NURSING RESEARCH

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Nursing Research II

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Nursing Research I

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Preface

THE purpose of *Nursing Research II* is basically the same as that of the first volume in this series. The material is aimed at the beginning researcher, who has a master's or doctoral degree. The subject is specific clinically oriented researches in nursing. Selected investigations exemplify the scientific method or research process in clinical settings.

Each contributing author is either a nurse researcher or a scientist who has worked very closely with nurses in research. Because nursing research is still in its infancy compared with other disciplines, nursing must rely on other professions to assist with its beginning investigations.

As in the earlier volume, the collaborative approach attempts to bridge the gap between nursing and other areas of scientific endeavor.

To build a solid foundation of research for a growing profession is a long, slow process, and contributions will be required from a broad range of disciplines.

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Nursing Research in a Clinical Setting

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THE conduct of research in nursing related to patient care has been plagued with multiple problems. There are few precise measurements for investigating nursing care to patients. Also it is difficult to maintain tight controls in a patient setting, the clinical laboratory of the nurse-researcher. Some investigators in nursing have been able to overcome successfully these difficult barriers to carrying out clinical research. It is their examples in Part I of this volume that will assist the beginning nurse researcher, for it includes contributions by three outstanding nurse-researchers. The problems that they study are directly related to the improvement of patient care.

The first chapter, by Dr. Faye Abdellah, deals specifically with the development of criterion measures for research in nursing. Specific sources and types of criterion measures are listed and the extension of their application in the study of nursing phenomena is described in detail. Dr. Abdellah has pulled measures together from a wide variety of sources as well as from her own experience.

Dr. Virginia Cleland, the author of Chapter 2, discusses general research in the clinical setting. Dr. Cleland also presents in detail

two researches in which she has been involved. One is the study of the effect of stress on performance, and the other is the prevention of bacteriuria in female patients with indwelling catheters. Clinical investigations in nursing leading to the prevention of complications or illnesses are truly pioneering efforts. The study of preventing urinary infections is an excellent blueprint for nurses interested in clinical research pursuits.

In the final chapter of Part I Donna Diers and Ruth Litfin Schmidt present their work on interaction analysis in nursing research. Direct and systematic observation in the clinical setting produces data that may serve as a basis for developing a theoretical framework. The problems encountered in clinical research are realistically outlined, and excellent guidelines are presented for nurse researchers.

The combination of the three chapters in Part I is a relatively comprehensive guide for nurse-investigators by four nurse-authors who have had first-hand experience in patient-oriented research.

Criterion Measures for Research in Nursing

Faye G. Abdellah

I

IN the face of the complex problems associated with the organization, financing, administration, and delivery of health services, there is a growing consensus concerning the need for innovation and experimentation if the United States is to succeed in fulfilling goals declared by Congress, which call for making available to all persons the optimum level of quality health care economically feasible.

One of the more promising approaches for resolving the complicated issues involved in the management and delivery of health services appears to lie in research and the application of interdisciplinary skills not commonly represented in the health field, e.g., systems management and operations research, computer and information sciences, mathematics and quantitative methods, managerial economics, political science, and other relevant disciplines. The introduction of such interdisciplinary skills into health-services research, although necessary, is not sufficient. Of equal importance is the need for nurse-researchers who can deal with some of the real problems important to nursing practice. What is important to nursing practice or nursing education, or both, is determined by criterion measures.

NEED FOR DEVELOPING CRITERION MEASURES

The failure of the nursing profession to formulate agreed-on goals and health priorities reflects one of the key problems encountered in trying to define criterion measures against which to evaluate the effects of services provided. Nurses themselves cannot agree on measurable criteria for effective nursing care. First, let us define a criterion measure. It is a comparison, object, rule, standard, or test for making a judgment, especially a qualitative judgment, and it may serve as the basis for assignment to a class or category. It is also the behavior goal by which progress is judged. Thus a criterion is an external basis for judgment. The criterion variable is sometimes referred to as the dependent variable. A *criterion measure* is a score or a value in the dependent variable or in the variable to be predicted.

Unlike the use of criterion measures in controlled laboratory research, in which the organism being studied is in a controlled environment, such as in a test tube or cage, in nursing these measures must be employed in the framework of the patient's complex environment. Since there are so many extraneous variables in the situation, both organismic and environmental, it is exceedingly difficult to keep the variables under sufficient control. There is a recognized lag in the development of studies in clinical nursing practice. This lag is attributable to the large number of methodological problems that are very difficult to solve. One of the most important problems is the development of criterion measures of nursing effectiveness.

Assessment of quality of care must rest on a conceptual and operational definition. The definition of quality nursing care is very elusive and very difficult to describe. Some investigators feel that criteria of quality are nothing more than value judgments that are applied to several aspects, properties, ingredients, or dimensions of a process called nursing care. As such, the definition of quality may be almost anything anyone wishes it to be, although it is a reflection of the values and goals apparent in the nursing-care system and in the society of which nursing is a part.

