
Moral Reasoning and Moral Behavior Among Selected Groups of Practicing Nurses

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This study examined the relationship between moral reasoning and moral behavior in 79 practicing nurses. Moral reasoning was measured by Rest's Defining Issues Test. Judgments about Nursing Decisions (JAND), developed by the investigator, was used to measure moral behavior. JAND is comprised of seven stories, each depicting a nurse in an ethical dilemma, with a total of 48 items. It measures two components of moral behavior: knowledge and valuation of ideal moral behavior and perception of realistic moral behavior. The hypothesis that moral reasoning would be positively related to knowledge and valuation of ideal moral behavior was tested by Pearson product moment correlation; the obtained coefficient of .28 was significant at the .01 level. The hypothesis that moral reasoning would be positively related to nurses' perception of realistic moral behavior was also tested by Pearson product moment correlation; the obtained coefficient of .19 was significant at the .05 level. Additional analyses showed significant differences in the knowledge and valuation component of JAND between educational groups, ethnic groups, age groups, and years of practice in nursing; but, there were no differences between these groups with respect to the perception of realistic moral behavior component of JAND. Implications of the findings for nursing practice, education, and research are discussed.

Evolving changes in society, and in the profession of nursing, have led to a realignment of the functions and roles of nursing personnel and, concomitantly, brought about scrutiny of their ethical dimensions. Political, scientific, and social events of the past decade have aroused public awareness on moral discourse. The professions have been forced to address this issue, albeit slowly and reluctantly.

Curricula in the health professions are beginning to place emphasis on humanistic studies and to assist students to reason adequately about moral choices. In addition, the health professions are attempting to inculcate certain values in their

students to enable students to reason critically about ethical issues and to enhance their ethical decision making. This study examined the relationship of the way nurses reason about moral choice and the content of decisions they make in ethical dilemmas.

Problem

Two facets of the problem investigated were: Is there a relationship between moral reasoning and knowledge and valuation of ideal moral behavior in nursing dilemmas? Is there a relationship between moral reasoning and nurses' perception of realistic moral behavior in nursing dilemmas?

Review of the Literature

Moral Development. Moral development, designed to stimulate moral reasoning, is a major approach to values education. For a discussion of moral development, based on the work of Keasey (1975), Kohlberg (1973, 1978), Piaget (1965), and Rest (1974 b), see Ketefian (1981, pp. 98-103).

In the last few years nurse investigators have studied moral reasoning among nurses. Murphy (1976) found that 95 percent of her sample of 120 nurses were at the conventional level of moral reasoning. When Munhall (1979) studied moral reasoning levels of 15 nurse faculty, and groups of freshman, sophomore, junior, and senior nursing students, she found no significant differences among the four student groups, although there were significant differences between students and faculty. Students tended to be at the conventional level, while faculty were at the principled level. Findings from these two studies are not directly comparable because of differences in types of samples utilized and, most importantly, because of differences in the tools used to measure moral development.

Ketefian (1981), utilizing a sample of practicing nurses, found a significant and positive correlation between critical thinking and moral reasoning ($r = .5326, p = .001$), which confirmed Keasey's, Kohlberg's, and Piaget's contentions.

Factors other than cognitive and intellectual development

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This article is part of ongoing research. In an earlier article titled "Critical Thinking, Educational Preparation, and Development of Moral Judgment among Selected Groups of Practicing Nurses," (Ketefian, 1981), moral judgment was utilized as a dependent variable. In the current article, moral judgment, measured by the Defining Issues Test, as it was previously, is studied as a predictor of moral behavior. Data for both articles were obtained from the same sample. Therefore, this article presents the sections on the Defining Issues Test, procedures for data collection and human subjects' protection, in synopsis form. The reader is referred to the article by the same author in the March-April issue of this journal for additional details on these sections.

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are thought to affect moral development. Social and educational climates are said to be crucial; environments that provide opportunities for participation, shared decision-making and assumption of responsibility for consequences of action tend to stimulate moral judgment development (Kohlberg, 1971, p. 183). Also, if the educational process intentionally creates cognitive conflict and disequilibrium by showing inadequacies of a person's mode of thinking, the individual is stimulated to seek higher and more adequate levels of moral reasoning (Rest, Turiel, and Kohlberg, 1969).

