Moral Reasoning: Should It Serve as a Criterion for Student and Resident Selection in Pharmacy?

David A. Latif

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

The goal of any pharmacy school and resident training program is to produce pharmacists who are well-trained and who reflect favorably on the profession. Attaining this benefits all stakeholders: the institution, the pharmacist, the patient, and society. A major problem is discerning among the potential applicants those most likely to embrace patient-focused care. Academic criteria have not correlated significantly with clinical decision making. Perhaps part of the failure to predict clinical performance can be attributed to a failure in examining variables such as integrity, problem-solving, professionalism, and caring. The aim of this paper is to present, for consideration by schools of pharmacy and residency selection committees, a variable that has been shown, during the past several years, to be significantly and pragmatically related to clinical decision making. The variable, moral reasoning, emanates from the cognitive development field and attempts to explain the human decision making process prior to behavior. While it is important to assess applicants' scientific reasoning, the author supports research to determine if it is prudent for pharmacy schools and residency selection committees to assess applicants' moral reasoning. If additional research confirms the moral reasoning-clinical performance relationship, it might be useful to use moral reasoning as one criterion in the selection process.

INTRODUCTION

A major goal of any pharmacy school and resident training program is to produce pharmacists who are well-trained and who reflect favorably on the profession. Attaining this benefits all stakeholders: the institution, the pharmacist, the patient, and society. One problem associated with student and resident selection has been answering the question, "Which students have the best chance of becoming well-trained pharmacists who embrace patient-focused care and who are a credit to their profession?" For purposes of this paper, clinical performance will be used interchangeably with patient-focused care and clinical decision making to denote performance characteristics such as medical knowledge, task organization, and interpersonal relations(1). These skills are needed by pharmacists to identify, prevent, and resolve their patients' drug therapy problems. Although very little has been done in pharmacy concerning predictors of clinical performance, researchers in other health professions have long attempted to predict effective clinical performance with little success(2,3). Wingard *et al.,* reviewed twenty-seven investigations performed between 1955 and 1972(2). The authors found very little relationship between school grades and subsequent clinical performance. Price *et al.,* examined several thousand relationships in an attempt to predict physicians' clinical performance(3). The authors concluded that most of the examined correlations could be explained by mere chance.

More recent studies have supported previous investigations regarding the weak relationship between clinical performance and school grades. Krichbaum *et al.* assessed baccalaureate nursing students' scores on clinical performance, high school grade point averages and college aptitude scores(4). The authors reported that neither aptitude scores nor high school grades were significantly related to clinical performance.

Sisola, in an investigation of 58 physical therapy students, revealed that overall grade point average was not related to physical therapists' clinical performance (r= -0.037)(5). Sisola stated that even science grade point averages were not related to clinical performance in her sample (r=0.054).

In addition to these investigations, scores on the Medical College Admissions Test, the National Board of Medical Examiners, and the United States Medical Licensing Examination, which are often associated with academic success on medical school and specialty board examinations, have been shown to be weak predictors of clinical performance in physicians(6-11).This failure to predict clinician performance using standard measures of institution admitting criteria may, in part, be attributable to conceptual and methodological problems(6,7). For example, finding a reliable and valid clinical performance measure has proved quite difficult, especially given potential inter-rater reliability bias. Perhaps part of the failure to predict clinical performance can be attributed to not examining variables such as integrity, problem-solving, professionalism, and caring(6,12). The purpose of this paper is to present, for consideration by schools of pharmacy and residency selection committees, a variable that has been shown, during the past several years, to be significantly and pragmatically related to clinical decision making. The variable, moral reasoning, emanates from the cognitive development field and attempts to explain the human decision making process prior to behavior(13). Instead of being concerned with what is socially right or wrong, moral reasoning assesses the processes individuals go through to arrive at decisions.

