

# Methodologic fallacies: a critical self-appraisal

*Patricia L. Munhall, RN, EdD*  
*Associate Professor*  
*Hunter College, CUNY*  
*Hunter-Bellevue School of Nursing*  
*New York, New York*

**T**HIS IS A critical analysis of a study<sup>1</sup> on moral development from the perspective of methodological fallacies. The examination of this study revealed premature deduction, biased assumptions, an epigenetic vision of reality, and potentially misleading conclusions.

## OVERVIEW

The study sought to determine if significant differences in levels of moral reasoning existed between nursing students in different academic years and between nursing students and nursing faculty in the same baccalaureate nursing program. It was based on Kohlberg's theoretical framework for moral development.<sup>2</sup> This cognitive developmental approach to moral reasoning assumes a moral hierarchy of stages that represent qualitatively different perspectives on the concept of jus-

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tice and reciprocity. Nursing students are at a transitional period for moral development and theoretically are most vulnerable to upward change.<sup>2,3</sup>

The sample consisted of 76 freshmen, 60 sophomores, 81 juniors, 88 seniors, and 15 faculty members from a National League of Nursing accredited baccalaureate nursing program in a northeastern state. The Defining Issues Test (DIT), an objective test of moral judgment, was used to determine the levels of moral reasoning of the nursing students and faculty. Numerous variables were measured for association with levels of moral reasoning and for ascertaining comparableness of the groups for specific characteristics. Variables included education beyond high school, economic level, age, parents' occupations, previous nursing experience, grade point average, role of religion, and perception of integration of moral ethical considerations.

A major assumption of this study was that the highest of the three levels of moral development, principled moral reasoning, as defined by Kohlberg,<sup>4</sup> would be the most desirable for nurses to attain (see boxed material). Making deductions and/or inferences from Kohlberg's theory, it was postulated that the nurse at the principled level would be the patient advocate, the change agent, the risk taker, the staunch supporter of individualistic values, and ultimately the purveyor of humanistic nursing. In contrast, the conventional level nurse would assimilate well into social institutions, maintain social order, and promote organization, efficiency, and institutional norms. The preconventional level nurse might be an unsafe and incompetent practitioner and would be a source of

### Kohlberg's Theory of Moral Development\*

Preconventional level of moral development: Externally established rules determine right or wrong action.

Stage 1: The punishment-obedience orientation

Stage 2: The instrumental-relativist orientation  
Conventional level of moral development: Expectations of family and group are maintained; loyalty and conformity to the existing social order are considered important.

Stage 3: The interpersonal concordance or "good boy - nice girl" orientation

Stage 4: The "law and order" orientation

Principled level of moral development: The individual autonomously examines and defines moral values and principles as apart from the group norms or the culture.

Stage 5: The social-contract, legalistic orientation

Stage 6: The universal-ethical principle orientation

\*For in-depth information, see Munhall<sup>1</sup> and Kohlberg.<sup>2-4</sup>

concern, considering the egocentric nature of that level.

The traits described at the principled level seemed inherent to humanistic nursing. A philosophical perspective for addressing moral problems does not evolve until the stages at the principled level are reached. The perspective prior to that evolves mainly from existing social groups and institutional norms.<sup>5</sup>

The study revealed that the average baccalaureate nursing student had a conventional level of moral reasoning and that the average nursing faculty member was at the principled level. There were no significant differences in levels of moral reasoning among students in the four academic years;

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an inferential leap was made that moral development does not occur and/or that moral reasoning does not increase during the student's nursing education. Nonetheless, both students and faculty indicated in response to a forced-choice question that ethics was integrated throughout the curriculum. The most obvious recommendation based on these data was to include ethics in the curriculum. There was an additional recommendation to investigate what students and faculty thought the integration of ethical content entailed, which may have been a better starting place for the entire study.

## CRITICAL PERSPECTIVE

### Paradigmatic compliance and prior known outcome

The researcher has been socialized into answering questions from a research perspective by the application of the scientific method. Dreyfus<sup>6</sup> has said that this method represents a world view of reality that is objectified, physical, material, and independent of context. To attain this objectivity and independence of context, the method consistently attempts to operationalize beliefs, values, and emotions into observable and measurable entities.

At the time of the study, it did not seem possible that the area of research interest

could be investigated by any means other than the scientific method. From undergraduate research through to graduate research, this paradigm was pedagogically considered exclusively, and at the time of this study, the aim seemed to be to demonstrate facility with this paradigm.

