



Embracing Changes: Adaptation by Adolescents with Cancer, Critical Appraisal

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Abstract: Roy's Adaptation Model (RAM) is one of the most useful conceptual frameworks that guides nursing practice, directs research and influences education. Moreover, it enhances nurses' abilities to improve person interaction with the surrounded environment to provide an effective adaptation. This paper intends to critique a research article utilizing the concepts of RAM as a framework for their study; a study done by Ramini, Brown, & Buckner (2008) entitled "Embracing Changes: Adaptation by Adolescents with Cancer".

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1. Introduction

In 1976, Sister Callista Roy developed the Adaptation Model of Nursing, a prominent nursing theory. Nursing theories frame, explain or define the provision of nursing care. Roy's model sees the individual as a set of interrelated systems (biological, psychological and social). The individual strives to maintain a balance between these systems and the outside world, but there is no absolute level of balance. Individuals strive to live within a unique band in which he or she can cope adequately.

Roy's Adaptation Model (RAM) is one of the most useful conceptual frameworks that guides nursing practice, directs research and influences education (Tomey & Alligood, 2006). It focuses on individuals' adaptation to changeable environment and guides the assessment of individuals' adaptation. RAM enhances nurses' abilities to improve person interaction with the surrounded environment to provide an effective adaptation. The RAM has a consistent nursing process that directs nursing practice toward providing a holistic care for patients (Tomey & Alligood, 2006).

2. Theoretical Basis for Adaptation Model

The RAM for nursing had its beginning when Sr. Callista Roy entered the master's program in pediatric nursing at University of California, Los Angeles in 1964. Where her advisor and faculty mentor Dorothy E. Johnson was challenged her to develop a conceptual mode defining 'The Goal of Nursing Practice' In other words, a conceptual model that Focusing the Development of Nursing

Knowledge for the Goal Nursing Practice (George, 2011).

The key thesis of the model is that humans are adaptive systems that cope with change through adaptation and that the goal of nursing is to help promote patient adaptation during health and illness. The theory was developed through the use of deductive logic. Roy credits the work of von Bertalanffy's (1968) general system theory and Helson's (1964) adaptation theory as forming the original basis of the scientific assumptions underlying the RAM (George, 2011). Working with Helson's premises about adaptation, Roy developed the premise for her theory of the person as an adaptive system and her adaptation model (Alligood & Tomey, 2010).

3. Description of Roy's Model

The Roy adaptation model provides a useful framework for providing nursing care for persons in health and in acute, chronic, and terminal illness. Its views the person as an adaptive system in constant interaction with an internal and external environment, this environment contain many sources of stimuli that threaten or promote the person's unique wholeness. (Fawcett, 2005, Tomey & Alligood, 2006).

Adaptation is defined by RAM as the process and outcome in which thinking and feeling persons use conscious awareness to create integration between human perception and their environment. Adaptation is manifested by four interrelated modes of behavior including physiological, self-concept, role function and interdependence modes (Henderson, Fogel, & Edwards, 2003). According to RAM, individual is



described as an adaptive system that is able to respond to different internal and external environmental stimuli whether positively or negatively. Individuals' responses to any environmental change are subject to their coping processes. The environmental stimuli are divided into focal, contextual and residual stimuli (Henderson, Fogel, & Edwards, 2003). RAM has classified coping processes into two subsystems: regulator and cognator. Nursing goal promotes individuals and groups adaptation in each adaptive mode; consequently, it contributes to improving health, quality of life and dying with dignity.

3.1. Purpose of the Roy Adaptation Model

To understand and explain people adaptation within their life situations. It concerns with the coping and adaptation processing of the person through the regulator and cognator subsystems and of enhancing adapting processing in groups through stabilizer and innovator coping processes. (Fawcett, 2005, Tomey & Alligood, 2006, George, 2011)

4. Major concepts of Roy's theory include the following:

Humans as Adaptive Systems: Both as individuals and in groups. Roy conceptualizes the human system in a holistic perspective, as holism stems from the underlying philosophic assumption of the model. Holism is the aspect of unified meaningfulness of human behavior in which the human system is greater than the sum of individual parts (George, 2011). The human adaptive system has inputs of stimuli and adaptation level, outputs as behavioral responses that serve as feedback, and control processes known as coping mechanisms (George, 2011).

5. The Four Adaptive Modes:

Physiological-Physical Mode: Represents that human system's physical responses and interactions with the environment. The basic needs include oxygenation, nutrition, elimination, activity and rest, and protection. The complex process include senses; fluid, electrolyte, and acid-base balance; neurological function; and endocrine function (George, 2011).