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Table I. Six stages viewed as conceptions of cooperation[a]

LEVEL 1: Preconventional level: Focus is self	
Stage 1	Obedience: you do what you're told primarily to avoid punishment.
Stage 2	Instrumental egoism and simple exchange: Let's make a deal or only consider the cost and/or benefits to oneself.
LEVEL 2: Conventional level: Focus is relationships	
Stage 3	The morality of interpersonal concordance: Be considerate, nice, and kind, and you'll make friends. Focus on cooperation with those in your environment.
Stage 4	The morality of law and duty to the social order: Everyone in society is obligated to and protected by the law. Focus is on cooperation with society in general.
LEVEL 3: Postconventional level: Focus is on self-chosen or ethical principles	
Stage 5	The morality of consensus-building procedures: You are obligated by the arrangements that are agreed to by due process procedures. Focus is on fairness of the law or rule as determined by equity and equality in the process of developing the rule.
Stage 6	The morality of nonarbitrary social cooperation: Morality is defined by how rational and impartial people would ideally organize cooperation. Focus is on the fairness of the law or rules derived from general principles of just and right as determined by rational people.

[a]Adapted from Rest and Narvaez, 1994, *Moral Development in the Professions,* (p. 5). (see ref. #13).

The remainder of this paper is organized as follows. In the next section, theories related to cognitive moral development are reviewed. Then, studies examining the relationship between cognitive moral development and health professionals' clinical decision making are reviewed. Next, two questions are discussed concerning whether or not moral reasoning can be assessed and, if so, should it be assessed. Finally, a suggestion for implementing the use of moral reasoning assessment as one criterion in the admission process is offered.

COGNITIVE MORAL DEVELOPMENT

Moral reasoning refers to how best one organizes social cooperation in society by coordinating activities in such a manner so as to maximize human welfare(13,14). It has been pragmatically and significantly linked to health professionals' clinical performance(4,5,12,15-17).

Moral reasoning is based on Lawrence Kohlberg's Cognitive Moral Development (CMD) theory, which is a stage theory of moral development(18). Kohlberg, based on the extensive interviewing and observation of adolescents, derived a model that conceptualized ethical judgment based on a series of developmental stages. Kohlberg's theory of moral development posits 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 beginning with what is termed "preconventional morality" to the second, termed "conventional morality" and sometimes to the highest level, called "postconventional morality." Each level has two developmental stages, and individuals progress upward in an invariant sequence. In other words, an individual progresses from stage to stage in a logical sequence. Theoretically, stages cannot be skipped. Rest states that one way in which to view the stages of cognitive moral development is to view them as six conceptions of how best to organize social cooperation in society(13). Table I provides highlights of the six stages.

A pharmacist at the preconventional level of moral reasoning thinks predominately within the framework of "what is in my best interest, regardless of the behavioral effects on others." The focus is on the self at this level. For example, the preconventional pharmacist may provide a very low level of patient care if the costs of doing so (*i.e.,* time) outweigh the benefits (*i.e.,* I'm not getting anything extra for counseling).

The focus at the conventional level of moral reasoning is on relationships. It is realized that life is more than a series of one-shot deals (*i.e.,* I'll scratch your back if you scratch mine). Living requires establishing relationships built on mutual trust. Conventional pharmacists would provide minimal levels of patient care and would likely relinquish this care when faced with moderate situational pressures(*i.e*., workload).

The postconventional individual's resolution to social or moral dilemmas is guided by self-chosen or ethical principles. Laws are usually valid because they rest on principles. However, when laws violate them, the postconventional person acts in accordance with his own (*e.g.,* Martin Luther King's jailing during the civil rights movement of the 1960s).

The postconventional pharmacist would probably provide a high level of patient care, despite being faced with moderate situational pressures. Based on cognitive moral development theory, when confronted with significant negative pressures to the provision of patient care, the postconventional pharmacist would probably change his or her practice environment (*i.e.,* move to a different practice setting)(13,18,19).

Based on cognitive moral development theory and empirical investigations related to the theory, it is suggested that moral reasoning is significantly and pragmatically associated with the patient-focused care activities of community pharmacists(4,5,12,15-18). Stated differently, higher moral reasoners, because they possess more advanced conceptual tools for making sense of the world when faced with dilemmas, will have a greater propensity to provide patient-focused care than lower moral reasoners.

