holistic way. The core concept in her model is adaptation. The concept of adaptation assumes that a person is an open system who responds to stimuli from both outside and inside of the person. Environmental stimuli are categorized as focal, contextual, and residual stimuli. Focal stimuli represent an immediate and apparent cause of the problem; contextual stimuli are other causative factors whilst residual stimuli relate to the patient's past experiences with the illness and how these experiences may impact upon the patient's current condition. Regulator and cognator activities are manifested through a patient's illness. Regulator activities are physiological in nature whilst cognator activities may range from a physical attribute to a psychological

or social attribute. The nurse's role while caring for a patient involves manipulating the stimuli that comes from the environment so that they fall within the client's field of positive coping, resulting in adaptation.

Adaptation is considered to be the positive response to a stimulus, whereas a negative response is described as maladaptation. Adaptation takes place in one physiological mode and three psychosocial modes. The psychosocial mode of adaptation includes self-concept, role function, and interdependence mode. The four modes of adaptation are interrelated in relationship between pain experience diminution and RAM model concepts.

Literature Review of RAM

Henderson et al. (2003) used the three environmental stimuli defined by RAM to guide their study. The focal stimulus in this study was the diagnosis of breast cancer; the contextual stimuli were demographic data such as age, marital status, educational level, income and length of time since diagnosis; the residual stimuli were unknown factors that may affect the coping strategies of the patients.

Waweru, et al. (2008) conceptualized the adaptation of children living with AIDS in the self-concept mode. They considered coping with AIDS as focal stimuli, the environment of care as the contextual stimulus, while the developmental level of the school aged children was the residual stimulus. Waweru, et al. (2008) has completely supported the RAM in which various stimuli are affecting the self-concept mode; this study indicated that RAM could be used cross culturally. On the contrary, other researchers created questions based on the four adaptive modes of RAM to guide their interviews.

Zeigler, et al. (2004) reported the findings of a program evaluation project mentioned previously. This project was designed to identify

the experience of both participants in and facilitators of, a community breast cancer support group.

Similarly, a study by Ramini, et al. (2008) aimed to identify the experiences of adaptive strategies used by adolescents with cancer. The questions have been used to reflect the physiological mode in Zeigler et al's study which was related to the most distressing physical problems. The self-concept mode includes questions associated with feelings about body and self. The role function mode includes questions about the activities done by the breast cancer support group and the satisfaction level indicated these activities. The questions reflecting the interdependence mode were related to the quality and quantity of support received by the support group.

RAM was used in the study "Embracing Changes: Adaptation by Adolescents with Cancer" for its ability to describe a model of the adaptation process that integrates multiple adaptive modes of the individual. Accordingly, the following questions were asked to guide the study,

(a) What experiences do adolescents with cancer report that reflect the four adaptive modes of the RAM?

(b) Do reported experiences during adolescence provide evidence of positive adaptive responses?

Researchers used a theory-based descriptive method conducted in a children's hematology/oncology clinic and the participants included adolescents and young adults who had experienced cancer as adolescents. They designed open-ended interview questions which were based on the four adaptive models of the RAM: physiological, self-concept, role function, and interdependence. Questions were intended to be administered in 30-45 minute audio-taped interviews. Adolescents and young adults reported evidence of positive adaptation. Recognition of physiological effects and the inability of health care personnel to adequately intervene made

adolescents and young adults more confident in their own experiences and interpretations of those experiences, affecting self-concept and role function modes. Adolescents and young adults reported creatively managing bodily changes and keeping positive attitudes of “embracing changes” rather than being stifled or intimidated by them. They were able to develop personal networks and draw needed support from the networks. Participants reported many opportunities to feel normal and to develop friendships with others who were adapting to cancer.

Theoretical Framework

The researcher used Roy Adaptation Model (RAM) as a theoretical framework (1) to guide this proposal, (2) to clarify multidimensional aspects of cancer related pain with forth adaptive modes of RAM which are affected by external and internal stimuli (focal, contextual, and Residual stimuli) that cause cancer related pain (3) and to note the effect of adaptive modes on adaptive level (4) to correlate research variable with theory concept, (5) and to predict interpretations, recommendations (6) and to answer the following research questions:

1. How cancer patients describe pain (physiologic, sensory, emotional, and socio-cultural)?
2. What are the relationships of the variables (e.g., disease etiology, stage of cancer, pain intensity, socio-cultural beliefs and affective variables) with pain experience?

