The Relationship Between Pharmacy Students' Locus of Control, Machiavellianism, and Moral Reasoning

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The present convenience study explored the relationship among individual variables that have been shown to predict behavior in the workplace. Moral reasoning has been significantly and empirically linked to clinical performance in health professionals and to ethical behavior. Based on theory and empirical investigations, the dispositional variables of moral reasoning, locus of control, and Machiavellianism were hypothesized to correlate to each other and to predict the ethical behavior of a third-year PharmD class at a new school of pharmacy. Results indicate that higher levels of moral reasoning were significantly related to "internal" scores on Rotter's internal/external locus of control scale. Both higher levels of moral reasoning and "internal" scores on the locus of control scale were significantly related in the negative direction with Machiavellianism. However, only moral reasoning accounted for a significant amount of the variance associated with students' ethical behavior.

INTRODUCTION

Researchers in the health professions of medicine, nursing, physical therapy, and pharmacy have demonstrated a significant and pragmatic relationship between moral reasoning and clinical performance[1-4]. Since predicting workplace behavior is difficult using one variable (*i.e.*, moral reasoning), an explicit recognition of additional variables shown to be of theoretical and empirical significance to the study of workplace behavior may provide better explanations and predictions of pharmacists' clinical and ethical decision making. However, to gain insight into the predictive ability of different variables upon workplace behavior, it may be useful to first examine the relationship between individual variables to determine if empirical results reflect theory. If they do, subsequent research can, perhaps, provide a more precise explanation for observed phenomena, based on the prior variable relationships. The primary purpose of this investigation, which heretofore has not been examined in the pharmacy literature, is two-fold. First, to explore the relationship between pharmacy students' moral reasoning and two other individual variables: belief in personal control (Locus of Control) and the degree to which an individual believes that behavioral ends can justify the means used to obtain those ends (Machiavellianism). The second objective is to examine the predictive ability of moral reasoning, locus of control, and Machiavellianism on pharmacy students' ethical behavior.

The remainder of this paper is organized as follows. In the next section, relevant theoretical and empirical studies related to moral reasoning, locus of control, Machiavellianism, and ethical decision-making are reviewed. Then, the methods of the present investigation are described. Finally, results and their implications to pharmacy education and practice are discussed.

The theoretical framework for moral reasoning is based on Kohlberg's theory of Cognitive Moral Development, which attempts to explain the human decision-process prior to behavior[5]. Instead of concerning itself with what is socially or morally right or wrong, moral reasoning is concerned with the processes one goes through to arrive at decisions. For example, a pharmacist may fill an inappropriate prescription because he/she does not wish to confront the prescribing practitioner (perhaps because the physician has a history of reacting negatively to those pharmacists who question his or her prescribing habits). Moral reasoning is concerned with the "why" rather than the actual behavior, that is, it attempts to assess the processes that a pharmacist goes through before filling an inappropriate prescription. Cognitive moral development hypothesizes that individuals progress in their moral development upward in an invariant sequence through three levels and six stages (Table I). The levels include the preconventional, conventional, and postconventional. Stages 1 and 2 comprise the pre-conventional level of cognitive moral development. The focus at this level is on the self.

At Stage 1 the person is most impressed by the prestige and power of others. For example, a child's parents make demands on the child and the child quickly realizes that disobedience brings punishment. This stage highlights the morality of obedience. To cooperate with people, one must do what one is told. At Stage 1 being good is synonymous with being obedient to the demands of superior others.

At Stage 2, the person realizes that every individual has his own interests. The highlight of this stage is that "doing good" is doing what is instrumentally satisfying to "me," rather than doing what another person demands. Cooperation boils down to making short-term deals with others (*e.g.*, I'll do this if you do that). Fairness at Stage 2 is living up to your side of the bargain.

Stages 3 and 4 comprise the conventional level of cognitive moral development. The focus at this level is on relationships. At Stage 3, the theme for cooperation is loyalty and commitment to a relationship. The individual realizes that life is more than a series of one-shot deals. People establish long-term relationships that involve loyalty and mutual caring.