MORAL REASONING AS A PREDICTOR OF CLINICAL AND PROFESSIONAL DECISION MAKING

Several studies in various health professions over the past twenty years have concluded that moral reasoning is significantly related in the positive direction with clinical decision making(4,5,12,15,16,17). Sheehan *et al.* compared medical faculty ratings of the clinical performance of residents with the residents' ethical reasoning scores(12). The ethical reasoning ability of the 244 pediatric residents was found to be a significant predictor of clinical performance. The authors concluded that high moral reasoning appeared to virtually exclude the possibility of poor clinical performance, and that the highest level of clinical performance was rarely achieved by those at the lowest level of ethical reasoning. A subsequent study of 39 family practice residents working with simulated patients fur

ther validated the notion that moral reasoning may be a significant predictor of clinical decision making(15).

Krichbaum *et al.* compared faculty ratings of clinical performance of nursing students to their moral reasoning scores(4). Clinical performance was measured by the Clinical Evaluation Tool (CET), an instrument developed to assess students' clinical performance across settings at various levels of the nursing program. The CET has been shown to be reliable and valid(4). A stepwise multiple linear regression of the mean CET scores for the combined junior and senior years showed that ethical reasoning accounted for 34 percent of the variance associated with senior nursing clinical performance.

Sisola compared moral reasoning to clinical performance in physical therapy(5). Sisola collected data on 58 students entering three physical therapy programs. She specifically compared moral reasoning and conventional admission variables with subsequent clinical performance. It was reported that moral reasoning accounted for 19.4 percent of the variance associated with clinical performance in the physical therapy students(5).

Additionally, Sisola divided ethical reasoning and clinical performance scores into three different categories, high, medium, and low(5). Results of a chi-square analysis indicated that fewer subjects than expected were in the cell correlating high ethical reasoning with low clinical performance, and no subjects were found in the cell linking low ethical reasoning with high clinical performance. This empirical evidence corroborated Sheehan's *et al.* result, and partially supports their contention that high ethical reasoning virtually excludes the possibility of poor clinical performance(12).

Baldwin *et al.* examined the relationship between ethical reasoning level and clinical performance by examining this relationship in cases of malpractice claims against orthopedic surgeons(16). Demographic and malpractice claims data on the surgeons were obtained through a regional interindemnity liability trust. One hundred and forty-nine physicians filled out ethical reasoning questionnaires. The results showed that orthopedic surgeons with few or no claims per year had significantly higher levels of ethical reasoning.

Latif *et al.* utilized both survey and observational methodologies to assess the relationship between moral reasoning and clinical decision making among community pharmacists(17). The authors, in addition to finding a significantly positive relationship, concluded that all observed pharmacists who scored high on moral reasoning also scored high on clinical decision making, while only 20 percent of those pharmacists in the low moral reasoning category scored high on clinical decision making.

Is there a relationship between moral reasoning and professional behavior and performance? Blasi reviewed 75 studies that assessed the relationship between moral judgment and behavior(20). In fifty-seven of them a significant relationship was found between moral judgment and behavior. However, the strength of the relationship was moderate (typically correlation in the range of 0.3 to 0.4). Thoma reviewed approximately 30 studies that relate moral scores to behavioral measures(21). He, like Blasi, found a significant but moderate relationship between moral judgment and action. These correlations may appear low but, by comparison, they are quite consistent with other estimates of judgment and action relationships in related fields(22).

In accounting, Bernardi investigated the relationship between ethical reasoning and an auditor's ability to detect fraudulent financial statement information(23). Four hundred and ninety-four auditors participated in an experimental study that required them to review a complex set of contextual and financial cues regarding the quality of financial statement information for a hypothetical client company. Findings showed that ethical reasoning and experience significantly influenced the individual's ability to detect and frame the questionable accounting entry. High ethical reasoning (postconventional) auditors with high levels of experience were substantially better in detecting fraud than low ethical reasoning auditors (conventional and preconventional).

