

ANS Open Forum

This month's Open Forum participants were asked to address conceptual and methodological problems in the study of the concepts of stress and adaptation. The participants speak from their own viewpoints developed out of experience, research and study of these areas of concern for nursing. Your responses to their ideas are welcomed, and we urge you to submit your own ideas to the editor in the near future.

Margery Garbin, R.N., M.S.N.,
*Psychiatric Liaison Nurse,
Mercy Catholic Medical Center,
Darby, Pennsylvania:*

CONCEPTUALIZATION OF STRESS AND ADAPTATION

Stress and adaptation are broad concepts incorporating a wide range of phenomena and situations. They have been the concern of investigators in many fields and generally serve as integrating concepts among the biopsychosocial sciences, suggesting fundamental connec-

tions among them. However, the way stress and adaptation are conceptualized depends on the special focal interest of the particular investigator.

Since nursing is concerned with human beings interacting with the environment in a complex, holistic manner it conceptually defines stress broadly, in terms of the interaction of individual and environment. Stress occurs when individuals or larger social system are confronted with an environmental demand that exceeds their response capability. The consequences of not adapting to stress and its subjective aspects are of crucial importance. That is, an environmental demand leads to stress only if individuals anticipate that they will not be able to cope with the demand and only if the consequences of failure to cope are perceived as important. In this model the individual is regarded as an active, adaptive, coping organism rather than as a passive or reactive organism.

Adaptation also occurs within a person-environment framework. *Adaptation* refers to changes that occur in the organism so that one's behavior or attitudes will conform to new or changed environmental circumstances. The *modification* of the person implies the flexibility of an open system continuously exchanging matter, energy and information with the environment. The perception and response to stress will also be modified through the adaptation process.

This paradigm regards stress and adaptation as central concepts with heuristic value, not as rigorous, scientific concepts with hypothetico-deductive power. Although the conceptual definitions of stress and adaptation are broad and nonspecific, research requires operational definitions worded in terms of more specific subconcepts that can be measured. Stress/adaptation research in nursing is focused on

selected, clearly delineated aspects of the person-environment interaction.

MAJOR RESEARCH PROBLEMS

Conceptual Problems

Beyond the broad conceptual definitions of stress and adaptation, there are other conceptual problems to be addressed by the nurse researcher. Selye, the endocrinologist who introduced the concept of stress to the sciences, defined stress as a physiological response within an organism, not to be confused with the external events (stressors) which bring about the response.¹ However, the popular use of the term "stress" often differs from Selye's terminology by denoting an external force (stimulus) acting on a person rather than a physiological response. The term "stressor," therefore, overlaps with such concepts as "life stress," "environmental stress" and "work stress." Confusion results when the same term, "stress," is used to refer both to the sources of stress (stimuli) and to the effects of stress (responses). Clear operational definitions can clarify particular use of the researcher's terms.

Adding to the complexity of the stress concept is the occurrence in human beings of the stress response (Selye's General Adaptation Syndrome) under a multitude of varying conditions with different psychological meanings (e.g., a game of tennis or a passionate embrace). Because of the nonspecificity of response it may be difficult to determine the event or situation which elicits it.

Responses to a given psychosocial stimulus may also vary widely from one individual to another, or from one time to another in the same person. The responses depend on a multitude of intervening, interacting variables related to an individual's

Responses to a given psychosocial stimulus may vary widely from one individual to another, or from one time to another in the same person.

personality, coping style, history, etc. In fact, research in the future may focus as much on idiosyncratic psychobiological patterns as on common response patterns.

It is also difficult to define what kinds of situations or properties of situations are stressful. The term "psychological stress" has been used to describe opposite environmental conditions: crowded or isolated, rapidly changing or monotonous, authoritarian or unstructured, etc. Stress associated in these situations may represent several or many different kinds of stress rather than a single phenomenon. It is difficult to measure, or even to estimate, stressful properties of the environment to establish quantitatively the degree of stress inherent in given situations.

Methodological Problems

Research strategies reflect the investigators' different aims and their differing uses of the terms "stress" and "adaptation." The criteria chosen to define and measure stress and adaptation may be physiological, psychological or social behaviors or some combination of these.