Table I. Kohlberg's six stages of cognitive moral development[a]

Level	Stage	
Preconventional	1	The morality of obedience: Do what you're told.
	2	The morality of instrumental egoism and simple exchange: Let's make a deal.
Conventional	3	The morality of interpersonal concordance: Be considerate, nice, and kind, and you'll make friends.
	4	The morality of law and duty to the social order: Everyone in society is obligated to and protected by the law.
Postconventional	5	The morality of consensus-building procedures: You are obligated by the arrangements that are agreed to by dueprocess procedures.
	6	The morality of nonarbitrary social cooperation: Morality is defined by how rational and impartial people would ideally organize cooperation.

[a]As reported in Rest and Narvaez, (1994), Moral Development in the Professions, (see ref. 6).

People do not keep "score" of favors (*i.e.*, who owes whom what favor). Stage 3 is the morality of making and sustaining friendships and of being cooperative by being loyal and caring to others in the relationship.

At Stage 4, the individual sees the shortcomings of Stage 3. Namely, that the basis for cooperation only involves friends and loved ones. Stage 4 provides guidelines for cooperating with strangers, competitors, and enemies. The solution to the problem of morality at Stage 4 is to develop a scheme of cooperation for society in general, not merely for cooperating with friends and loved ones. The law is public and knowable to everyone in a society, and categorically applies to everyone. Laws exist so that we can count on individuals to behave in socially prescribed ways. Law creates a cooperative order on a society-wide basis.

Stages 5 and 6 comprise the post-conventional level of cognitive moral development. The focus at this level is on personally held principles. Stage 5 is characterized as a political approach to the study of morality in the sense that what is right is decided in advance by due process. The individual's social perspective is that of an awareness of values and rights prior to social attachments. For example, the Stage 5 pharmacist believes that the rules and laws governing moral action in the profession are based on some form of overall utility (*i.e.*, the greatest good for the greatest number of people). The pharmacist recognizes that moral and legal points of view sometimes conflict, but has learned to balance moral principles with the rules and expectations of the profession and society.

In contrast, Stage 6 is characterized by an ideal society that strives to further the welfare of everyone. Hence, the individual makes a choice to do what is right if it is consistent with self-chosen ethical principles, regardless of its legality. For example, during the civil rights movement of the 1960s, Martin Luther King was jailed for defying legal authorities during the pursuit of principled causes (*e.g.*, equal rights for all Americans). Although it is estimated that the majority of individuals do not reason at the postconventional level, empirical evidence suggests that moral reasoning can be enhanced by teaching the component skills of moral reasoning(7,8). Component skills of moral reasoning include skills of logic, role taking, and justice operations. Rest, in a review of 57 moral reasoning studies concerning the effect of education interventions, concluded that peer discussion of moral dilemmas facilitates modest growth in moral judgment(8). The logic behind these results is that dilemma discussion gives students practice in moral problem solving. It provides them with an opportunity to understand and reflect upon higher levels of moral arguments made by their peers.

Several studies have revealed that moral reasoning is a significant predictor of clinical performance in such health professions as medicine, physical therapy, nursing, and pharmacy(1-4). For example, Sheehan et al. compared the medical faculty ratings of the clinical performance of residents with the residents' moral reasoning scores(1). The Defining Issues Test (DIT) was used as a surrogate measure of one's reasoning(6). It is a self-administered questionnaire that measures moral reasoning according to cognitive moral development theory(5). The DIT has been used in over 1000 studies, and its reliability and validity are well documented(6). The moral reasoning ability of the 244 pediatric residents was found to be a significant predictor of clinical performance. The authors made an intriguing conclusion: that high moral reasoning appears to virtually exclude the possibility of poor clinical performance because the highest level of clinical performance was rarely achieved by those at the lowest level of moral reasoning.

Krichbaum *et al.* compared faculty ratings of clinical performance of nursing students to their DIT scores and revealed that the DIT P percent score accounted for 34 percent of the variance associated with senior nursing clinical performance(2). Sisola compared moral reasoning to clinical performance in physical therapy and reported that moral reasoning accounted for 19.4 percent of the variance associated with the clinical performance of physical therapy students(3).

Finally, in a study of practicing pharmacists, Latif et al. compared the community pharmacists' moral reasoning to a level of clinical performance(4). The clinical performance in this study was assessed using both questionnaire and observation design methodologies. Empirical results indicated that, after controlling for the situational factors of workload and the perceived support of the supervisor toward patient care, pharmacists' moral reasoning accounted for a significant amount of the variance associated with their self-report and actual clinical performance. A more complete review of the relationship between moral reasoning and clinical performance is reported elsewhere(9).

