

The Relationship Between Ethical Dilemma Discussion and Moral Development

David A. Latif

Bernard J. Dunn School of Pharmacy, Shenandoah University, 1460 University Drive, Winchester VA 22601

The present investigation examines the relationship between ethical dilemma discussion and moral development of ninety-six second-year students taking a required communications course at a large north-eastern school of pharmacy. An additional objective was to assess the efficacy of moral reasoning skills by testing the relationship between pharmacy students' moral development and their perceptions regarding the difficulty of resolving ethical problems commonly found in pharmacy practice. Moral development has been demonstrated to be of consequence to professional behaviors such as clinical decision-making in health professionals. Rest's Defining Issues Test (DIT) was used as a surrogate measure of a student's moral reasoning. One hundred and nine students were administered the DIT at the beginning of the semester in which they took a required communications course, and again at the end of the semester. Of these, ninety-six protocols were deemed usable. A paired t-test revealed that students scored significantly higher on the post-test than on the pre-test. In addition, those students at higher levels of moral reasoning perceived as significantly less problematic common ethical dilemmas faced by practicing pharmacists. The study concludes that moral reasoning skills are both teachable and measurable, and that ethical dilemma case discussions may enhance moral development.

INTRODUCTION

As the pharmacy profession moves inexorably closer to defining practicing pharmacy as practicing comprehensive pharmaceutical care, the propensity for ethical problems to arise in practice increases. A prerequisite for the provision of pharmaceutical care is the development of an ethical covenant between the pharmacist and patient(1). The function of this ethical covenant is a shared responsibility for positive drug outcomes between the pharmacist and patient. From an ethical standpoint, it is not enough for the pharmacist to assume that he or she knows what the patient's best interests are; the patient must provide input and be part of the decision making process(1). For example, a patient might present a prescription to a pharmacist with a dosage regimen of four times per day. A problem emerges if the patient is unable or unwilling to take the medication four times a day. However, by reducing the dosing regimen to twice a day, the patient might be more able to comply with it. If the pharmacist does not ask the question, "Given your present lifestyle, can you take this medication four times a day?," he or she would not know the potential adherence problem, and its possible resolution.

There are at least two critical questions pharmacy educators must ask. One, how do they prepare students to deal with the myriad of ethical dilemmas likely to be faced in pharmacy practice? Two, are the requisite skills needed to handle the ethical demands of pharmaceutical care teachable and, if so, can they be measured objectively?

The present investigation examines one approach that may be useful in attempting to answer these questions. It draws on cognitive moral development theory as its theoretical framework and assesses the impact of regularly using group ethical dilemma case discussions on second year pharmacy students' moral development(2). In addition, the efficacy of moral

reasoning skills is tested. Specifically, the relationship between pharmacy students' moral development and their perceptions regarding the difficulty of resolving ethical problems commonly found in pharmacy practice is assessed. Cognitive moral development theory posits that individuals at higher levels of moral development can be expected to "do the right thing" when confronted with an ethical dilemma and, thus, find dilemmas less problematic than those at lower levels of development(2). In addition, previous investigations have demonstrated that growth in moral development can be stimulated by discussions of moral dilemmas or case studies(3-5).

The remainder of this paper is organized as follows. First, cognitive moral development theory is reviewed. Then, the literature examining the moral development of health professional students and the cognitive-developmental approach to ethical interventions is reviewed. Next, the methods and results of the present investigation are described and reported. Finally, the implications and limitations of the present study are discussed.

COGNITIVE MORAL DEVELOPMENT

Lawrence Kohlberg's cognitive moral development theory (CMD) is based on 40 years of quantitatively reproducible research(2,6). Kohlberg's theory is grounded in Piaget's pioneering theories of how children develop both logical and moral reasoning skills(7). This cognitive-developmental approach to moral development has several important characteristics(8). First, cognitive moral development is cognitive in that it attempts to explain how a person thinks. This is in contrast to an emphasis on emotions (as in psychodynamic, or Freudian, theory), or learned association (as in behavioral theory). Second, this approach is structural in that it describes an underlying innate mental process

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Table I. The six stages of cognitive moral development