Individuals can respond to and assimilate verbalizations of concepts that are one stage above their own (Rest *et al.*, 1969). That is, the teacher who is to create the cognitive disequilibrium needed to assist the upward movement of students' moral development must be at a higher level of moral reasoning. While the majority—though not all—of the nurse instructors in Munhall's (1979) study were at the principled level, their direct impact is difficult to assess from that study. The faculty sample was small and while they *may* have been instrumental in helping upward stage movement in the students, the design and one-time measurement might have failed to detect such change. To depict change and to assess how enduring such change might be, longitudinal studies are needed. The distressing point remains that the four academic groups of students in the same nursing program were not significantly different in their moral reasoning levels. This finding is especially important in view of the fact that education has been demonstrated to account for the greatest part of the variance in moral development through numerous studies (Kohlberg, 1973; Rest, 1975, p. 79, and 1976a).

The centerpiece of Kohlberg's work on moral reasoning, and of authors mentioned so far, relates to the *reasoning process* about moral choice, as opposed to the *content* of the choice. Thus, it is possible for two persons to be at the same moral development stage and yet indicate completely different answers to a moral dilemma. For example, in a typical story in which a man is faced with the possibility of stealing a drug to save his wife's life, one respondent might say "yes, he should steal," while another might say "no, he should not steal." Depending on the nature of the justification they offer and the reasons they give, both persons may be at the same stage, or at different stages.

Moral Reasoning and Moral Behavior. An implicit assumption prevails in the literature that persons at higher moral reasoning stages are more likely to act "morally" than those who are at lower stages. Such an assumption appears to be more inherent in the definition of postconventional, principled reasoning than one based on a body of empirical evidence. Thus, the suggestion has been advanced that a nurse who is at the principled level of moral reasoning would tend to question authority and would abide by social norms to the extent that they serve human values (Munhall, 1979). Similarly, Murphy (1976) contended that movement to principled thinking enables a nurse to act as a morally responsible agent and as advocate for patient rights. These statements, and others similar, suggest at once that an inference is being made from the thought process to the content of the moral choice, or to the nature of the moral act itself. They also point up the perennial philosophical and unresolved question: Is ethics grounded in process, content, a combination of the two, or does it reside elsewhere?

It is not the intent of this article to resolve this philosoph-

ical dilemma. Rather, given the nature of our complex health care delivery system and the importance of the nurses' role in that system, it is proposed that the public has a right to expect that nurses practice "morally," according to established standards, and, further, that they do so with thought and "reflection"—in essence, that they act "morally" for the "right" reasons (as opposed to actions based on intuition, self-interest, pragmatic considerations, and so on).

Fenton (1978) addressed the relationship between moral reasoning and moral action in a suggestive study. An experimenter requested subjects to fill out and return a form for which a stamped, addressed envelope was provided; the experimenter told the subjects that failure to return the form on time would result in her failing a course. Only 30 percent of subjects at stages 2 and 3 returned the form on time; 70 percent of stage 4 subjects and 100 percent of stage 5 subjects did so. The study, though revealing, is hardly conclusive.

Despite views advanced by certain authors about the inadvisability or unconstitutionality of teaching values (Kohlberg, 1971; Wilson, 1978), society expects professionals to practice with certain ethical standards—values, if you will. To this end, most established professions have evolved a code of ethics according to which its members are expected to practice. That these codes endorse certain values which a given professional group intends to uphold is clear. Some of the questions that have continued to be debated, however, relate to: What are the most effective methods or strategies to inculcate and teach those codes and values in the professional curriculum? How can a profession most effectively monitor violation of its code by its members?

The nursing profession first endorsed a code in 1950. Since then the code has been revised and updated periodically to meet the demands of evolving practice. As the code has evolved, there has been a shift from a prescriptive approach, addressed to the personal conduct of the nurse, toward endorsing universal ethical values that are intended to be applicable in a wide range of situations. The present Code for Nurses (American Nurses' Association, 1976) is intended to serve as a general guide to nurses for resolving ethical conflicts that arise in practice.

The standards of behavior articulated in the code are high, and in many cases far exceed the requirements of the law (ANA, 1976, p. 1). In this sense, therefore, it depicts ideally desirable behavior.

Ethical behavior on the part of anyone "presupposes an agent who is free of undue coercion in decision making" (Curtin, 1978, p.7). It has suggested that in many cases the nurse is not a free agent. Curtin (1978) groups ethical dilemmas nurses face into two categories: "(1) Those which arise as to institutional policies and physician orders regarding medical care, and (2) those which arise from the usurpation of the legitimate authority of the nurse vis-à-vis nursing decisions regarding nursing care" (p. 8). Jameton (1977) contended that the nurse often has many responsibilities, but little authority, and that nurses have to deal with many ethical conflicts arising as a result of their complex roles, or their position in the organizational hierarchy. He referred to these as the "nurse in the middle" problem (p. 22). Given these realities, therefore, it would seem that in describing and measuring moral behavior provision needs to be made to address professional behaviors considered ideally desirable, as well as the extent to which such behaviors are perceived to be imple-

mented, given the constraints that exist in reality.