Although individuals respond and behave as wholes, there are as yet no holistic measuring tools available. Instead there are a variety of techniques for measuring stress-related variables, including: (1) indices measuring physiological properties such as galvanic skin response, heart rate, blood pressure; (2) indices related to psychological properties such as personal-

ity tests; and (3) indices referring to performance of behavior in specific settings such as task performance check-lists.

Each of these measures presents methodological challenges. For instance, a major problem with physiological measures is the wide range of inter-individual and intra-individual differences unrelated to specific stressor conditions. Questions of reliability of measurement are raised when a person's scores on a test differ from one day to the next. The current limitations of measurement reflect the difficulties of measuring complex, whole persons by using relatively simple linear tools which focus on a particular aspect or part of the whole.

Problems of Control and Validity

Control of extraneous variables must be a major concern in stress/adaptation research, especially field research. A multitude of variables, interacting in complex ways, are present in clinical or field tests. Field studies are especially vulnerable to problems of internal invalidity. The researcher may not be able to state with confidence that the experimental treatment was responsible for the results since uncontrolled extraneous variables may have contributed to the results.

Laboratory studies, on the other hand, are vulnerable to problems of external invalidity. Results of stress/adaptation research based on a narrow sample in a tightly controlled laboratory setting may not be generalizable to a more realistic stress situation or to a larger population. To be meaningful, a study should demonstrate both internal and external validity.

Ethical Problems

Created stress conditions especially in laboratory research settings can evoke

104 unpleasant, and possibly traumatic, effects. The investigator is obliged to fully inform the subject about the research purposes and procedures in order to minimize any unpleasant experiences and to explain after the experiment the exact nature of the procedures. This is especially necessary if deceit is involved, such as asking subjects to solve unsolvable problems.

The ethical need for informed consent introduces the possibility of bias related to the subject's awareness of the study's goals and methods. The question of how much information to give subjects to protect their rights while avoiding bias is a serious problem. The potential danger of long-term effects, such as lowered self-esteem, must be recognized as an unacceptable hazard in stress research.

RECOMMENDATIONS

The study of stress and adaptation, as well as of related concepts, will continue to be an important concern of nursing research and the evolution of nursing theories. Researchers must avoid the confusion of nursing theories. Researchers must avoid the confusion related to the concepts of stress and adaptation by defining and clarifying these concepts for themselves in a manner that reflects their purposes.

Nurse researchers undertaking a study of stress and adaptation should consider several important questions.

1. What are my conceptual definitions of stress and adaptation?
2. What are my operational definitions of stress and adaptation?
3. Are reliable and valid measuring instruments available to measure the variables?
4. Can a subject's right to informed consent be protected without biasing the study?
5. What environmental variables might influence the study? Can they be controlled?
6. Are resources such as time, money, energy and expert assistance available to support the study?

Answers to these questions may provide the nurse researcher a basic framework in which to proceed while investigating these important concepts in nursing.

Reference

¹Selye, H. *The Stress of Life* (New York: McGraw-Hill Book Co. 1956).

Loucine M. D. Huckabay, R.N., Ph.D., F.A.A.N.,
University of California, Los Angeles:

CONCEPTUALIZATION OF STRESS AND ADAPTATION

The concepts of stress and adaption are an integral part of nursing science. These concepts may be expressed in different terminology or in different context, but the essence of nursing science deals with the identification of stressors that impinge on the patient by: describing their manifestations (actions and reactions); evaluating

The essence of nursing science deals with the identification of stressors that impinge on the patient.

patient's reaction (behavior) to these stressors; intervening when patient's coping mechanism is deficient or maladaptive; determining preventive measures to remove or control stressors; and investigating the entire phenomenon (precursors,

antecedents, manifestations, consequences, effectiveness of interventions).

A *stressor* is a stimulus or a stimulus condition that produces stress reactions in the organism—in our case, the patient, client, family or community. A stressor may be biophysiologic, psychologic, sociocultural and economic in nature. Stress, according to Selye, "is a state manifested by a specific syndrome which consists of all the nonspecifically induced changes within a biologic system."^{1(p54)} The stress syndrome manifests itself in symptoms that are exhibited in the organism's biophysiological and psychological system. Selye has observed such adverse symptoms in the organism as enlargement of the adrenal cortex, intense atrophy of the thymus gland, spleen, the lymph nodes, bleeding and deep ulcers in the lining of the stomach and duodenum. All these symptoms adversely affect the health, behavior and functioning of the organism.