Level and stage	What is right?	Reason for doing right	Social perspective
LEVEL I- Preconventional - Stage 1-Heteronomous Morality	To avoid breaking rules backed by punishment, obedience for its own sake, and avoiding physical damage to persons and property	Avoidance of punishment, and the superior power of authorities.	Egocentric point of view. Doesn't consider the interests of others; doesn't relate two points of view. Actions are considered physically rather than in terms of psychological interests of others.
Stage 2- Instrumental Purpose, and Exchange	Following rules only when it is to someone's immediate interest; acting to meet one's own interests and needs and letting others do the same. Right is also what is fair, what is an equal exchange.	To serve one's own needs or interests in a world where you have to recognize that other people have their interests, too.	Concrete individualistic perspective. Aware that everybody has his own interest to pursue and these conflict, so that right is relative
LEVEL II- CONVENTIONAL Stage 3-Mutual Interpersonal Expectations, Relationships, and Interpersonal Conformity	Living up to what is expected by people close to you or what people generally expect of people in your role as son, brother, friend, etc. Being good is important and means having good motives, showing concern about others. It also means keeping mutual relationships, such as trust, loyalty, respect and gratitude.	The need to be a good person in your own eyes and those of others. Belief in the Golden Rule. Desire to maintain rules and authority which support stereotypical good behavior.	Perspective of the individual in relationships with other individuals. Aware of shared feelings, agreements, and expectations which take primacy over individual interests. Relates points of view through the concrete Golden Rule, putting yourself in the other guy's shoes.
Stage 4— Social System and Conscience	Fulfilling the actual duties to which you have agreed. Laws are to be upheld except in extreme cases where they conflict with other fixed social duties. Right is also contributing to society, the group, or the institution.	To keep the institution going as a whole, to avoid the breakdown in the system. Laws create cooperative order on a society-wide basis.	Differentiates societal point of view from interpersonal agreement or motives. Takes the point of view of the system that defines roles and rules.
LEVEL III— POSTCONVENTIONA L, OR PRINCIPLED Stage 5-Social Contract and Individual Rights	Being aware that people hold a variety of values and opinions, that most values and rules are relative to your group. These relative rules should usually be upheld, however, in the interest of impartiality and because they are the social contract. Some nonrelative values and rights like life, and liberty, however, must be upheld in any society and regardless of	A sense of obligation to law because of one's social contract to make and laws for the welfare of all and for the protection of all people's rights. A feeling of contractual commitment, freely entered upon, to family, friendship, trust, and work obligations. Concern that laws and duties be based on rational calculation of overall utility, (ie., the greatest good for the greatest number), it difficult to integrate them.	Prior-to-society Perspective. abide by Perspective of a rational individual aware of values and rights prior to social attachments and contracts. Integrates perspectives by formal mechanisms of agreement, contract, objective, and due process. Considers moral and legal points of view; recognizes that they sometimes conflict and finds majority opinion.
Stage 6-Universal Ethical Principles	Following self-chosen ethical principles. Particular laws or social agreements are usually valid because they rest on such principles. When laws violate these principles, one acts in accordance with the principle. Principles are universal principles of justice: the equality of human rights.	The belief as a rational person in the validity of universal moral principles, and a sense of personal commitment to them	Perspective of a moral point of view from which social arrangements derive. Perspective is that of any rational individual recognizing the nature of morality or the fact that persons are ends in themselves and must be treated as such.

Adapted from Goldman and Arbuthnot, pp 174-175 (see ref. # 8).

(i.e., the interest is in how decisions are arrived at) rather than what the decision or opinion might be. For example, an opinion such as “a physician should not perform abortions,” may be identical for a 22-year-old pharmacy student and a seven-year-old child. However, the reasoning processes to arrive at that identical decision are likely to be significantly different. A third characteristic of CMD is the notion that the development of thinking skills (both general and moral) require that individuals advance along a stage-sequence continuum that represents a series of cognitive levels akin to the rungs of a ladder. Most individuals move upwardly through these developmental levels, which include three levels. The three levels comprise two stages each (Table I). Stages 1 and 2 comprise the pre-conventional level. At these stages, reasoning is limited to concerns of oneself, and the individual is most influenced by the power exerted by others, and by subsequent threats of punishment. “Right” behavior is doing what serves one’s own interests. For example, a child quickly realizes that disobedience brings about punishment. So, the basic reasoning for obedience is to avoid punishment (as opposed to “having consideration for my parents etc.”).

Stages 3 and 4 comprise the conventional level, where the focus shifts from oneself to relationships with others. “Right” is conforming to what is characterized as “good” behavior by a segment of society (e.g., family or peer group). The reasoner at these stages is most concerned with upholding societal rules, expectations, and the approval of others. The egoistic views of Stages 1 and 2 are replaced by fulfilling the expectations of the larger social unit of which one is a member.

Stages 5 and 6 comprise the post-conventional (or principled) level, where the focus becomes personally held beliefs. “Right” is determined by universal human rights, values, or principles to which both society and the individual are obligated to uphold. Laws are valid because they rest on principles. However, when laws or rules violate principles, the post-conventional person believes it is best to act in accordance with principles rather than abiding by laws.

Kohlberg’s cognitive moral development theory is primarily a justice-based theory with principles of justice being the highest principle of morality. Principles of equality, autonomy and respect for the dignity of all humans as individuals are grounded in the concept of justice(9). Consequently, moral reasoning tests based on cognitive moral development theory essentially measure subjects’ use of justice reasoning when resolving an ethical dilemma.