On the basis of relevant theory, it was logical to postulate that the degree of a person's moral development will affect the degree to which that person's nursing actions are ethical.

Hypotheses

The following hypotheses were tested:

- I. There is a positive relationship between moral reasoning and knowledge and valuation of ideal moral behavior in nursing dilemmas.
- II. There is a positive relationship between moral reasoning and nurses' perception of realistic moral behavior in nursing dilemmas.

Method

Definition of Terms. In this study, terms were defined as follows:

Moral Development. A cognitive and developmental process of moral reasoning depicting a sequential transformation in the way social arrangements are interpreted. Each successive stage is more complex, comprehensive, differentiated, and effective than the preceding stage and is characterized by distinctive ways in which moral dilemmas and crucial issues are evaluated. It is measured by the Defining Issues Test (Rest, 1976b).

Moral Behavior. Nursing actions in simulated ethical dilemmas that are in accord with the tenets of the Code for Nurses (ANA, 1976). Moral behavior is measured by the Judgments about Nursing Decisions (JAND) instrument developed by the investigator, which has two components and yields two separate scores for each respondent (column A and column B).

Knowledge and Valuation of Ideal Moral Behavior. Nursing actions in simulated ethical dilemmas that reflect respondents' knowledge of, and upholding of, values as expressed by the Code for Nurses. It is the score on column A of JAND.

Perception of Realistic Moral Behavior. Respondents' assessment of the extent to which nursing actions in simulated ethical dilemmas that are in accord with the Code for Nurses are likely to be implemented in practice. It is the score on column B of JAND.

Sample. A profile of the respondents was given in Ketefian (1981, p. 101).

Setting and Procedure. One hundred fifty-eight packets were distributed to registered nurses who practiced in three major medical centers, after they voluntarily agreed to participate. Nurses were assured of anonymity. Each packet contained a copy of the Defining Issues Test (labeled Opinions about Social Problems), the Judgments about Nursing Decisions, a personal information sheet, directions for completing the tests, and a cover letter from the investigator describing the nature of the study and procedure and providing an address and phone number where the investigator could be reached.

Within four weeks of distribution 115 packets (72 percent) were returned, of which 25 were not completed. Ninety questionnaires were scored, of which 11 subsequently had to be eliminated for various reasons. A total of 79 responses were used for the analysis of the data, and comprised exactly 50 percent of the packets distributed.

Instruments. *Judgments about Nursing Decisions.* This self-administered, objective test contains seven stories depicting

nurses in ethical dilemmas. Each story is followed by a list of nursing actions, ranging from five to eight items. For each nursing action respondents check "yes" or "no" twice: first, in column A, whether they thought the nurse experiencing the dilemma in the story *should* or *should not* engage in that action; second, in column B, whether they thought the nurse experiencing the dilemma is *likely* to engage in the nursing action. Each column has 48 items.

The stories are hypothetical, yet they were drawn from a pool of 100 stories practicing nurses provided from their own experiences. A group of nurse clinicians assessed the dilemmas in the stories to ascertain that they represent realistic occurrences in nursing practice situations. No effort was made to include all possible kinds of dilemmas that nurses might face. Effort was made to avoid certain ethical issues, such as those that deal with termination of life support systems or with genetic engineering, since such situations do not occur on a daily basis. The seven stories confront such issues as threats to patient safety because of understaffing, incompetent, and/or unethical conduct of nurse colleagues or other professionals; demands from clients for the "truth" about their condition when the nurse knows the patient has been lied to; or client self-determination in the face of other demands on the nurse.

After the stories were constructed and their representativeness ascertained, 12 practicing nurses discussed the dilemmas and generated a series of nursing actions for each story. Following this step, 8 nurses, who are nationally recognized authorities in nursing ethics and who are closely associated with the Code for Nurses, rated *each* nursing action, for *each* story, on a scale of one to five, the degree to which the nursing action embodied ethical nursing behavior advocated in the code. As a result of this validation process each nursing action was assigned a weight for scoring.