According to Roy Adaptation Model (RAM), the cancer pain experience, and adaptation activities can be observed in four overlapping adaptive modes: physiologic, self-concept, role function and interdependence, and affected by stimulus from internal or external environment, thus relationship can show if there is a relationship or not. As illustrated in Figure 1, the four overlapping circles represent the four modes, since stimulus affecting one mode may also affect the other

three modes, and reflect that on its relationship.

In this study, the treatment regimen (e.g., chemotherapy, radiotherapy, and surgery) was viewed as a focal stimulus, the internal or external stimulus most immediately confronting the human system which leads to ineffective responses (fatigue, pain, vomiting, and nausea) for patients with cancer disease (Andrews & Roy, 1991). Contextual stimuli are all stimuli present in the situation that contribute to the effect of the focal stimulus which influence the person's response to cancer pain, which includes factors such as degree of illness, disability, social and financial support, etc. (Andrews & Roy, 1991). The residual stimulus is environmental factors within or without the human system with effects in the current situation that are unclear (Andrews & Roy, 1991).

Psychological factors play an important role in this stimulus such as fear from recurrence of cancer after remission, fear from complications of treatment plan, and anxiety from follow-up visit to hospital.

Relationship between Four Adaptive Modes and Pain Experience

(See Figure 1 opposite page)

The physiological mode deals with the needs of the person for physiologic integrity (Meleis, 1997). According to Andrews and Roy (1991), the physiological mode is related to the way the person responds as a physical being to stimuli from the environment. The physiological mode focuses on five basic physiological needs, which, hierarchically arranged, are oxygenation, nutrition, elimination, activity and rest, and protection (Andrews & Roy, 1991).

This study investigates the etiology and stage of cancer on the experience of pain as physiological variables based on the concepts of

RAM. In a study done by (17) it was reported that 48% with advanced stage cancer reported moderate to severe level of pain. Cancer patients with localized mass reported mild pain (14). No studies reported cancer sites and their relation to pain experience. The etiology of cancer pain was reported in a study done by Wang, et al (32) as 36% of cancer bone, 29% of visceral, and 24% of pleuritic, while, 39% had pain from multiple sites. No studies reported the relationship between the type of pain and pain severity. Thus, this study investigates the etiology of cancer pain and its relation to severity of pain.

The self-concept mode deals with the need for psychic integrity (Meleis, 1997). Self-concept is defined as “the composite of beliefs and feelings that a person holds about himself or herself at a given time” (Andrews & Roy, 1991, p. 16). Self-concept is formed from perceptions of self and others and directs one's behavior (Fawcett, 1995). In this study, the researcher investigates the intensity of pain as experienced by cancer patients. There were many tools used to assess pain intensity such as Brief Pain Inventory (BPI), Visual Analog Scale (VAS), and numeric pain scale. For the purpose of this study, the researcher used numeric pain scale to measure pain intensity (where 0 indicates no pain and 10 indicates worst pain). The study investigates the relationship of sensory mode (pain intensity) with the physiological mode (etiology and stage of cancer).

The role function mode deals with the need for social integrity (Meleis, 1997). Role function is “the need to know who one is in relation to others so that one can act (Andrews & Roy, 1991). Roles are regarded as the functioning units of society (Andrews, 1991). Each role exists in relation to another role. People need to know what roles they occupy and the related expectations about those roles so that they know how to act appropriately (Andrews, 1991). In this study, the researcher investigates the relationship of