Self-Concept-Group Identity Mode: The self-concept mode relates to the basic need for psychic and spiritual integrity or a need to know the self with a sense of unity. The group identity mode is identity integrity (George, 2011).

Role Function Mode: The need underlying its mode is social integrity. For individuals this mode focuses on the roles of the individual in society. Role behavior in groups is the means through which the

social system achieves goals and functions, or role clarity (George, 2011).

Interdependence Mode: For individuals, the underlying need of this mode is relational integrity or security in nurturing relationships. For groups, interdependence relates to social context, including both public and private contacts within and outside the group (George, 2011).

6. Roy defines the four concepts of the paradigm of nursing as follows:

Nursing – a health care profession that focuses on human life processes and patterns and emphasizes promotion of health for individuals, families, groups and society as a whole (broad definition). The science and practice that expands adaptive abilities and enhances person and environmental transformation (specific to her model).

Environment – all conditions, circumstances, and influences that surround and affect the development and behavior of humans as adaptive systems, with particular consideration of person and earth resources.

Person – the main focus of nursing, the recipient of nursing care, a living, complex, adaptive system with internal processes (cognator and regulator) acting to maintain adaptation in the four adaptive modes (physiological, self-concept, role function, and interdependence).

Health – a state and a process of being and becoming an integrated and whole human being. The integrity of the person is expressed as the ability to meet the goals of survival, growth, reproduction, mastery, and person and environment transformation.

7. Scope of Utilization

It is one of the most frequent models used to guide nursing research, education, and practice. The influence of the model on nursing research is evident by the huge number of the studies that it has guided; it has inspired development of many middle range theories and instruments development (Fawcett, 2005, Tomey & Alligood, 2006, George, 2011).

7.1 Practice

The Roy Adaptation Model is deeply rooted in nursing practice, and this, in part, contributes to its continued success (Tomey & Alligood, 2010). In a review of the literature, most articles describe the use of the RAM as a framework to conceptualize and plan the care of patients one at a time, or use the model to create an intervention for a discrete clinical population.

The RAM has been implemented in a NICU as an ideology for nursing (Nyqvist & Sjoden, 1993); on an acute surgical ward as a means of documenting

compliance with the nursing process (Lewis, 1988); on two units of a general hospital as a conceptual framework to guide practice and as an integral part of a shared governance strategy (Weiss, Hastings, Holly, & Craig, 1994); on a neurosurgical unit to establish a professional practice environment for student training, enhance professional autonomy, and aid recruitment and retention of staff (Frederickson, 1993).

7.2. Education

Sister Callista Roy's adaptation model has been integrated throughout all nursing programs. "The adaptation model has been useful in the educational setting and has guided nursing education at Mount saint Mary's College Department of Nursing in Los Angeles since 1970" (Tomey & Alligood, 2010). According to Tomey & Alligood, this model defines the purpose of nursing for students. " Roy (1979) believes that curricula based on this model support understanding of theory development by students as they learn about testing theories and experience theoretical insights" (Tomey & Alligood, 2010).

She views the model as a valuable tool to analyze the distinctions between the two professions of nursing and medicine. Roy stresses collaboration, but delineates separate goals for nurses and physicians.

7.3 Research

RAM is a researchable model can be applied on as a conceptual framework in many nursing research field. It is one of the most frequently used models to guide nursing research. It is useful, applicable for the development of a number of research instruments.

Henderson et al. (2003) conducted a study to assess coping strategies used by African American women with breast cancer to examine any relationship existed between socio-demographic variables and coping strategies. As a result Positive reappraisal and seeking social support were the most common coping strategies used by African American women with breast cancer.

However, Waweru et al. (2008) conducted a study to explore the perception of self-concept and the associated emotional indicators of children living with acquired immune deficiency syndrome (AIDS) in the United States and Kenya. They have completely supported the RAM in which various stimuli are affecting the self-concept mode; this study indicated that RAM could be used cross culturally.

Similarly, Wendler (2003) used a pretest, posttest repeated measures design to examine the effect of Telling ton Touch (T touch) on: 1) mean blood

pressure (MBP); 2) heart rate (HR); 3) state anxiety (SA); and 4) perceived procedural pain (PP) in healthy citizen soldiers waiting antecubital venipuncture and to compare the result with a no-touch control group. He stated that T touch may enhance the regulator system that increases the effectiveness of adaptive response and partially supported RAM in which the contextual stimuli (T touch) modified the intensity of MBP and HR in the T touch group.