VALIDITY. The instrument has content and face validity in two respects. First, JAND includes a reasonably representative sampling of the domain of ethical nursing conflicts; second, all items in the tool were assessed and evaluated by experts in terms of the extent to which each embodies the tenets of the code, which served as the standard for moral behavior in the present study.

RELIABILITY. When the instrument was administered to 63 nurses in a pilot test, an internal consistency test, using coefficient alpha, yielded an alpha of .70. Item analysis led to further refinement and elimination of a few weak items. The final instrument used in the present study has 48 items and measures two—instead of one—dependent variables. One variable, called "knowledge and valuation of ideal moral behavior in nursing dilemmas," is the respondent's score on column A; the second, "perception of realistic moral behavior in nursing dilemmas," is the person's score on column B.

Defining Issues Test (DIT). This highly structured, self-administered test incorporates six hypothetical stories with a moral dilemma. For each story the subject is presented with a list of 12 issue statements bearing on that situation, each of which represents a moral judgment stage. Each stage has a distinctive way of defining and evaluating a social-moral dilemma and the particular issues of greatest concern. Subjects are asked to rate each of the 12 statements in a story according to the importance they would give it in making a

decision about the dilemma; the way subjects judge the most important issues indicates their appreciation of stages in analyzing moral dilemmas (Rest, Cooper, Coder, Masanz, and Anderson, 1974, p.492). After subjects rate each issue on a scale of importance ("most," "much," "some," "little," "no"), they are asked to rank the four most important ones according to "most important," "second most important," "third most important," and "fourth most important."

VALIDITY. Based on the presumption that moral judgment develops with age and maturity, four groups were tested with the DIT to see if it produces variability in average scores; these consisted of 40 subjects each of pupils from junior high school (age 14), senior high school (age 17 to 18), college juniors and seniors, and graduate students, 25 of whom were seminarians, and 15 of whom were doctoral students in political science and moral philosophy. One-way analysis of variance on P scores across the four groups gave an *F* value significant beyond the .01 level (Rest, 1974a, p. 5-1). In another study with 16 samples, involving 1,500 subjects of different age groups, Rest (1974a, pp. 5-2 to 5-5) reported a correlation between age and DIT, showing higher scores for groups presumed to be at advanced developmental levels. Forty-seven subjects were tested with Kohlberg's scale and the DIT, yielding a correlation of .68, providing evidence of criterion validity for the DIT.

RELIABILITY. A test-retest correlation of .82 was reported when 28 ninth graders were tested two weeks apart (Rest, 1974a, p. 5-9). In a study by McGeorge (in Rest, 1974a) of 47 college freshmen tested 18 days apart, a correlation of .65 was reported.

Personal Information Sheet. This data-gathering instrument was designed to obtain relevant information on personal variables, such as type of nursing education, length of experience in nursing, age, sex, religion, ethnic group identification.

Data Analysis. Judgments about Nursing Decisions was scored by giving a weight of one for an "appropriate" nursing action and zero for an "inappropriate" nursing action. Scoring the items in this manner was based on expert consensus described earlier. For some items "yes" and for others "no" was "appropriate." For each subject two scores were computed. First, for column A, all the "appropriate" responses were added to yield the subject's score for "knowledge and valuation of ideal moral behavior in nursing dilemmas" variable. Second, for column B, all the "appropriate" responses were added to yield the subject's score on "perception of realistic moral behavior in nursing dilemmas" variable. These scores were utilized in data analyses.

The DIT was scored according to instructions provided by Rest (1974a). Only the four *rankings* of the "considerations" for each story were scored. Weights of 4, 3, 2, 1 were assigned to the considerations ranked in order of importance as 1st, 2nd, 3rd, and 4th, respectively. For each stage, a total score was computed by adding the numbers on that column for all six stories. To obtain the "principled" morality score, P, the subtotals for stages 5A, 5B, and 6 were added, the P scores thus arrived at were utilized in data analyses.

The means, standard deviations, and ranges for study variables appear in Table 1.

Table 1. Means, Standard Deviations, and Ranges of Scores on Defining Issues Test (P) and Judgments about Nursing Decisions (Columns A and B) (N=79)

VARIABLE	\bar{X}	S.D.	Range
DIP (P)	26.03	9.84	44
JAND			
Column A	40.49	3.60	15
Column B	32.07	5.52	25

Hypothesis I was tested by computing the Pearson product moment correlation between P scores and column A scores of JAND; hypothesis II was tested by computing the Pearson product moment correlation between P scores and column B scores of JAND.