Ponemon examined the relationship between auditors' ethical reasoning and their underreporting tendencies by employing an experimental laboratory design for a sample of 88 staff level auditors from a national public accounting firm(24). Underreporting of chargeable time occurs in accounting when auditors simply report fewer hours than were actually utilized to complete a specific task. This behavior may be undertaken in response to competitive and stressful conditions within a firm(24). Although underrepporting is formally prohibited at many accounting firms, auditors might underreport because reporting actual time and exceeding the audit budget may signal poor performance and incompetence to firm management. Results of the study indicated that low ethical reasoning auditors were significantly more likely to underreport than high moral reasoning auditors.

What are probable explanations for the significance of moral reasoning as a determinant of professional behaviors? As can be seen from the aforementioned discussion, domains such as clinician behavior, professionalism, and underreporting behavior are all grounded in the individual's reasoning ability(13). Theoretically, as one advances along the ethical development continuum, he/she becomes less influenced by dysfunctional extraneous events in pursuing the appropriate course of action to a potentially conflicting situation(19,25). Thus, there may exist a proclivity for professionals at lower levels of moral reasoning to acquiesce to perceived organizational demands in the face of conflicting circumstances. It has been empirically demonstrated that individuals' moral reasoning levels are significantly and pragmatically related to a number of behaviors related to professionalism, including health professionals' clinical performance, the propensity to lie, cheat, and misrepresent task performance(24,26-28).

MORAL REASONING ASSESSMENT

Before schools of pharmacy and resident selection committees decide on whether or not to use moral reasoning as one selection criterion, the question must be asked, "Can the assessment of moral reasoning be done effectively and, if so, can it be done practically?" These questions can be addressed on both a theoretical and a practical level(7). A major issue on the theoretical level is whether or not a person's moral reasoning is subject to reliable and valid measurement.

It is widely believed in the field of moral psychology that moral reasoning is primarily a justice-based theory with justice being the highest principle of morality(29-32). Much of this belief emanates from the work of Kohlberg(18,28,29) and is empirically supported by a large body of research(13,31-33). However, cognitive moral development theory is not without its detractors. Gilligan and Noddings suggest that, at least for females, caring and the avoidance of harm may be more relevant moral principles than justice(34,35). However, these claims have not been empirically supported since many studies

have concluded that females and males do not score significantly different on moral reasoning(13). Indeed, four studies of health care professionals showed that females scored significantly higher than males on moral reasoning(36-39). If schools of pharmacy and resident selection committees accept Kohlberg's theory of cognitive moral development, then it seems reasonable to assume that it is technically feasible to obtain a reliable and valid measure of one's moral reasoning. Thus, it seems that theoretically, a person's moral reasoning is subject to reliable and valid measurement. Is it practical for schools of pharmacy and resident selection committees to implement a procedure on a large scale that will assess moral reasoning as one criterion of the selection process? Moral reasoning can be assessed in three ways. The first, espoused by Kohlberg, is called the Moral Judgment Interview (MJI)(40). The MJT was developed by Kohlberg and his colleagues and includes a semi-structured interview where subjects are asked about several hypothetical moral dilemmas. Particular attention is paid to the subject's rationale for saying why a particular line of action is more morally justified than another. What the subject says is transcribed and compared to examples and criteria in a scoring guide. The scoring guide lists arguments at the various stages, and the scorer's job is to match a subject's responses with the criteria in the scoring guide. As a result, a single global Stage score is given. Given the labor intensive nature of administering the MJI on a large scale, it is not practical.

The Socio-Moral Reflection Measure is a written test that can be group administered(41). However, it is quite labor-intensive in that it must be hand scored.

The Defining Issues Test (DIT) is a third method of measuring moral reasoning(31). The DIT was developed by James Rest(31). Rather than analyzing individual interview responses by a trained rater as in the MJI, the DIT is a multiple choice test that can be group administered and computer scored. It takes 20 to 30 minutes to complete. In the DIT a subject is first presented with a hypothetical moral dilemma. The subject's task is to evaluate among twelve items those that raise the most important considerations for deciding the case. While DIT results are consistent with Kohlberg's stage sequence model, its primary measures are based on distribution of ethical capacities rather than a single stage score. It is discerned from the MJT in that the DIT is recognition based, while the MJT is production based. Stated differently, the MJT asks a subject to spontaneously generate a solution to a dilemma, whereas the DIT is a recognition task. Additionally, the MJT requires a judge to classify a subject's responses, whereas the DIT requires a subject to classify his or her own responses—thus making it more objective(33).