Kuhn has discussed the significance of this paradigmatic activity: "Though its [the study's] outcome can be anticipated, often in detail so great that what remains to be known is itself uninteresting, the way to achieve that outcome remains very much in doubt."<sup>7(p36)</sup>

A review of nursing literature, experience in education, observations of students, and the awareness that increasing moral development or reasoning is not and has not been a stated objective in nursing education could have led to a common sense conclusion that students would not necessarily progress to a philosophic perspective for moral reasoning. Though the outcome seemed apparent, the researcher had to "prove it" and/or to find the way to "achieve the outcome." A colleague pointed out that the study had "proved" the necessity for nursing students to take ethics courses, thereby justifying the need for the study and for achieving the outcome.

### Theoretic fallacies

Demonstrating facility with the scientific method includes using a theoretic framework on which hypotheses are based; in this study, Kohlberg's theoretic framework of moral development<sup>2</sup> was used. Unknown to the researcher, Kohlberg's theory had evolved from interviews only with males and from their responses to

hypothetical cases of an ethical nature (*New York Times*, November 23, 1981, p B6). Even if the researcher had known of the possible sexual bias, she may not have questioned the theory, having not given sufficient thought to the possibility that men and women might think differently about moral issues.

However, Gilligan<sup>8</sup> has demonstrated that women's reasoning is substantively different from that of men in ethical issues. In a critical analysis of the generalizations of Kohlberg's theory to women, she postulates that women, by training, are much less inclined than men to isolate complex moral questions from their context and make clear-cut judgments about right and wrong.

Gilligan has raised questions about the validity of generalizing Kohlberg's theory to women, as is the case in this study. Researchers using theories developed in other fields, worlds, and populations commit a theoretical fallacy when the theory is uncritically generalized to a different population. In the final analysis, the theory may be valid for that population, but such an assumption should never be made without testing.

A domino effect of methodological and/or theoretical fallacies occurs when an instrument derived from a questionably appropriate theory is used to answer the research questions. In this instance, the DIT,<sup>9</sup> an objective test of moral reasoning derived from Kohlberg's theory,<sup>2</sup> was administered to the students and faculty. This test measures the developmental character of the way people choose the important issues in moral dilemmas. In a paper-and-pencil testing situation, the subject reads six hypothetical moral dilemmas and by choosing among items of importance,

theoretically indicates a characteristic way of solving a dilemma representative of Kohlberg's stage typology.<sup>4</sup>

Each dilemma is stated in about six sentences. By virtue of the lack of details in such brevity, students expressed much difficulty in responding to the dilemmas. They wanted more details; they wanted to place the question in a broader context, just as Gilligan has suggested is characteristic of women. They are less inclined than men to make clear-cut judgments as called for in this test, without considering the context, the history, and the psychology of the situation.

Perhaps a more serious question emerges from this approach. In the provision of the hypothetical case, the ethical question is identified, as are the ethical issues. In this type of objectified and operationalized instrumentation, the more fundamental questions are unanswered and are precluded from evaluation. They include the following:

- Can the student interpret the situation?
- Can the student identify the ethical questions?
- Can she formulate the alternatives?
- Can she choose a course of action *de novo*?
- Can she think critically?

Evaluating moral reasoning without asking these prior questions and ascertaining if the student is able to do these first-order activities is an example of another methodological fallacy, perhaps the most serious one.

### Aggregate fallacies

Further compounding the identified theoretical fallacies in this study, the data were

subjected to common statistical analyses, which may have resulted in misleading conclusions. Using standard inferential statistics, the researcher focused on differences *between* groups rather than on differences *within* groups. The research questions asked for the differences between groups, as they do in most studies using the scientific method. The most frequently used statistics help to establish whether a difference between groups has occurred by chance or because of some other factor (investigator intervention).

Before answering the main questions of the study, the researcher needed to ensure that the groups were comparable for factors that might be influencing variables. Using the chi-square test, the researcher established that the groups were proportionately comparable for age, grade point average, previous nursing experience, education after high school, and many other variables.

However, only the proportions were comparable between and among groups. The individuals within each group were very different with respect to the variables. Again, the emphasis was on differences between groups and not within groups. (Since we rarely teach *between* groups, it seems that the focus should be on the differences within groups.) Once the researcher established that the groups were comparable, that is, proportionate regarding certain characteristics, the research question was then theoretically answered by testing to see if there were differences in levels of moral reasoning between these comparable groups.