Locus of control(LOC) refers to the degree to which individuals believe they are the masters of their own fate(10). Rotter referred to those individuals who believe that they control there own destinies as internals, while those who see their lives as controlled by outside forces are referred to as externals(10). In general, research has consistently shown that high internals are more satisfied with their jobs, have lower absenteeism rates, and are more committed to the organization than are high externals(11). In the pharmacy literature, much of the research on locus of control concerns the patient(12,13). However, an investigation of hospital pharmacists revealed that hospital pharmacists were significantly more internal than pharmacy students(14).

Trevino suggested that externals may have a greater propensity to act unethically, since they rely on fate and

luck(15). On the other hand, since internals are able to rationalize and control their behavior, they would possess a greater propensity to take responsibility in their determination of right and wrong and thus, behave more ethically than externals.

Machiavellianism (MCV) refers to the degree to which an individual is pragmatic, maintains emotional distance, and believes that ends can justify means(16). A high-Mach perspective is consistent with "if it works, use it." Although the author could find no studies in the pharmacy literature related to Machiavellianism, several studies have concluded that high Machs manipulate more, win more, are persuaded less and persuade others more than low Machs(17). In addition, a meta-analysis of 20 studies that correlated the relationship between Machiavellianism and locus of control concluded that MCV is associated with external LOC(18).

The relationship of high ethical standards to good clinical performance has long been assumed(1). Price *et al.*(19) looked at 3000 possible predictors of physician performance and concluded that the most distinguishing characteristic of poor performance was moral failing (*e.g.*, patient negligence). As pharmacists embrace greater responsibility for patient outcomes, the propensity exists for increased ethical dilemmas. In fact, providing pharmaceutical care requires, in part, the development of an ethical covenant between the pharmacist and patient(20). The highlight of this ethical covenant is the shared responsibility for positive drug outcomes between the pharmacist and patient. Ethically, it may not be enough for the pharmacist to assume he/she knows the patient's best interests; the patient must provide input and be part of the decision making process(20). For example, a patient might present a prescription to a pharmacist with a dosage regimen of four times per day. A problem occurs 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 willing to comply with it. If the pharmacist does not ask the question, "Can you take this medication four times a day?," he/she would not know the potential adherence problem, and its possible resolution.

The ethical reality of most community pharmacies is guided by two specific and conflicting factors: professional responsibilities (*e.g.*, adopting pharmaceutical care and adhering to the profession's code of ethics) and the economic needs of the organization (*e.g.*, maximizing prescription volume for adequate remuneration). A clash of these factors may cause internal social conflict for community pharmacists. According to social psychologists such as Argyris(21), social conflicts, in part, involve actors (*i.e.*, the pharmacist), recipients (*i.e.*, all that are affected by the judgment of the actor, including the pharmacist's patients and work organization), and situational forces (*i.e.*, those that influence or reflect the resolution to a conflict, such as the pharmacists' perceived normative beliefs of his/her supervisor, patients', and state laws). A role conflict may occur in the community pharmacy setting whenever the pharmacist believes that dissonance exists between personal values and self-chosen beliefs, and those values espoused by different constituent groups, such as physicians, the profession, the pharmacy, and patients(22). This role conflict can quickly escalate to moral conflict if it negatively impacts the provision of pharmaceutical care. For example, the time required to provide comprehensive patient care may conflict with the dispensing of medications. If, is as usual, the pharmacy's primary remuneration is derived from prescription dispensing, an inherent conflict may exist between what the profession espouses (*e.g.*, providing pharmaceutical care), and the economic needs of the pharmacy (*e.g.*, maximizing prescription volume). If the pharmacist has embraced pharmaceutical care, he or she may attempt to reduce the dissonance by either placing less importance on the need for pharmaceutical care, placing less importance on the need to maximize prescription volume, or, in extreme instances, may leave the organization. Thus, the potential exists for moral conflict. This may explain the relatively high pharmacist turnover rate in the community pharmacy setting(23).

HYPOTHESES

Theory and previous empirical investigations suggest that an internal locus of control is associated with a higher level of moral reasoning because both internals and more morally developed individuals may exhibit a proclivity to resist the temptation to acquiesce to perceived organizational demands in the face of conflicting circumstances(8,15). This is because individuals at higher levels of moral reasoning may disregard situational authority to uphold ethical principles, while individuals who are internally oriented believe they have a significant role in controlling their personal situations. Thus, it is hypothesized that a significant positive relationship will exist between pharmacy students' moral reasoning and the degree to which they score high on Internal Locus of Control.