The most widely used and reliable score on the DIT is the "P" score which is "the relative importance a subject gives to principled moral considerations while making a decision about moral dilemmas"(31). Hence, the "P" (principled) score indicates the percent of a subject's reasoning conducted at the highest level of Kohlberg's model (postconventional). Rest defines any individual with a DIT "P" percent of 50 or greater as thinking primarily at the Principled or Postconventional level of moral reasoning (or the way moral philosophers conceptualize problems)(31).

A DIT "P" percent score below 50 indicates that the subject is not conceptualizing moral problems the way moral philosophers conceptualize them. Hence, people with low moral judgment scores often oversimplify real life situations. Although they may have exemplary technical skills, they frequently find themselves involved in complex ethical problems over their heads(13,31).

If assessing moral reasoning as a criterion for selecting students to pharmacy schools and residencies was deemed important, the DIT would be useful since it would be feasible to use on a large scale. In fact, one published report assessed whether the admissions' criteria could be enhanced by including moral reasoning assessment as a criterion in admitting medical students to medical school(42). After a basic academic screening, this particular medical school put a great deal of emphasis on the interview process. A significant correlation was found between moral reasoning scores on the Defining Issues Test (DIT) and applicant interview scores. In other words, the interview process resulted in the selection of students with more advanced cognitive moral development skills.

PROS AND CONS OF ASSESSING MORAL REASONING

As discussed previously, the moral reasoning assessment of students and residents can be done effectively and seems feasible for those institutions wishing to do so. Next, careful consideration must be given concerning whether or not to assess students' moral reasoning as one criterion in the selection process. In other words, what are the pros and cons of doing so?

Medicine has been characterized as a moral enterprise(43). Health care professionals often must make decisions between alternatives based on insufficient and/or unclear information. Indeed, the provision of pharmaceutical care requires the development of an ethical covenant between the pharmacist and patient(44).

The first question that must be asked by admission and residency selection committees is: "Is a higher level of moral development better than a lower one?" The simple answer is "yes." "Better" does not mean that a higher staged individual is more intelligent or has a higher moral status. It does mean, however, that higher staged individuals may have better conceptual tools for making sense out of the world and thus a roadmap for guiding their decision making(33). It is the same sense of "better" as being able to do long division in mathematics as opposed to being able to do just subtraction. The conceptual tools that allow individuals to do long division enable them to solve more complex math problems than if they just knew subtraction(13). As such, a higher conceptual level of reasoning is "better." Because many professional judgments require higher conceptual tools for making sense of conflicting situations, those individuals with lower moral reasoning skills may find themselves in "over their head" when faced with an ethical dilemma. Thus, it seems reasonable to assume that assessing an applicant's moral reasoning would be a valid and important consideration when selecting pharmacy school and residency applicants.

Often, pharmacy school and resident selection interviews have the goal of assessing moral reasoning ability and capacity. However, the unstructured nature of most selection interviews often results in unreliable and invalid decisions(45). Frequently, many factors undermine the effectiveness of selection interviews. These include such variables as contrast and halo effects. Contrast effects are evaluations of an applicant's characteristics that are affected by comparisons with other applicants recently encountered by the interviewer, who rank orders those characteristics rather than objectively assessing

them(45). For example a good candidate may be penalized because he or she was interviewed immediately after an exceptional one (or vice versa). The halo effect occurs when an interviewer draws general impressions about an applicant based on a single characteristic, such as intelligence, sociability, or appearance(45). For example, an interview with a candidate who looks "professional" and who is skilled in "impression management" might result in the interviewer overemphasizing professional looks when deciding upon selecting this individual. These and other factors often result in an unreliable selection decision. In addition, applicants often recognize what selection interviewers want to hear and respond to questions in socially desirable ways.