Zeigler et al. (2004) reported the findings of a program evaluation project. This project was designed to identify the experience of both participants in and facilitators of community breast cancer support group. The questions have been used to reflect the physiological mode was related to the most distressing physical problems. The self-concept mode included questions associated with feelings and adaptation process of changes related to cancer and its treatment. The role function mode involved questions about the role of the cancer camp in helping patients with cancer, and any change in people attitude toward patients with cancer. The questions that reflected the interdependence mode were related to the effect of cancer on the relationship between people.

Huang et al. (2004) used the four adaptive modes of RAM to: a) estimate daytime sleepiness and b) assess factors disrupting the adaptation of sleep loss during the early postpartum period. The results showed that depressed mothers had poorer sleep experience than non-depressed mothers.

In the same way, Pollock et al. (2005) used RAM in order to categorize and rank the stressors associated with first time fathers in the postpartum period. Stressors were classified as role function stressors, psychological stressors and interdependence stressors. The findings have supported RAM in which role function stressors were associated with having not enough time to do many responsibilities, concerns about child health and concerns about the health of family members.

On the other hand, Starner and Peters (2004) used other concepts of RAM developed in two subsystems of coping processes. The researchers examined the relationship between anger and anger expression on blood pressure (BP) in adolescents. They conceptualized anger expression by using RAM as an adaptive-behavioral response to any environmental stimuli perceived as anger-provoking stimuli. The girls in the study had an ineffective response to the increased blood pressure when scores were high to overall anger and anger suppression.

Poirer (2007) used a prospective, longitudinal design to explore factors that might affect patients' ability to perform their usual activities while they are



under radiation therapy. Many factors were associated with reducing patients' ability to carry out their activities during the course of treatment with radiation therapy. These factors were related to the site-specific treatment-related side effects and fatigue, the presence of co morbidities, living alone and being exposed to chemotherapy along with radiation.

Finally, Posmontier (2008) used different concepts of RAM to compare the differences in functional status between women with postpartum depression and women without postpartum depression. The author stated that women with postpartum depression (self-concept mode) would use ineffective responses in personal, household, social and occupational activities, but would maintain adaptive responses in physical infant care (role function modes). The result of this study indicated that postpartum depression can lower personal, household, and social functioning, but not infant care.

8. Critique of Roy's Adaptation Model

8.1. Clarity

Roy's arrangement of concepts is logical, but the clarity of some terms and concepts is inadequate to reflect nursing disciplines. This may decrease the clarity of the model when applied in any specialized area of practice. Terms and concepts borrowed from other disciplines are not redefined for nursing.

In recent writings, Roy has acknowledged the holistic nature of persons who exist in a universe that is "progressing in structure, organization, and complexity. Rather than a system acting to maintain itself, the emphasis shifts to the purposefulness of human existence in a universe that is creative" (Roy & Andrews, 1999). Roy contends that persons have mutual, integral, and simultaneous relationships with the universe and God and that as humans they "use their creative abilities of awareness, enlightenment, and faith in the processes of deriving, sustaining, and transforming the universe" (Roy & Andrews, 1999). Using these creative abilities, persons (sick or well) are active participants in their care and are able to achieve a higher level of adaptation (health).

8.2. Simplicity

The Roy model includes the concepts of nursing, person, health-illness, environment, adaptation, and nursing activities. It also includes two sub-concepts (regulator and cognator) and four effector modes (physiological, self-concept, role function, and interdependence). This model has several major concepts and sub-concepts; therefore it has numerous relational statements and is complex.

8.3. Generality

RAM substantiate significantly in different nursing discipline. It has inspired the development of many middle range nursing theories. It includes many major concepts, sub-concepts and relational statements, therefore, it is considered as a complex model. However, the complexity of Roy's model helps to increase its empirical precision. In fact, The RAM is broad in scope and can be used to build or test nursing theories. Therefore, it is generalizable to all approaches existed in nursing practice (Tomey & Alligood, 2006).

8.4. Empirical precision

The complexity of Roy's model helps to increase its empirical precision. The greatest needs to increase empirical precision of the Roy Adaptation Model are for researchers to continue to build middle range theory based on the Roy Adaptation Model and to develop empirical referents specifically designed to measure concepts proposed in the derived theory.

8.5. Derivable Consequences

The Roy Adaptation Model has clearly defined nursing process and can be useful in guiding clinical practice. The model provides direction in providing nursing care that addresses the holistic needs of the patient. The model is also capable of generating new information through the testing of the hypotheses that have been derived from it.

9. Roy adaptation Model in Ramini, Brown, & Buckner (2008) study

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.