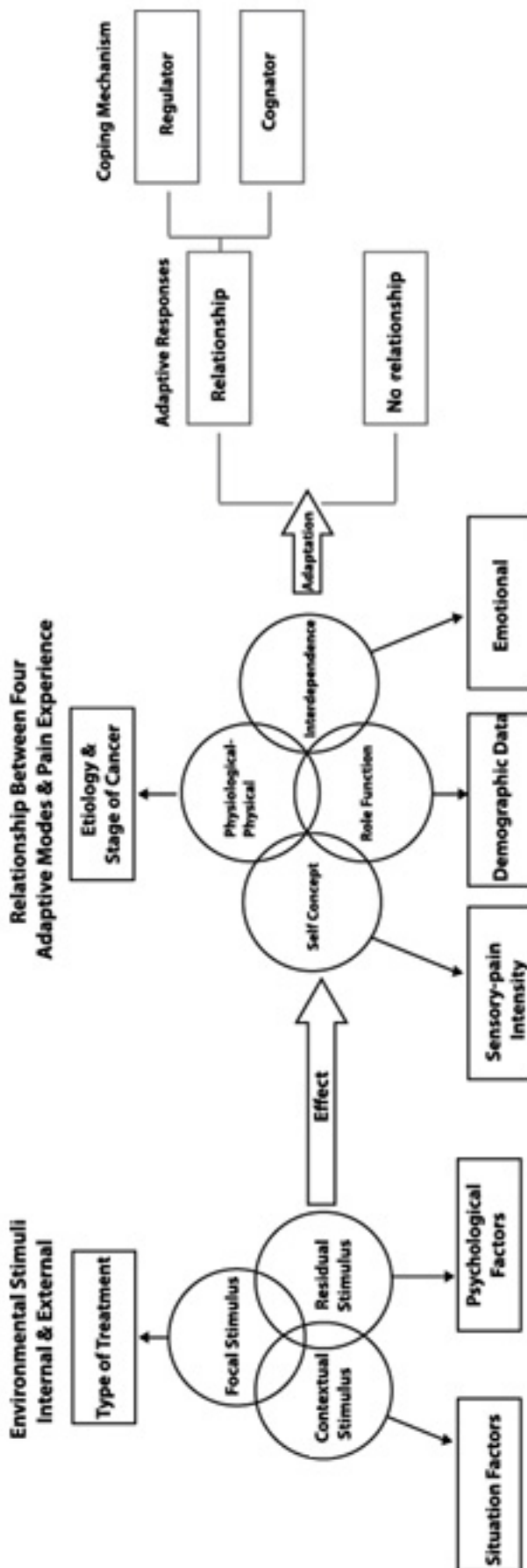


Figure 1: Relationship between Four Adaptive Modes and Pain Experience

demographic characteristics (age, gender and education) and religious beliefs on the intensity of pain as experienced by cancer patients, based on the interrelatedness between ROY's four adaptive modes.

The interdependence mode deals with the need for social integrity (Meleis, 1997). Interdependence is "a way of maintaining integrity that involves the willingness and ability to love, respect, and value others, and to accept and respond to love, respect, and value given by others" (Roy, 1987, p. 41). The researcher studied the effect of patient's mood, love, and respect by family and caregivers on the intensity of pain and adaptation level to pain. The researcher uses the BPI scale to assess these variables.

(See Table 1: The relationship between variables of pain experience and RAM concepts, next page)

Summary and Conclusion

When the nurses and health care professionals have an understanding of cancer related pain experience they can view the adaptation level by assessing the output of the system: the patient behavior and interaction with the environment. The cancer patients who are under treatment with chemotherapy and radiotherapy may experience a physical self-disruption such as fatigue, altered skin integrity, fluid and electrolyte imbalances and physical changes (hair loss).

This experience in physiological changes may influence the role function of the patient (social interaction with peers) and changes in the interdependence mode (family). If the family understands how to support the patient, the patient may have an integrated adaptation level. By understanding the relationships among self-concept, family functioning, functional status, and psychological adaptation, the nurse can identify the factors that lead to maladaptation, and supportive services can be implemented during the course of cancer treatment. According to Roy, it is the role of the nurse to promote adaptation in all four modes, enhancing the quality of life.

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Concept of Theory	Variables of Research	Theoretical Definition	Operational Definition
Physiologic mode	Physical: - etiology of cancer pain - Stage of cancer.	Causes of pain either by disease itself, treatment, or both <u>Stage of cancer:</u> measured by TNM classification system.	- The cause or origin of a pain as determined by subjective and objective data collected from the patient. - One of the four stages with the higher number representing the more advanced stage of the disease as reported by the treating physician.
Self-concept mode	Sensory: - pain intensity	An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of pain strength.	Pain Intensity measured by a numerical rating scale ranging from 0 to 10, with 0 being no pain, 1-3 being mild pain, 4-6 being moderate pain, and 7-9 being severe pain, with 10 being the worst pain (Clearly, 2000), as measured by the nurses documentation on the 24-Hour Patient Care Flow sheet.
Role function mode	Socio-cultural: age, gender, education, and religion	The intrinsic characteristics of patients and their role and beliefs.	Demographic variables derived from patient's reports
Interdependence mode	Emotional: love, respect	Achieve relational integrity by giving and receiving of love, respect through effective relations.	achieving relational integrity as stated by patients and families

Table 1: The relationship between variables of pain experience and RAM concepts

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