It is important to realize that moral reasoning assessment attempts to tap moral reasoning abilities rather than moral values(7). For example, whether applicants are for or against euthanasia or abortion (values) is immaterial to their reasoning capacity for supporting whatever values happen to be.

Another question that selection committees might have concerns socially desirable responses. Specifically, "Can applicants fake their answers on the moral reasoning assessment?" McGeorge, in an experimental study, reported that comprehension sets an upper limit upon the stage used in moral judgment (as measured by the DIT), while preference sets a lower limit upon the stages that are accepted(46). In other words, those individuals at lower levels of moral reasoning may not be able to provide principled answers (*i.e.,* reason at Postconventional level) because they may not possess the requisite conceptual tools to do so. McGeorge asked subjects to take the DIT twice. In one treatment condition (Fake High condition), the first testing, he asked subjects to take the DIT according to the usual instructions. In the second testing, subjects were asked to fake high: "Please assist us by trying to fill in the questionnaire so that it records the highest, most mature level of social and ethical judgment possible. Fill in the questionnaire as someone concerned only with the very highest principles of justice would fill it in." In the "Fake Low" condition subjects were asked to first take the DIT in the standard way, and then to take the DIT with the following instructions: "Please assist us by trying to fill in the questionnaire so that it records the lowest, most immature level of social and ethical judgment possible." The results of the study concluded that it was easy to fake downward, but faking upward did not significantly improve DIT scores.

Subjects in the standard condition generally gave their conceptions of high moral maturity. However, comprehension limited how high they could score. Therefore, in the "Fake High" condition, subjects did not significantly improve their scores. The "Fake Low" condition was different. Participants understood what was below their highest conceptual level of thinking. They were successful in selecting DIT items that were less mature and more childish.

What are the negatives, in addition to the additional time and cost of administration, of schools of pharmacy and resident selection committees using the assessment of moral reasoning as one criterion in the selection process? According to Self and Baldwin(7), Lawrence Kohlberg shared an unpublished manuscript with the authors stating that he was opposed to using moral reasoning as a final arbitrator in deciding upon group exclusion or inclusion, due to the potential for misuse and abuse in assessing moral reasoning (Kohlberg, L.: The uses and abuses of moral stages: The role of stages in understanding and self-understanding. Cambridge, MA, Harvard University Center for Moral Education, 1973). Kohlberg preferred that moral reasoning assessment be used as a remediation tool to identify those who need assistance in moral reasoning. Another potential negative is the potential for lawsuits stemming from the perceived misuse of assessing moral reasoning.

The author concurs with Self and Baldwin in suggesting that, before fully implementing the use of moral reasoning as one criterion in the selection of pharmacy students and residents, future research is needed(7). One suggestion is for a consortium of pharmacy schools and residency programs to administer the DIT to each applicant who voluntarily consents. Both the University of Minnesota's nursing and dental programs have been doing this for several years(47,48). Results of DIT scores should be kept confidential; even faculty members should not have access to the scores for fear of biasing student or resident performance. The subsequent clinical performance of students and residents could be assessed using standardized clinical rating scales, such as those based on the work of Elenbaas, Grussing, and Beck *et* a/(49-51). Next, correlations between moral reasoning and clinical performance can be assessed and a determination can be made as to its value as a criterion. Also, additional studies are needed examining the relationships between pharmacists in different practice settings and moral reasoning.

CONCLUSION

The present paper discusses the merits of pharmacy schools and resident selection committees using moral reasoning as one criterion in their selection processes. Empirical evidence suggests that those health professionals at higher levels of moral reasoning score higher on measures of clinical decision making(4,5,12,15-17). It is suggested that, before using moral reasoning in the selection process, broad, longitudinal studies are warranted. These longitudinal studies could include administering the DIT to each applicant at several pharmacy schools and residency programs throughout the United States. Scores could subsequently be correlated with scores on clinical decision making. In addition, the author suggests that the moral reasoning-clinical performance relationship of pharmacists practicing in different practice settings throughout the United States should be assessed.

References

(1) Elstein, A.A. and Lindenfeld, R., A compendium of performance evaluation instruments for health professions education. Office of Medical Education Research and Development. Michigan State University, East Lansing MI(1979) pp 1-74.