Not everyone accepts the notion that ethics is primarily a principled approach to rational decision making. For example, Gilligan(10) and Noddings(11) argue that ethics is based on a commitment to caring for others, as opposed to principles of equality, autonomy, and the maximization of human welfare. Gilligan(10) claimed that Kohlberg’s exclusive use of male samples in his research seriously biased obtained results based on gender exclusion. Specifically, it was claimed that women have great difficulty progressing past Stage 3 in the cognitive moral development model. The evidence demonstrates that claims of gender bias were unfounded, as hundreds of studies reveal that there are no significant difference between men and women on moral reasoning(12). In fact, four studies in health care professionals demonstrated that women scored significantly higher than men on moral reasoning(13-16).

MEASURING MORAL DEVELOPMENT: THE DEFINING ISSUES TEST

Several studies in the health professions have demonstrated

significant and pragmatic relationships in the positive direction between levels of moral reasoning and clinical performance(17-20) These studies have been reviewed elsewhere(21) and have used the Defining Issues Test (DIT) as a proxy for an individual’s moral reasoning(22).

The DIT is a self-administered questionnaire that measures subjects’ moral reasoning according to cognitive developmental theories posited by Piaget, Kohlberg and Rest(2,7,22). It consists of six hypothetical dilemmas (a short-form version includes three dilemmas). Each dilemma is followed by a series of 12 statements about the dilemma. For each dilemma, subjects must select and rank order those issues that have, in their opinion, the most significant influence on the dilemma’s resolution. The four highest ranked items are included in scoring the DIT. Of these four items, only those that represent principled thinking are included in a “P” score [defined as “the relative importance a subject gives to principled considerations in making a decision about ethical dilemmas”(22)]. Raw “P” scores can range from zero to 57 for the six story DIT, and from zero to 28 for the three story one. This score is then converted to a P percent simply by dividing the raw score by 0.60 (for the six story DIT) or 0.30 (for the three story DIT). For example, if an individual scored 50 on the DIT, one would conclude that 50 percent of the responses given in taking the instrument were given at the principled level of moral reasoning. According to Rest, a score of 50 or greater puts one at the post-conventional level(22).

The DIT has been used in over 1000 studies, and its reliability and validity have been well documented(22). Cronbach’s Alpha is generally in the upper 0.70’s, and the correlational patterns of the moral reasoning support both divergent and convergent validity of the instrument(22).

Several investigations have assessed the moral development of students in diverse health professions such as medicine, veterinary medicine, nursing, physical therapy, and pharmacy(17-20). Table II reveals the DIT P percent scores of several first-year health professional students, and compares them to college students and adults in general(19,21,22). The next section reviews studies that have used educational interventions shown to help enhance moral development.

MORAL DEVELOPMENT AND EDUCATIONAL INTERVENTIONS

According to Thoma and Rest(23), if courses that provide ethical instruction are worth curricular space and student time, at least three assumptions must be true:

1. Some ways of deciding what is right (making ethical decisions) are more justifiable than others.
2. There must be some agreement among “experts” on what is the more justifiable ethical position.
3. Ethics instruction influences students in some positive way. The way students live their lives as professionals is influenced in a constructive way by ethics courses.

According to Self *et al.*(9), teaching medical ethics often raises two sources of concerns. One is the confusion over distinguishing between teaching moral values versus teaching moral reasoning. In other words, the function of ethics instruction is to improve students’ moral reasoning about value issues, regardless of what their specific set of values are. For example, one could score at Stage 4 while holding values either opposed to euthanasia or supportive of it. Whether the subject is for or

Table II. Weighted mean moral reasoning scores of different health professional students

Students first year health professional group	DIT P percent ^a	n
Medical	47.28	39
Physical therapy	47.05	58
Dental	46.8	720
Veterinary	45.69	54
Nursing	44.58	155
Pharmacy	38.51	244
Other Groups		
College Graduate students	53.3	183
College Students	42.3	2479
Adults	40	1149

^a See references 19, 21, and 22; Score of 50 or greater suggests moral reasoning occurs at the highest (post-conventional) level.

against euthanasia is immaterial to one's reasoning capacity for supporting whatever values happen to be held.

The second source of concern relates to the notion that one's "ethics" cannot be significantly altered after about age five. Rest(24) has demonstrated this to be false. This misrepresentation, in part, stems from the confusion between teaching moral values versus teaching moral reasoning. Rest(25), in a review of 57 DIT studies concerning the effect of education interventions, concluded that peer discussion of moral dilemmas facilitates modest growth in moral judgment. The logic behind this is that dilemma discussion gives students practice in moral problem solving. It provides them with an opportunity to understand and to appreciate higher levels of moral arguments made by their peers.