Results

Hypothesis I. The correlation between P scores of the DIT and column A scores of JAND yielded a coefficient of .28, significant at the .01 level; on the basis of this analysis, hypothesis I was upheld. Principled thinking scores predicted 8 percent of the variance in column A.

Hypothesis II. The correlation between P scores of the DIT and column B scores of JAND yielded a coefficient of .19, significant at the .05 level; on the basis of this analysis, hypothesis II was upheld. However, P scores predicted only 3 percent of the variance in column B scores, which was not impressive.

Additional Analyses. Further analyses were carried out between personal variables and columns A and B. Analysis of variance indicated significant differences between ethnic groups for column A scores ($F [5,72] = 3.00, p = .01$); since minority group representation in the sample was small, minority groups were combined ($N = 18$), and the group mean of 38.50 was compared to the Caucasian group ($N = 60$), with a mean of 41.10. A two-tailed *t* test showed significant differences between the two groups ($p = .05$).

Differences were noted between years the nurse had been in practice and column A scores ($F [3,75] = 4.84, p = .01$). Scheffé's contrast showed that nurses with less than one year of experience (mean = 42.69) had significantly higher scores on column A than those with 10 or more years of experience (mean = 38.70) ($p = .05$).

Analysis of variance also showed significant differences in the column A scores between age groups ($F [3,60] = 5.6, p .01$). Scheffé's procedure was applied. Because of the small number of subjects in the older groups, they were collapsed into one category of 36 years and older ($N = 14$), and their mean of 37.79 was compared to the mean of under 25 group (mean = 41.72, $N = 22$), and the 25-35 group (mean = 40.74, $N = 27$). The latter two groups were homogeneous, while the older group was significantly different from the other two groups ($p = .05$).

When the same variables were analyzed in relation to column B scores, no notable relationships were found.

Education and Moral Behavior. When the 43 nurses with professional education and the 36 with diploma or associate degree preparation were compared with respect to their column A and column B scores and when column A and B scores for each group were compared separately, a two-tailed

Table 2. Comparison of Mean Differences for Moral Behavior for Entire Sample, and Between and Within Educational Groups, by *t* Test

Group	<i>t</i> VALUE	df	<i>p</i> VALUE
Entire sample (for columns A vs. B)	12.45	78	<.01
Professional nurses (for columns A vs. B)	9.49	42	<.01
Nursing technicians (for columns A vs. B)	7.98	35	<.01
Professional vs. technical (for column A)	-3.39	77	<.01
(for column B)	-1.73	77	>.01

t test showed significant differences for column A scores, but *not* for column B scores (Table 2). When column A and B scores were compared for each educational group, however, using a two-tailed *t* test, there were significant differences, indicating that both groups had a significantly different response pattern for column A than they did for column B (Table 2).

Discussion

The theory that the *process* of moral reasoning is related to moral behavior—using the Code for Nurses as the standard for the latter—is supported by this study. This relationship was stronger with the “knowledge and valuation” component of moral behavior than for “perception of realistic moral behavior.” Part of the explanation for the smaller magnitude of correlation in the latter instance might reside in the fact that nurses may have been placed in the position of predicting someone else’s behavior, or giving their *assessment* of what they thought would actually happen, as opposed to what they themselves would do in the dilemmas. If this is the case, the validity of any inferences from such an assessment to what the respondent herself might actually do are open to question. This area needs further methodological investigation. McGuire *et al.* (1976) provided a strong case for the validity of simulations and inferences drawn from them; it is not clear, however, whether an inference could more validly be made if the question asked—for column B—were “If you were Nurse X, what would *you* do?” as opposed to the question that *was* asked, “What do you think Nurse X is realistically likely to do?”

The significant differences found between Caucasian and minority groups may indicate that the values these groups may have acquired from their respective cultures are different to start with. Further, it may mean that the educative process of nursing sustains such differences, or is unable to transcend them by focusing on the teaching of appropriate professional behaviors.

Auxiliary data tend to indicate that the “knowledge and valuation” of younger nurses and those with less than one year of experience was significantly higher than that of older and more experienced nurses. This might indicate that either nursing experience and/or age in some way attenuates earlier learning and acquisition of professional values attained while at school. Precisely why this occurs is open to question. Is this a normal process? Is it because nursing education focuses on the teaching of specific facts, which are readily forgotten, as opposed to education that is concept-based and generalizable? Does this reflect the inability of organizations to support and enhance the educationally acquired values new graduates bring with them? Do nurses continue to feel

that their education prepared them for a lifetime of practice, and fail to pursue avenues for professional development? A plausible explanation may reside in any one or a combination of the above.