Adolescents with cancer face many challenges that may impact negatively on their psychological well-being; the adolescent children with cancer are confronted with their own unique challenges. They must deal with not only events specific to the diagnosis and adverse treatment effects of a life-threatening illness but also complex developmental changes and demands (Woodgate & Degner, 2003).

Researchers used a theory-based descriptive method conducted in a children 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. The sample used for this study was

a convenience sample which met all criteria. Participants were female and male; English-speaking; adolescents and young adults who had cancer as adolescents had attended a specialty camp for children and adolescents with cancer; had not been hospitalized during the 6 months prior to the study, and were willing to be contacted by the student-investigator. Only four adolescents and young adults, 3 female and one male (ranging from 16 to 25 years old) completed the study, and gave written informed consent during the allotted time, which spanned a 6-month period. In general, Ramini, Brown, & Buckner (2008) used a one level assessment approach in applying Roy's model. Adaptive responses in all four modes were examined. In the physiological mode the patient's ineffective adaptation i.e., uncontrolled nausea and vomiting, uncontrolled pain, and weaknesses and fatigue, were the first priority for nursing care to assess the adolescent's descriptions of physiological effects of cancer and its treatment and to listen to their patients in the evaluation of care. Also, they stressed on continuous assessment of cancer treatment effectiveness to alleviate the physiological changes and they should listen to the patient's perception.

9.1. Reflection

The authors used the conceptual model in a simple clear way, which reflected on their ability to conduct the research questions correctly. I see that RAM was the most appropriate adaptation model to be applied for "Embracing Changes: Adaptation by Adolescents with Cancer" because most aspects of the Roy model were implemented well in this research. Thus, I think that the researchers have used the Roy adaptation model in an appropriate and successful way. On the other hand, researchers missed some concepts such as stimuli and its type (Focal Stimulus, Contextual stimuli, Residual stimuli); they didn't identify them in each mode; Adaptive problem, adaptation level; and system, regulator and cognator subsystem, innate & acquired coping mechanism. Despite, the usage of the theory not being comprehensive; it did not affect the research ability to test the needed aspects and well answered the research questions proposed in the study.

9.2. Opinion

It is a good experience for me to review and assess the Application of RAM. I Think, the researchers applied the four modes in a clear, simple, and appropriate way, and thus, Roy's model is an effective guide to examine adaptive strategies of adolescents with cancer.

9.3. Strength

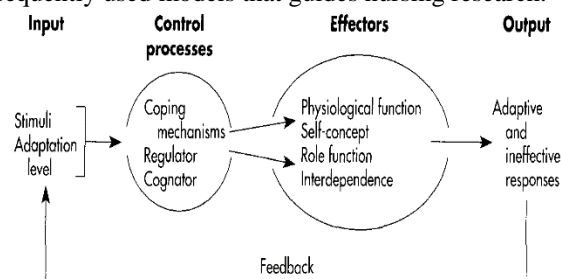
Many strong points have been shown in this research article regarding the application of the RAM such as: The researchers used all concepts of the RAM in a clear, organized way that focused on the purpose of the study which was well stated "to use the RAM to examine adaptive strategies of adolescents with cancer". The researchers used open-ended interview questions, which were generated based on the four adaptive modes of RAM; the study used concepts of RAM (adaptation, physiologic mode, self-concepts, role function and interdependence); these concepts were defined conceptually and operationally. The researchers clearly developed themes depending on the participant's answers. Interpretation of findings is logical and consistent with the theoretical framework.

9.4. Weaknesses

There were some weaknesses in this study such as: small sample size (only 4 patients) and all from the Caucasian population. This will limit the generalizability of the findings and increase the risks of controlling threats to internal and external validity. Also, the researchers did not use some concepts of the Roy' Adaptation theory such as stimuli (focal, contextual, and residual stimuli); system, adaptation level; innate & acquired coping mechanism. In addition, other tenets of the RAM, such as cognator and regulator mechanisms and the effects of the nurse's role in facilitating adaptation were not highlighted. The characteristics of adolescents were not mentioned clearly in this study; some participants had the cancer when they were children, and the purpose of the study to identify the adolescents' adaptive coping mechanisms to consequences of cancer and its management.

10. Conclusion

The Roy Adaptation Model identifies the essential concepts relevant to nursing as the human adaptive system, the environment, health, and nursing. Nurses have a unique role to promote health in each of the four adaptive modes through managing the environment. Because of its generalizability, practicality, and testability; RAM is one of the most frequently used models that guides nursing research.



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