Interestingly, the empirical evidence suggests that interventions longer than 12 weeks do not seem to have any more of an impact on moral reasoning than do interventions of three to 12 weeks(25). However, durations less than three weeks appear to be ineffective.

Penn(26) argues that student moral reasoning can be enhanced by directly teaching the component skills of moral reasoning, skills of logic, role taking, and justice operations. The results from a sample of 28 students reported significant moral growth in ethical reasoning capabilities. Participants' growth in principled reasoning, as measured by the DIT, increased from a pretest score of 41.7 to a post-test score of 50.6.

Self *et al.*(4) assessed the impact of small-group case-study discussion on medical students' moral development. Utilizing a longitudinal research design, the investigators examined 729 medical students from the classes of 1991-1999, and tested the moral reasoning of students before and after their participation in small-group case-study discussions of medical ethics. It was demonstrated that those students exposed to 20 or more hours of small-group discussion demonstrated a significant increase in their moral reasoning, while those exposed to fewer than 20 hours of small-group discussion showed no significant increase in moral reasoning.

Armstrong(27) administered a pre-DIT and post-DIT survey of moral development of students who voluntarily took a one semester accounting course in ethics and professionalism. Results showed that students who elected to take the ethics course had significantly higher DITs by the end of the course.

Self *et al.*(3) used the DIT for evaluation of a project using film discussions for teaching medical humanities. The design of the study was as follows:

1. a control group of first-year medical students with no exposure to the film discussion;
2. a group of first-year medical students who participated in weekly 1-hour film discussions during the fall quarter;
3. a group of first-year medical students who participated in weekly 1-hour film discussions during both the fall and winter quarters.

Pre-DIT and post-DIT measurements of ethical reasoning skills showed statistically significant increases in moral reasoning scores of course subjects for both the one quarter ($P<0.002$) and the two quarter groups ($P<0.109$) of film exposures. This compared to the control group with no exposure to the film discussions ($P<0.109$). The authors did not state whether the control group was post-tested after the first or second quarter of the experiment.

In pharmacy education, several studies have measured ethical reasoning skills. Lindon and Draugalis(28), administered the DIT and obtained usable responses from 40 first-year and 31 fourth-year PharmD. students. Results indicated that the mean DIT score for this small sample was 41.6 for first-year students, and 44.6 for fourth-year students. Both of these means represent conventional thinking.

A second pharmacy study that utilized cognitive moral developmental theory, Dolinsky and Gottlieb(29), asked fourth-year pharmacy students to describe two moral dilemmas that they had experienced in pharmacy practice, their actions to resolve the dilemmas, and the reasons for their actions. The dilemmas were then grouped into different categories of incidents in pharmacy practice (*e.g.*, requests for medications without prescriptions) and analyzed according to Kohlberg's six stages of cognitive moral development. Findings showed that two-thirds of the explanations for actions were classified as Stage 3 or below; one-fifth of the reasons were classified as principled (Stage 5 or 6); and the remaining justifications were classified as Stage 4.

Latif and Berger(16,21) reported the results of three classes of first year pharmacy students' moral reasoning scores. DIT P percent scores of these three classes were 42.47, 37.67, and 35.76 respectively.

Another pharmacy investigation assessed the impact of ethical dilemma case discussions on the moral reasoning of second-year pharmacy students. Results indicated that students demonstrated significant moral development over the course of a semester(5).

Based on the aforementioned investigations, the present study hypothesized that a semester-long course that utilized ethical dilemma case discussions as an integral component would positively impact moral development. A second prediction was that those students at higher levels of moral development would perceive as less problematic common ethical dilemmas faced by practicing pharmacists.

METHODS

This study utilized a convenience sample of 120 second-year pharmacy students taking a required communications course at a large northeaster school of pharmacy and examined the impact of ethical dilemma case discussion and role taking on their moral development. An ethics component was integrated into the communications course for two reasons. First, since ethics was not taught as a stand-alone course at the University, it was deemed necessary to give the students practice at moral

reasoning. Second, practitioners are likely to face numerous ethical dilemmas in their careers. By having the requisite moral reasoning skills, resolutions to these dilemmas are more likely to be optimized if students have practiced resolving moral dilemmas. The Defining Issues Test (DIT) was administered during the first week of the semester, and again during the last week of the term.

One hundred and nine students were present during the initial DIT administration. The short-form DIT was used during both administrations, and was scored in accordance with the DIT manual(22). The short-form DIT includes three of the six dilemmas comprising the long-form DIT. While it would have been desirable to have used the long-form with the sample, the short-form was used due to time constraints. Specifically, the instructor did not wish to use a 50-minute portion of class to complete the long-form (the short-form requires approximately 20 minutes to complete). Since the short-form has substantially the same properties as the long-form (it has been shown to correlate 91 percent to 93 percent with the long-form DIT), it was decided to use the short-form(22).