(2) Wingard, J.R. and Williamson, J.W., "Grades as predictors of physicians' career performance: an evaluative literature review," *JAMA,* **48**, 311-322(1973).

(3) Price, P.B., Taylor, C.W., Nelson, D.E., Lewis, E.G., Loughmiller, G.C., Mathiesen, R., Murray, S. and Maxwell, J., *Measurement and Predictors of Physician Performance: Two Decades of Intermittently Sustained Research.* UT: Aaron Press Salt Lake City UT (1971) pp. 14-55.

(4) 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).

(5) 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.

(6) Gonnella J.S., Hojat, M., Erdmann, J.B. and Veloski, J.J. "Assessment measures in medical school, residency and practice: The connections," *Acad. Med.,* 68(Suppl 2), S1-S106(1993).

(7) Self, D.and Baldwin, D.C., "Should moral reasoning serve as a criterion for student and resident selection?" *Clin. Orthop.,* **378,** 115-123(2000).

(8) Huff, K.L., Koenig, J.A., Treptau, M.M. and Sireci, S.G., "Validity of MCAT scores across diverse applicant groups," *Acad. Med.* **74**(Suppl), S41-S44(1999).

(9) Koenig, J.A., Sireci, S.G. and Wiley, A., "Evaluating the predictive validity of MCAT scores across diverse applicant groups," *ibid.,* **73**, 1095-1106(1998).
(10) Silver, B. and Hodgson, C.S., "Evaluating GPAs and MCAT scores as predictors of NBME 1 and clerkship performances based on students' data from one undergraduate institution," *ibid.*, **72**, 394-396(1997).
(11) Wiley, A. and Koenig, J.A., "The validity of the MCAT for predicting performance in the first two years of medical school," *ibid.,* **71**(Suppl), S83-S85(1996).
(12) Sheehan, T.J., Husted, S.D., Candee, D., Cook, CD. and Bargen, M.., "Moral judgment as a predictor of clinical performance," *Eval. Health Prof.,* **8**, 379-400(1980).
(13) 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.
(14) Rest, J.R., "Can ethics be taught in professional school? The psychological research," *Ethics: Easier said than done,* **1**, 22-26(1988).
(15) Sheehan, J., Candee, D., Willms, J., Donnelly, J. and Husted, S.D., "Structural equation models of moral reasoning and physician performance," *Eval. Health Prof.,* **8**, 379-400(1985).
(16) Baldwin, D.C., Adamson, T.E., Sheehan, J.T., Self, D.J. and Oppenberg, A.A., "Moral reasoning and malpractice: A pilot study of orthopedic surgeons," *Am. J. Orthop.* **25**, 481-484(1996).
(17) 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).
(18) 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.
(19) Trevino, L.K., "Ethical decision making in organizations: A person-situation interactionist model," *Acad. Manage. Rev.,* **11,** 601-617(1986).
(20) Blasi, A., "Bridging moral cognition and moral action: A critical review of the literature," *Psych. Bull.,* **88**,1-45(1980).
(21) Thoma, S.J. and Rest, J., "Moral judgment, behavior, decision making, and attitudes," in *Moral Development in the Professions: Psychology and Applied Ethics,* (edits., Narvaez, D, and Rest, J.R.), Lawrence Erlbaum Associates, Hillsdale NJ (1994), pp.133-182.
(22) Ajzen, I., *Attitudes, Personality, and Behavior,* The Dorsey Press, Chicago IL (1988).
(23) Bernardi, R. Fraud detection: An experiment testing differences in perceived client integrity and competence, individual auditor cognitive style and experience, and accounting firms. Unpublished doctoral dissertation, Union College, Schenectady NY, (1991).
(24) Ponemon L., "Auditor underreporting of time and moral reasoning: An experiment-lab study," *Contemp. Acc. Res.,* **9**, 171-189(1992).
(25) Trevino, L.K. and Youngblood, S.A., "Bad apples in bad barrels: A causal analysis of ethical decision-making behavior," *J. Appl. Psychol.,* **75**, 378-385(1990).