The outcome was that the mean level of moral reasoning for the students was at the conventional level and that there were no significant differences between the groups

in moral reasoning. The recommendations of the study were then formulated based on these results.

This could be misleading. There were no statistically significant differences between groups, but there were significant differences within groups. Conversely, in studies in which the differences between groups are significant and when that difference is accounted for by the effect of the independent variable, the within-groups effects must be studied. In a normal distribution, scores fall into a normal curve, which, as it did in this study, leads to certain recommendations.

Another way of viewing the results, especially for each academic year, is that approximately two-thirds of the students fall within the conventional level, with one-sixth above or at the principled level and one-sixth at the preconventional. Thus, one-third of each group is not at the conventional level, and in real numbers this is a substantial size. It would be erroneous to base recommendations on a mean score when the differences within the groups are important to consider. Though this was not demonstrated empirically for nurses, individuals who score at a preconventional level of moral reasoning are supposedly reasoning like a 7- or 8-year-old!

Even if the outcome of this study were to justifiably establish a need for nurses to study ethics, it would be educationally unsound if they were all to start the study of ethics as a homogeneous group, based on central tendency scores. The inappropriateness of such an approach for the teaching of ethics has been well supported in the literature.

Faculty should not be thought of as a homogeneous group, though they scored as a group at the principled level. Two

faculty members scored at a stage 2 level, which unfortunately gets lost in aggregate data. It was established that all faculty members in this study were integrating ethical content into nursing subject matter. Considering that two of these faculty members scored at a stage 2 level, that is, a preconventional level, the significance of examining differences within groups becomes apparent.

### Ethical considerations

Generally, there is a dehumanizing effect in categorizing people, but perhaps this is more specific in the area of ethics. Bellah has stated that when the methods of inquiry are the same as those used in physics and biology, "we cannot be sure whether we have really observed something or whether we have persuaded, cajoled, or forced it into existence."<sup>9(p2)</sup>

Perrow has stated:

Social scientists try to explain events that are the result of happenstance, accidents and misunderstandings and even random, unmotivated behavior. They test their models with questionnaires that create the world they want to prove exists. Each step contains self-deception.<sup>10(p2)</sup>

Since anonymity and confidentiality were part of this study, such statements raise ethical questions concerning the range of scores for individuals, considering the possibility of "cajoling" and the "steps of self-deception," that perhaps created an artificial construct. Goodpaster,<sup>11</sup> critical of the monistic nature of stage patterns, believes that the ethical frameworks of the vast majority of individuals are not so simple. He claims that differences among

pluralistic frameworks would be difficult if not impossible to measure, let alone rank for adequacy.

Yet, that is what Kohlberg<sup>2-4</sup> has claimed to do, what Rest<sup>3</sup> has claimed to measure, and what this researcher sought to establish for nurses and faculty.

### ALTERNATIVE PERSPECTIVE

Perhaps a more appropriate perspective from which to consider questions concerning nurses, moral reasoning, and ethics would be to start with an inductive rather than a deductive approach. Deducing and inferring from theories grounded in dis-

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similar worlds leads only to a domino effect of erroneous conclusions, one of which, in this instance, is the failure of women to reach the higher hierarchical stages, inferring a deficiency in moral reasoning ability.

At the inception of this study, the researcher did not question Kohlberg's theory nor the expected compliance to the scientific method. However, when the researcher began to study moral philosophy (part of the literature review), cognitive dissonance emerged as to the approach used to study a subject as complex as ethics. There was something incongruous

about assigning scores to philosophical reasoning on complex ethical matters devoid of context and substance.

A similar developmental study that immediately evolved from this cross-sectional study is in progress, and the researcher is becoming increasingly more critical of this approach. Criticisms are as follows:

- Hypothetical stories and scoring based on Kohlberg's theory of moral development are derived from a male perspective of the world, based on masculine values and beliefs. There is increasing evidence that males and females think differently about moral questions. The moral imperative that emerges repeatedly for women, according to Gilligan,<sup>8</sup> is an injunction to care, a responsibility to identify and to alleviate the "real and recognizable trouble" of the world. In hypothetical testing as used in this and other nursing studies, the history and psychology of individual lives separate the moral problem from social contingencies. It was demonstrated in this study, that for women, hypothetical dilemmas without contextual particularity make it uncomfortable for the subjects to commit themselves to a course of action.
- The DIT provides the student with the ethical question and lists the ethical issues. This precludes establishing whether a student can identify the ethical issues and independently offer alternatives; these abilities are requisite to ethical decision making.
- Rest<sup>3</sup> the originator of the DIT, has suggested that the test should be used for the evaluation of ethics courses,

which in a sense is what this researcher did. Goodpaster has replied to this:

Rest is suggesting that ethics courses and, by implication, teachers of ethics need a strong dose of good old fashioned scientific method. The production process called "moral education needs" *instrumentation*, it needs the kind of quality control that can be provided by the social sciences.<sup>11(p37)</sup>

Goodpaster has argued that this type of measurement is naive in that most people think in pluralistic frameworks, whereas the stage theorists are monistic, emphasizing one ethical framework, ie, egoism, legalism, utilitarianism, and contractarianism.

- Pinch<sup>12</sup> has suggested that nurses must examine all theories of developmental psychology, not only moral developmental theory. Gilligan<sup>8</sup> has proposed that we start by critically looking at Freud,<sup>13</sup> Piaget,<sup>14</sup> and Erikson,<sup>15</sup> as well as Kohlberg, to begin to recognize how we have accepted world views as developed and evolved from the male perspective. Gilligan has summarized this point by stating that

the men whose theories have largely informed ... understanding of development have all been plagued by ... the problem of women, whose sexuality remains more diffuse, whose perception of self is so much more tenaciously embedded in relationships with others. ... The solution has been to consider women as either deviant or deficient.<sup>9(p53)</sup>

What then are alternative perspectives from which to study this area in nursing?

Obviously, we should not begin by making deductions from theories that are not grounded in the worlds we are seeking to

understand. We should, as Hubbard<sup>16</sup> has suggested, question the whole method of western scientific inquiry, which is based on a general acceptance of Descartes<sup>17</sup> definition of "organism as machine." Hubbard (cited in Fiske<sup>16</sup>) stated that "it is this that leads us to expect to answer such questions as what life is by taking living organisms apart into smaller and smaller units—even though the attributes of 'life' or living be lost in the process."<sup>16(pB6)</sup>

Today, commonly accepted theories are being recognized for their inherent male biases and masculine ideals. The entire research enterprise and the mechanistic view just quoted led Hubbard (cited in Fiske<sup>16</sup>) to further argue "that women are more inclined to 'see the organic world as much more than the sum of its parts.'"<sup>16(pB6)</sup> and she said, "to imagine a future with women integrated into science is to image a culture transformed."<sup>16(pB6)</sup>

Theories must evolve from the world we are seeking to understand. We need to dwell in the world of nursing, to live, to listen, and to communicate in this world. We need a vision of ourselves, and of those we care for—a vision that is derived from intimate association with ourselves and others, not from a detached, objective perspective, instrumentalized from theories derived from other perspectives.

Theories and questions concerning moral reasoning, ethics, and nursing must be grounded in that world. To see ourselves as inferior, or worse, as deviant, because the hierarchical standards of progression are developed from a male perspective is to contribute to the perpetuation of the male ideal.

At the beginning of the researcher's study, a grounded theory approach in

which theory is developed would have been more appropriate. Grounded theory, sometimes called the constant comparative method, enables the researcher to gain a fresh perspective of an area in which important variables have yet to be identified.<sup>18</sup> In essence, there was a need for a theory of moral development from a woman's perspective and then perhaps theoretically tested in a nursing context.

This method as well as other qualitative methods<sup>19</sup> of research have much to offer nursing in the beginning stages of theory development. These methods seem essential to avoid methodological fallacies similar to those that occurred in this study.

In conclusion, this researcher submits retrospectively that she exhibited what Downs referred to: "Certain variables enjoy surges of popularity that appear to be more related to the ease with which a measurement tool can be found than to any real understanding of why the tool is appropriate for the sample studied."<sup>20(p4)</sup>

Critical self-appraisal, although contradictory to the traditional oral defense of a study, has been at once discouraging and enlightening. Admitted methodological fallaciousness is shared in the spirit that we might become more critical of the way we use the scientific method, theoretical frameworks, and quantitative analysis. Our philosophy often contradicts the assumptions underlying the reductionistic view of the scientific method and of categorization, a method itself being criticized as a male prerogative.

Until we have our own grounded theories, application of this method could be premature, misleading, and fallacious. Until we dwell longer in our own house, we will always be externally referenced.



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