The communications course comprised three credit hours, and included two hours of lecture and one hour of laboratory per week. The laboratory component was divided into four sections so that approximately 30 students were in each section. A significant part of the laboratory time consisted of ethical dilemma discussions concerning pharmacy cases that presented ethical dilemmas. The majority of the cases were selected from Pharmacy Journals such as the American Journal of Health-System Pharmacy. For example, the American Journal of Health-System Pharmacy included, as a regular feature, a relevant pharmacy conflict that may pose an ethical dilemma to a practicing pharmacist.

Specific cases were chosen by the instructor based on a review of the pharmacy literature concerning pragmatic ethical dilemmas faced by practicing pharmacists. To this end, cases chosen included such domains as placebo medications [e.g., "Is it ethical to deceive a patient concerning a placebo medication that you are dispensing?"(30)]. A component of the students' reading assignment was to read each assigned ethical dilemma, which discussed some aspect related to ethical issues in the provision of patient care. Additionally, the students were told that they may need to read additional literature to do a good job with the topics. Students were told at the beginning of the semester that they would be responsible for defending a particular position concerning each dilemma. In general, during the last one-half hour of twelve weekly laboratory periods, students were divided into two approximately equal groups regarding the ethical dilemma cases. For example, a dilemma titled, "Responding to a physician's request to mislabel a patient's prescription," required one-half of the students to prepare arguments that would defend the position that pharmacists should not mislabel medication, and the other half to defend the position that pharmacists "should go along with the prescriber's benevolent deception"(31). The instructor acted as facilitator and simply encouraged the students to defend their particular position, to probe particular assumptions concerning the case, and to listen to the opposing position. As previously discussed, this is the type of case discussion that can enhance moral development. Since a significant portion of the students' grade was based on participation concerning these dilemmas, the vast majority of students contributed to each discussion.

The relationship between moral reasoning and perceived difficulty in resolving ethical dilemmas was also assessed.

Table III. Moral reasoning pre and post-DIT

Pre-DIT mean	Post-DIT mean	SD	N	P
1. 28.46	15.76	96		
2. 31.95	14.23	96		<0.001**

**Significant at the 0.01 alpha level.

Table IV. Ethical reasoning and perceived difficulty of ethical dilemmas

Variable	Mean	SD	N	
1. Post-test ethical reasoning	31.95	14.23	96	-0.222*
2. Perceived Difficulty Score	42.86	18.56	96	

* Correlation significant at the 0.05 alpha level (2-tailed).

During the second administration of the DIT (during the last week of the semester), an instrument was given to the students that assessed their perceived difficulty in ethical dilemma resolution. A modified version of the Ethical Dilemmas in Pharmacy scale that was used in a previous pharmacy study was used to assess perceived difficulty with ethical dilemmas [Appendix](32). The ethical dilemmas for that study were drawn from an examination of the professional pharmacy literature, and were intended to represent fairly common situations faced by practitioners. The author reported a Cronbach's alpha coefficient of 0.8586(32). A dilemma included in the scale is "whether to fill an inappropriate prescription (that you have verified with a physician) that is clearly harmful." This modified instrument used a five-point Likert-type scale (ranging from "not problematic" to "very problematic)."

RESULTS

Rest advises to allow for an invalidation of DIT protocols (up to 15 percent), due to the inconsistencies of item responses, and to a tendency to place high importance on complex sounding but meaningless answers (22). Of the 109 students who took both the pre and post-test DIT, 96 passed the various consistency tests, corresponding to a dropout rate of 12 percent.

Of the 96 students who returned acceptable pre and post-DIT's, 39 were males and 57 were females. The mean age of the group was 23.86 years. Hypothesis one predicted that second-year pharmacy students taking a required communications course that utilized ethical dilemma case discussions would significantly increase their moral reasoning scores by the end of the course. A paired samples Mest was used to examine this hypothesis. Table III reveals that post-DIT mean scores were significantly higher than pre-DIT scores (31.95 vs 28.46).

The second hypothesis predicted that those students at higher levels of moral reasoning would perceive as less problematic common ethical dilemmas faced by practicing pharmacists. Correlation analysis was used to test this hypothesis. The Pearson r results revealed that students' ethical reasoning (as measured by the DIT) was significantly related in the negative direction with their scores on the *Ethical Dilemmas in Pharmacy* scale [Table IV ($r = -0.222$)].

DISCUSSION AND IMPLICATIONS

The major objective (and first hypothesis) of this investigation was to assess if exposure to ethical dilemma case discussions in

a required communications course results in the increase of moral reasoning skills of this sample of second-year pharmacy students. The empirical evidence from this study supports previous studies in the health professions by demonstrating a significant and practical relationship between the increase in moral reasoning skills and ethical dilemma case discussion(3-5).