The degree or the severity of the manifestations of stress is dependent upon the organism's or the individual's coping or adaptive mechanism. One such coping mechanism in the individual is knowledge about the stress-producing situation. According to Janis, knowledge about the stressor reduces the severity of the stress reaction.² Another coping mechanism is the amount of control the individual has over the stressor. According to Lefcourt, the extent to which the individual feels he has control over the situation is inversely related to how stressful the circumstance is perceived to be.³ If the locus of control is internal to the individual, he will perceive the situation to be less stressful. If the locus of control is external to the individual, he will perceive the situation to be more stressful and will feel powerless to do anything about it. Lefcourt defines *internal and external control* as "the perception of

positive and/or negative events as being a consequence of one's own actions and thereby under personal control; external control refers to the perception of positive and/or negative events as being unrelated to one's own behaviors in certain situations and therefore beyond personal control."^{3(p207)}

Roy perceives stressors to be stimuli that originate or exist under three circumstances: focal, contextual, and residual.⁴ *Focal stimuli* are those stressors that are currently present and affect the individual adversely—e.g., an infection in the patient causing pain or high temperature. *Contextual stimuli* are those stressors that exist in the individual's environment—e.g., the presence of noise or another person or the temperature in the room, etc. *Residual stimuli* are those that the individual has had past experience with under similar conditions—e.g., a past history of repeated throat infections, hospitalization, etc.

Individuals react, cope and adapt to these stimuli in four ways: physiological, self-concept, role mastery and interdependence. The patient's goal is to cope and adapt to the stressors; the nurse's goal is to help the patient adapt to the stressors on those four modes of adaptation. Even though Roy's adaptation conceptual framework for nursing practice and education has not been tested for applicability and comprehensiveness, there are several schools of nursing that have adopted her conceptual framework for curriculum development.

With respect to the question of whether there are known alternate conceptualizations of these phenomena that would be of greater value to nursing science and practice, there is no doubt that Selye's, Janis's, and Lefcourt's theories on stress, coping mechanisms and locus of control have been amply tested in medicine and psycho-

logical studies with both humans and animals. The potential for applicability in nursing is very great. Roy's conceptual framework for nursing practice and education is a good start, however, it lacks testing and verification for applicability and comprehensiveness. It seems that many graduate nursing students who have attempted to use her conceptual framework to develop patient assessment tools, feel the three modes of adaptation—self-concept, role mastery and interdependence—overlap each other tremendously. It seems to me that both role mastery and interdependence are aspects of self-concept.

RESEARCH NEEDED

It is my opinion that the status of nursing science is such that until we have tested

the different theoreticians' viewpoints on stress and adaptation and their integrity, comprehensiveness and applicability to nursing practice and education, nursing will benefit the most from an eclectic approach.

Research is desperately needed in:

1. Identifying and describing the nature of stressors that impinge on the patient, client, family, or community;
2. Measuring the effects of stressors on patients' behaviors;
3. Assessing the variables that affect patients' behaviors/actions and reactions in response to the stressor?
4. Prescribing and testing interventions through a system of quantitative research (experimental research design).

Until we have tested the different theoreticians' viewpoints on stress and adaptation and their integrity, comprehensiveness and applicability to nursing practice and education, nursing will benefit the most from an eclectic approach.

References

- ¹Selye, H. *The Stress of Life* (New York: McGraw-Hill Book Co. 1956).
- ²Janis, I. *Psychological Stress* (New York: John Wiley & Sons, Inc. 1958).
- ³Lefcourt, H. "Locus of Control and Acceptance of One's Reinforcement Experience." *Colloquia* (1974).
- ⁴Roy, C. "The Roy Adaptation Model" in Riehl and Roy, eds. *Conceptual Models for Nursing Practice* (New York: Appleton-Century-Crofts 1974).