Another finding related to the fact that type of educational preparation was an important variable in relation to both moral reasoning (Ketefian, 1981) and moral behavior. There has been a long-standing debate in the nursing literature about the differences, merits, and demerits of educational programs in theory and in practice. This study demonstrates that professionally prepared nurses have higher levels of moral reasoning and more adequate moral behavior than nursing technicians. This study supports that differences exist with respect to acquisition of certain knowledge and values, as well as reasoning process. However, no differences were found to exist in the way the two educational groups perceived what would actually be done, and the responses of both groups to column A were significantly different from that of column B; also, the responses on column B for these two educational groups were *not* significantly different.

It is most distressing, therefore, that nurses’ knowledge and values do not seem to be translated to reality. It is not clear if this is a self-fulfilling prophesy. Most health care institutions do not clearly distinguish the functions and areas of responsibility of nursing personnel commensurate with education, knowledge, and skills. This phenomenon could partly be a reflection of the “shock” new and inexperienced nurses feel (Kramer, 1974) upon entering large bureaucracies. In other words, such systems might unwittingly be forcing new and young graduates to change their professional orientations to endorse values of the organization; these nurses may be facing the choice of making such a change in their values or leaving the setting or nursing.

There are ramifications for nursing service as well as for education. Modes for enhancing moral reasoning levels can lead to sound moral decision-making. Moreover, it is imperative that the educational process better prepare these nurses to confront the reality awaiting them.

Service institutions might examine more effective ways of utilizing, maintaining, and enhancing the skills of nurses appropriate to their preparation, as well as allowing qualified nurses greater latitude and control over their own practice. Older nurses who have been in practice longer may have special learning needs that merit more attention.

In addition to “situational” explanations to the discrepancy between “ideal” and “real” it may be worth exploring relevant personality characteristics, such as ego development levels, locus of control, field dependence/independence, that may account for part of the discrepancy between values held and their application.

The tool utilized in this study to measure moral behavior is new, and further refinement is indicated. Also, alternative modalities and instrumentation might be explored to measure this construct.

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Methodology Corner

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Once stored in the relations, data are available for a variety of manipulations. A general purpose text-formatting program was used to generate a computer printout in the form of a directory. Two features of this directory, the 1980 *Midwest Directory of Resources for Graduate Education in Nursing* (McElmurry and Newcomb, 1980), demonstrate graphically some unique capabilities of the automated data processing made possible by the computer. First, it printed the individual biographical sketches presented for each doctorally prepared nurse included in the directory. Then, on command, all the data that had been entered for one person were scanned and condensed to generate an individual profile.

This same general purpose text-formatting program was used to produce an index of the titles of research projects supplied by those surveyed. As a result, the directory contains a key word index that lists in context and according to investigator ID number the key words contained in the titles of all research projects included in the *Directory*. For example, Nutritional Needs of Adolescents and Adults is listed at least three times in the index under nutrition, adolescents, adults.

Besides being available for the production of a directory, the database can be queried to produce statistical anal-

yses of its content. For example, through use of the special query language we may quickly learn how many nurses in the Midwest received their doctorates since 1975 and, of these, how many published a book or journal article within a given period of time.

In contrast to traditional machine readable data sets, the Midwest Database project has a database management system that provides general purpose programs for building and maintaining (updating) a database without unwanted redundancy of data. MDB permits multiple, diverse applications to access and manipulate the data with little special purpose programming. We used this system to provide a database because it can be made available to researchers interested in a number of educational and manpower issues, and eliminates the need for each investigator to construct a data-gathering instrument, conduct a survey, and prepare the data for analysis. Because the Midwest Database has multiple uses, it can expedite research for students and other investigators and reduce the demands made on the data sources. The latter consideration is important because of the increasing burden on health care professionals, especially administrators, who are subject to many overlapping requests for information.

Summary. Our concern is that nursing

databases be structured to improve the efficiency of decision-making in nursing. The selection of database management systems that are compatible with the computer resources in a majority of settings is important to methodology. To facilitate methodological development, we encourage the inclusion of information in the nursing literature that details the investments in personnel, equipment, and facilities required to develop computerized databases. In the current state of affairs, determining the personnel and budgets for the development, update, and maintenance of computerized databases and related data management systems is somewhat like trying to pin the tail on the donkey while blindfolded. However, some of the frustrations encountered at the start of new endeavors can be lessened if we share our experiences in project management as we report findings from our work. **NR**

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