A major concern for pharmacy educators is preparing students to practice pharmaceutical care. Although the relationship between moral thought and moral action is very complex, several studies indicate a positive relationship between moral thought and moral action(33). Of particular interest to pharmacy educators is the fact that several studies report significant correlations between moral reasoning and clinical performance(17-20). These and other studies among health professionals suggest that those professionals at higher levels of moral reasoning are rarely found to perform poorly on measures of clinical performance.

Ethical dilemma case discussions appear to work by creating cognitive dissonance, which stimulates upward movement within moral stages(4). Cognitive dissonance is a type of mental conflict whereby one attempts to gain congruence between one's attitudes and behaviors(34). This may act as a catalyst in moving to higher, more sophisticated stages. These more sophisticated stages provide superior conceptual tools for guiding decision-making when solving problems. For example, when students at one stage see higher-stage thinking they are often attracted toward it and thus question their less developed views(4).

The second hypothesis posited an inverse relationship between pharmacy students' moral reasoning and their perceived difficulty ethical dilemma resolution. This hypothesis was supported, thus supporting the theory that those individuals who are more morally developed may view pharmacy practice ethical dilemmas as less problematic than those who are less morally developed. CMD would suggest that this finding is the result of the more morally developed students' greater ability to problem-solve common pharmacy practice ethical dilemmas.

This study supports previous studies in the health professions that suggest student moral reasoning can be enhanced during professional education. If one assumes that enhancing pharmacy students' moral reasoning will translate into superior providers of pharmaceutical care, what are possible courses of action that will maximize moral development during pharmacy school? In addition to ethical dilemma discussion, other health programs have structured ethical instruction throughout the curriculum(35,36). These programs objectively assess moral development via the Defining Issues Test. For example, Duckett *et al.* have successfully integrated a multi-course sequential learning curriculum in nursing ethics that incorporates integrated, planned learning activities throughout the nursing curriculum(35). The result has been significant mean increases in moral reasoning. A similar strategy, with similar results, has been in progress for several years at the School of Dentistry at the University of Minnesota(36).

LIMITATIONS AND CONCLUSION

There are several limitations to this study. First, since only one school of pharmacy was used it is difficult to generalize to other schools the notion that group dilemma ethical discussions will enhance moral reasoning skills. A second limitation is the lack of cause and effect design. Because a control group was not used, one cannot rule out alternative reasons for the signif-

icant increase in moral reasoning during the semester. Third, the DIT was used as a surrogate measure of students' moral reasoning. An assumption is made that moral reasoning is subject to measurement. Finally, pre and post-testing students using the DIT may have threatened internal validity(37). However, McGeorge(38), in an experimental study, reported that it was easy for individuals to fake downward when taking the DIT (*i.e.*, reason at a lower level), but faking upward did not significantly increase DIT scores because the subjects did not possess the conceptual tools to do so. This is analogous to a child who has not learned subtraction in mathematics trying to "fake" the answers to a complex long-division math problem.

Despite these limitations, the results of this investigation suggest that pharmacy educators can assess, measure and help to significantly increase their students moral reasoning skills by utilizing ethical dilemma case study discussions. In addition, the present study corroborates previous studies by demonstrating that moral reasoning skills are both teachable and measurable(4,9). It also demonstrates empirically that moral development may be related to perceived ethical dilemma resolution.

Before final conclusions regarding the role ethical dilemma case discussions play in enhancing moral reasoning are drawn, studies are needed that replicate and extend the present one. Different empirical methodologies could be used. For example, an experimental design utilizing a control group could assess a potential cause and effect relationship between education interventions and moral development.