The difficulties in identifying criterion measures in nursing have directed much of the research in nursing into areas that are more amenable to research, e.g., the study of the nurse – what she does, how much time she spends on patient care, and so forth. This

knowledge has value in that it helps to identify problem areas that need to be studied in more depth. Ultimately, however, the nurse as she practices must be measured against the effects (criterion measures) of nursing practice on the patient or client. Likewise, studies of the role of the nurse have value in giving direction to the nursing profession but lack specific information on the effect of practice on patient care. These studies will have little decisive impact on the improvement of nursing practice if there are no adequate criterion measures to evaluate the effects of changed practice on patient care.

Measurements of patient care, in terms of valid and reliable criterion measures, are a crucial part of research in nursing. That the measurement of the effects of nursing practice on patient care continues to be identified as the number one priority for nursing research reflects the difficulties being encountered in finding valid and reliable measures. Measurement of the effectiveness of patient care can be approached by evaluating the adequacy of the facilities in which patient care is provided, the operating policies of the administrative and organizational structure of the agency providing patient care, the professional qualifications and competency of personnel providing the care, and the evaluation of the consumer of the care, namely, the patient or client and the larger public.

EVALUATION OF QUALITY OF CARE

An important question to be raised is: "What is to be measured?" One might develop a list of qualities to be measured and then look at the presence or absence of each quality listed. One might also attach a weight to the qualities, reflecting the importance of each quality. One might also select the qualities that are so important that if they were absent, the quality of care would assuredly be low. One might also select only those qualities that have experimentally determined measurability, validity, and reliability. Evaluation of the quality of care has sometimes been developed to such a degree of mathematical sophistication that those who first attempted to apply it have had to bypass it and have found that it could not be applied on a day-to-day basis.

The nurse-researcher can take some initial steps to assure that the development of the evaluation of the quality of care is being carried out properly. One must first choose the qualities that comprise the criterion measure or dependent variable. Weights must be attached to these in terms of priorities. There must also be specified measures of degrees of presence of these qualities. The researcher then combines this array in some functional form or forms. Figure 1 depicts the principles and sequence for utilizing criterion measures.

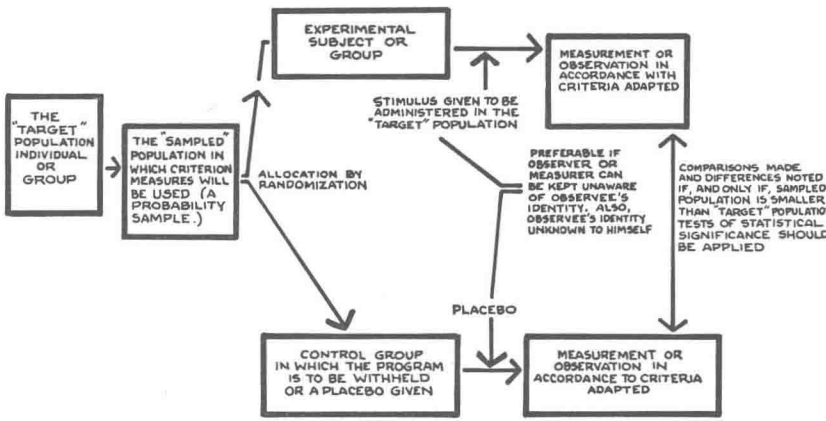

Fig. 1-1. Flow chart showing principles and sequence to follow in using criterion measures.

Nurse-researchers become discouraged in accomplishing goals of the research design. Frequently the measures are too complex, or the day-to-day documentation is either too tedious or not visibly relevant to what is going on in the real-world setting. As a result substitute measures are used or approximated and become lost in the data acquisition. This results in the consumption of so much time and so many resources that judgments are made that the documentation is not worth the effort.

RECOGNITION OF SIGNIFICANT CRITERIA

The major achievements or breakthroughs in nursing need to be defined in terms of the following characteristics: First, they have

to involve a new perception of relationships or they have to result in new operations, including scientific ones. Specifically they have to help people to see something not perceived before as represented by new discoveries or new verifiable propositions. A second essential condition, whether perceptual or operational, is that they should prove fruitful in producing a substantial impact that leads to further knowledge. Important advances typically will define combined theory, methods, and results. Scientific advances usually cut across at least two of these aspects and often across all three of them.

SELECTION OF CRITERION MEASURES

The criterion measure(s) selected will be influenced by the research problem and the hypotheses that were developed to explore the problem. After defining these variables as concretely and operationally as possible, the researcher must decide how the dependent variable will be measured, i.e., whether it will be a direct or an indirect measurement. This decision will be influenced by the ease with which the variable can be directly measured and the extent to which a subtler measure might yield more meaningful data. In most studies the researcher has available a variety of criterion measures to assess the dependent variable. If the variable can be measured in terms of a physiological response, there are available many scientific measuring instruments, yielding highly refined numerical measurements, that might serve as criterion measures. For example, useful physiological criterion measures include, among others: urinary specific gravity, pH, hematocrit, hemoglobin, arterial pressure, blood and plasma volume, temperature, cardiac output, clotting time, prothrombin time, osmolarity (blood and urine), and nitrogen balance.

If the variable is within a psychological or sociological phenomenon, satisfactory testing scales can also be employed. Such variables as personality, motivation, perception, creativity, abilities of all types, intellectual mechanical aptitudes as well as a variety of social attitudes can be measured by using ordinal scales and standard pencil and paper instruments. If this research has already been completed, the researcher has to accept the measures of the