(26) Grover, S.L., "Why professionals lie: The impact of professional role conflict on reporting accuracy," *Organ. Behav. Human Decision Processes,* **55**, 251-272 (1993).
(27) Leming, J.S., "Cheating behavior, situational influence and moral development," *J. Educ. Res.,* **71**, 214-217(1978).
(28) Ponemon, L., "The influence of ethical reasoning on auditors' perceptions of management's competence and integrity," *Adv. Ace.,* 1-29(1993).
(29) Colby, A. and Kohlberg, L., *The Measurement of Moral Judgment. Vol. I., Theoretical Foundations and Research Validation,* Cambridge University Press, New York NY (1987).
(30) Kohlberg, L., *Essays on Moral Development: Vol. I., The Philosophy of Moral Development,* Harper and Row Publishers, San Francisco CA (1981).
(31) Rest, J.R., *Developments in Judging Moral Issue,* University of Minnesota Press, Minneapolis MN (1979).
(32) Rest J.R., *Moral Development: Advances in Research and Theory,* Preager, New York NY (1986).
(33) Rest J.R., *DIT Manual: Manual for the Defining Issues Test* (3rd ed.). University of Minnesota Press, Minneapolis MN (1990) pp. 1-7.
(34) Gilligan, C., *In a Different Voice,* Harvard University Press Cambridge, MA (1982).
(35) Noddings, N., *Caring: A Feminine Approach to Ethics and Moral Education,* University of California Press, Los Angeles CA (1984) pp. 12-25.
(36) 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).
(37) 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,* **193,** 1509-1512(1988).
(38) Self, D.J., Olivarez, M. and Baldwin, D.C., "Clarifying the relationship of medical education and moral development," *Acad. Med.,* **73**, 517-520(1998).
(39) Latif, D.A. and Berger BA., "Moral reasoning in pharmacy students and practitioners," *J. Soc. Adm. Pharm.,* **14**, 166-179(1997).
(40) Kohlberg, L., *Essays on Moral Development: Vol. II., The Psychology of Moral Development.,* Harper and Row, San Francisco CA (1984).
(41) Gibbs, J.C. and Widaman, K.F., *Social Intelligence: Measuring the Development of Sociomoral Reflection.,* Prentice-Hall, Englewood Cliffs NJ(1982).
(42) Benor, D.E., Notzer, N., Sheehan, T.J., and Norman, G.R., "Moral reasoning as a criterion for admission to medical school," *Med. Educ.,* **18**, 423-428(1984).
(43) Pellegrino, E.D., Thomasma, D.C., *A Philosophical Basis of Medical Practice.,* Oxford University Press, New York NY (1981).
(44) Berger, B.A., "Building an effective therapeutic alliance: Competence, trustworthiness, and caring," *Am. J. Hosp. Pharm.,* **50**, 2399-2403(1993).
(45) Robbins, S.P., *Managing Today,* 2nd Ed., Prentice Hall, New Jersey, (2000) pp. 366-403.
(46) McGeorge, C., "The susceptibility to faking of the Defining Issues Test of moral development," *Develop. Psych.,* **44**, 116-122(1975).
(47) Ducket, L. and Ryden, M., "Education for ethical nursing practice," in *Moral Development in the Professions.* (edits. Rest, J. and Narvaez, D.) Lawrence Erlbaum Associates, Hillsdale NJ (1994) pp. 51-69
(48) Bebeau, M.J. and Thoma, S.J., "The impact of a dental ethics curriculum on moral reasoning," *J. Dental Educ,* **58**, 684-692(1994).
(49) Elenbaas, R.M., "Evaluation of students in the clinical setting," *Am. J. Pharm. Educ.,* **40**, 410-417(1976).
(50) Grassing, P.G., Silzer, R.F., and Cyrs, T.E., "Development of behaviorally-anchored scales for pharmacy practice," *ibid.,* **43**, 115-120(1979).
(51) Beck, D.E., O'Sullivan, P.S.and Boh, L.E., "Increasing the accuracy of observer ratings by enhancing cognitive processing skills." *ibid.,* **59**, 1-16(1995).