References

- (1) Berger, B.A., "Building an effective therapeutic alliance: Competence, trustworthiness, and caring," *Am. J. Hosp. Pharm.*, **50**, 2399-2403(1993).
- (2) Kohlberg, L., "Stage and sequence: The cognitive-developmental approach to socialization," In *Handbook of Socialization Theory and Research*, (edit., Goslin D.A.), Rand McNally, Chicago IL (1969), pp. 347-480.
- (3) Self, D.J., Baldwin, DC Jr. and Olivarez, M. "Teaching medical ethics to first-year students while using film discussion to develop their moral reasoning," *Acad. Med.*, **68**, 383-385(1993).
- (4) Self, D.J., Olivarez, M. and Baldwin, D.C., "The amount of small-group case-study discussion needed to improve moral reasoning skills of medical students," *ibid.*, **73**(5), 521-523(1998).
- (5) Latif, D.A., "Using ethical dilemma case studies to develop pharmacy students' moral reasoning," *J. Pharm. Teach.*, **7**, 51-66(1999).
- (6) Kohlberg, L., *The Development of Modes of Moral Thinking and Choice in the Years 10 to 16*, Doctoral Dissertation, University of Chicago, Chicago 111 (1958) pp. 17-125.
- (7) Piaget, J., *The Moral Judgment of the Child*, Free Press, New York NY (1932), pp. 1-75.
- (8) Goldman, S.A. and Arbutnot, J., "Teaching medical ethics: The cognitive-developmental approach," *J. Med. Ethics.*, **5**, 170-180(1979).
- (9) Self, D.J., Baldwin, D.C., Jr. and Wolinsky, F.D., "Evaluation of teaching medical ethics by an assessment of moral reasoning," *Med. Educ.*, **26**, 178-184(1992).
- (10) Gilligan, C., *In a Different Voice*, Harvard University Press, Cambridge MA (1982), pp. 1-55.
- (11) Noddings, N., *Caring: A Feminine Approach to Ethics and Moral Education*, University of California Press, Los Angeles CA (1984), pp. 12-25.
- (12) Rest, J.R., "Background: Theory and research," in *Moral Development in the Professions: Psychology and Applied Ethics*, (edits., Narvaez, D. and Rest, J.R.), Lawrence Erlbaum Associates, Hillsdale NJ (1994), pp. 1-26.
- (13) Self, D.J. and Olivarez, M., "The influence of gender on conflicts of interest in the allocation of limited critical care resources: Justice versus care," *J. Crit. Care*, **8**, 64-74(1993).
- (14) Self, D.J., Safford, S.K and Shelton, G.C., "Comparison of the general moral reasoning of small animal veterinarians vs large animal veterinarians," *J. Vet. Med. Educ.*, **191**, 1509-1512(1988).
- (15) Self, D.J., Olivarez, M. and Baldwin, D.C., "Clarifying the relationship of medical education and moral development," *Acad. Med.*, **73**, 517-

- 520(1998).
- (16) Latif, D.A. and Berger BA., "Moral reasoning in pharmacy students and practitioners," *J. Soc. Adm. Pharm.*, **14**, 166-179(1997).
 - (17) Krichbaum, K., Rowan, M., Duckett, L., Ryden, M. and Savik, K., "The Clinical Evaluation Tool: A measure of the quality of clinical performance nursing of baccalaureate students," *J. Nurs. Educ.*, **33**, 395-404(1994).
 - (18) Sheehan, T.J., Husted, S.D., Candee, D., Cook, C.D. and Borgen, M., "Moral judgment as a predictor of clinical performance," *Eval. Health Prof.*, **8**, 379-400(1980).
 - (19) Sisola, S.W., *Principled Moral Reasoning as a Predictor of Clinical Performance in Physical Therapy*, Doctoral dissertation. University of Minnesota, Minneapolis MN (1995) pp. 79-101.
 - (20) Latif, D.A., Berger, B.A., Harris, S.G., Barker, K.N., Felkey, B.G. and Pearson, R.E., "The relationship between community pharmacists' moral reasoning and components of clinical performance," *J. Soc. Adm. Pharm.*, **15**, 210-224(1998).
 - (21) Latif, D.A. and Berger, B.A., "Cognitive moral development and clinical performance: implications for pharmacy education," *Am. J. Pharm. Educ.*, **63**, 20-27(1999).
 - (22) Rest J.R., *DIT Manual: Manual for the Defining Issues Test* (3rd ed.). University of Minnesota Press, Minneapolis MN (1990) pp. 1-24.
 - (23) Thoma, S.J. and Rest, J., "Moral judgment, behavior, decision making, and attitudes," in *Moral Development in the Professions: Psychology and Applied Ethics*, (eds., Narvaez, D. and Rest, J.R.), Lawrence Erlbaum Associates, Hillsdale NJ (1994), pp.133-182.
 - (24) Rest, J.R., "Can ethics be taught in professional school? The psychological research," *Ethics: Easier Said Than Done*, **1**, 22-26(1988).
 - (25) Rest J.R., *Moral Development: Advances in Research Theory*. Praeger, New York NY (1986).
 - (26) Penn, W.Y. Jr., "Teaching ethics—A direct approach," *J. Moral Educ.*, **19**, 124-138(1990).
 - (27) Armstrong, M., "Ethics and professionalism in accounting education: A sample course," *J. Account. Educ.*, **11**, 72-92(1993).
 - (28) Lindon, J.L. and Draugalis, J.R., "Moral development: Results of Rest's Defining Issues Test," *ibid.*, **56**, 140-144(1992).
 - (29) Dolinsky, D. and Gottlieb, J., "Moral dilemmas in pharmacy practice," *Am. J. Pharm. Educ.*, **50**, 56-59(1986).
 - (30) Weinstein, B.D., "Deception," *U.S. Pharm.*, September, 88-91(1990).
 - (31) Clyne, K.E. and Gray, D.R., "Responding to a physician's request to mis-label a patient's prescription," *Am. Soc. Hosp. Pharm.*, **48**, 296-300(1991).
 - (32) Haddad, A.M., "Ethical problems in pharmacy practice: A survey of difficulty and incidence," *Am. J. Pharm. Educ.*, **55**, 1-6(1991).
 - (33) Blasi, A., "Bridging moral cognition and moral action: A critical review of the literature," *Psych. Bull.*, **88**, 1-45(1980).
 - (34) Festinger, L.A., *Theory of Cognitive Dissonance*, Row, Peterson, and Company, Evanston IL (1957), pp. 1-31.
 - (35) Duckett, L. and Ryden, M., "Education for ethical nursing practice," in *Moral Development in the Professions*. (eds. Rest, J. and Narvaez, D.) Lawrence Erlbaum Associates, Hillsdale NJ (1994), pp. 51-69.
 - (36) Bebeau, M.J. and Thoma, S.J., "The impact of a dental ethics curriculum on moral reasoning," *J. Dental Educ.*, **58**(9), 684-692(1994).
 - (37) Campbell, D.T. and Stanley, J.C., *Experimental and Quasi-Experimental Designs for Research*, Rand McNally, Skokie IL (1966), p. 5.
 - (38) McGeorge, C., "The susceptibility to faking of the Defining Issues Test of moral development," *Develop. Psych.*, **44**, 116-122(1975).

APPENDIX: ETHICAL DILEMMAS IN PHARMACY SCALE^a

The following situations concern specific issues pharmacists may encounter in their practice. Many of these issues have legal implications as well. As you examine the following issues, please indicate the extent to which you perceive each of the following statements to be problematic (defined as how difficult it would be for you to resolve each of the issues presented).

1. Whether to fill an inappropriate prescription (that you have : verified with the physician) that is clearly harmful?

Very	Moderately	Somewhat	Seldom	Not
___ problematic	___ problematic	___ problematic	___ problematic	___ problematic
2. Whether to fill an inappropriate prescription that is essentially unharmed but will not benefit the patient when another drug would?

Very	Moderately	Somewhat	Seldom	Not
___ problematic	___ problematic	___ problematic	___ problematic	___ problematic
3. Whether to advise a patient that she/he needs additional medical attention for his/her condition in the case of an inappropriate prescription?

Very	Moderately	Somewhat	Seldom	Not
___ problematic	___ problematic	___ problematic	___ problematic	___ problematic
4. Whether to inform a patient about his/her diagnosis when it is apparent that he/she has not been informed i.e., the patient asks "what is this

Very	Moderately	Somewhat	Seldom	Not
___ problematic	___ problematic	___ problematic	___ problematic	___ problematic
5. Whether to provide/dispense drugs that are against your religious beliefs, i.e., abortifacients?

Very	Moderately	Somewhat	Seldom	Not
___ problematic	___ problematic	___ problematic	___ problematic	___ problematic
6. Whether to participate in the dosing, preparation, or dispensing of lethal injections in the case of capital punishment?

Very	Moderately	Somewhat	Seldom	Not
___ problematic	___ problematic	___ problematic	___ problematic	___ problematic
7. Whether to participate in the dosing, preparation, or dispensing of lethal injections in the case of the terminally ill?

Very	Moderately	Somewhat	Seldom	Not
___ problematic	___ problematic	___ problematic	___ problematic	___ problematic
8. Whether to dispense addictive drugs in the case of suspected or incipient abuse?

Very	Moderately	Somewhat	Seldom	Not
___ problematic	___ problematic	___ problematic	___ problematic	___ problematic

9. Whether to fill a prescription for a drug; for an indication not yet approved by the FDA?
 Very Moderately Somewhat Seldom Not
 ___ problematic ___ problematic ___ problematic ___ problematic ___ problematic
10. Whether to provide medication without a prescription?
 Very Moderately Somewhat Seldom Not
 ___ problematic ___ problematic ___ problematic ___ problematic ___ problematic
11. Whether to question the competency of a pharmacist?
 Very Moderately Somewhat Seldom Not
 ___ problematic ___ problematic ___ problematic ___ problematic ___ problematic
12. Whether to withhold information from a patient because of a physician's request?
 Very Moderately Somewhat Seldom Not
 ___ problematic ___ problematic ___ problematic ___ problematic ___ problematic
13. Whether a clerk should hand a prescription to the patient?
 Very Moderately Somewhat Seldom Not
 ___ problematic ___ problematic ___ problematic ___ problematic ___ problematic
14. Whether to participate in human experimentation that holds little benefit for the patient?
 Very Moderately Somewhat Seldom Not
 ___ problematic ___ problematic ___ problematic ___ problematic ___ problematic
15. Whether to sell ineffective but heavily promoted OTC products?
 Very Moderately Somewhat Seldom Not
 ___ problematic ___ problematic ___ problematic ___ problematic ___ problematic

^aAdapted from Haddad, Ethical problems in pharmacy practice: A survey of difficulty and incidence (1990), pp. 5-6 (see ref.#32).