I. **Pharmacy students' at higher levels of moral reasoning will score significantly higher on Internal Locus of Control.**
   Based on theory and prior empirical studies(24), suggesting a negative relationship between ethical behavior and Machiavellianism, it is hypothesized that those pharmacy students at higher levels of moral reasoning will score lower on Machiavellianism.

II. **Pharmacy students at higher levels of moral reasoning will score significantly lower on Machiavellianism.**
   Those individuals who see their lives as being controlled by outside forces (externals) have demonstrated a greater propensity to subscribe to the belief that "if it works, use it," and "the end result justifies the means" [Machiavellianism(18)]. Therefore, it is hypothesized that Machiavellianism will be significantly related to external locus of control.

III. **There will be a significant relationship in the positive direction between pharmacy students' scores on Machiavellianism and scores on external locus of control.**
   Previous theory and research have demonstrated a significant relationship between moral reasoning, locus of control, Machiavellianism and the prediction of ethical behavior(15,25). Thus, it is hypothesized that these variables will account for a significant amount of the variance in explaining ethical behavior.

IV. **Moral reasoning, locus of control, and Machiavellianism will account for a significant amount of the variance in explaining pharmacy students' decision-making behavior.**

METHODS

This study analyzed the moral development, belief in personal control, Machiavellianism, and ethical decision-making of a convenience sample of sixty third-year pharmacy students at a three year old school of pharmacy, taking a required manage-

Table II. Summary of hypotheses testing

Hypothesis	Relationship	N	Statistical test	Result	P
1.	Moral reasoning and LOC	53	Pearson *r*	r=0.418	0.003**
2.	Moral reasoning and MACH	53	Pearson *r*	r= -0.388	0.006**
3.	MACH and LOC	53	Pearson *r*	r= -0.361	0.009**
4.	DIT, LOC, MACH, and Ethical Behavior Regression	53	Multiple	R^2= 0.72	0.032*

* Significant at 0.05 alpha level (2-tailed).
**Significant at 0.01 alpha level (2-tailed).

ment course. Sixty students were administered during class instruments measuring moral reasoning, locus of control, Machiavellianism, and ethical decision-making. The short-form Defining Issues Test (DIT) was used as a surrogate measure of a student's moral reasoning, and was administered in accordance with the DIT manual(26). The short-form DIT includes three of the six dilemmas comprising the long-form DIT. Since the short-form has substantially the same properties as the long-form, the two forms have a 91 percent to 93 percent correlation, it was decided that the short-form would be acceptable. The short-form DIT is a self-administered questionnaire that measures subjects' moral reasoning according to cognitive developmental theories posited by Piaget, Kohlberg and Rest(5,27,28). It consists of three hypothetical 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"] (26). The DIT employs a social desirability check to assess the consistency of the answers provided by the respondents(26). If subjects have excessive inconsistencies in their responses or score high on "meaningless" items, their protocols are discarded. Rest estimates approximately 12 percent to 15 percent of sampled protocols are discarded(26) Seven protocols (12 percent) were discarded in this study due to excessive inconsistencies and/or high meaningless scores. This resulted in fifty-three usable protocols. The DIT has been used in over 1000 studies as a measurement of moral reasoning and it has been shown to be reliable and valid(26). The instrument is described in greater detail elsewhere(4).

Students' locus of control was adapted from Rotter(29). A high score on the instrument indicates internal LC, while a low score indicates external LC. Those students scoring high on LC feel that they control their own destinies, while those scoring low perceive their lives being controlled by outside forces. For example, agreeing that "marriage is largely a gamble" scores high on externality, while agreeing that "the number of divorces indicates that more and more people are not trying to make their marriages work" scores high on internality. For this sample, the alpha index was 0.74.

Machiavellianism was measured using an instrument developed by Christie and Geis(17). It uses a ten-item five-point Likert scale anchored at "Disagree a lot" and "Agree a lot." Sample questions include "It is hard to get ahead without cutting corners here and there." The alpha index of this sample was 0.72.

Since the class was a management class, ethical behavior revolved around human resource issues. Ethical behavior was measured using a 15-item Likert scale used in previous studies and designed to identify the frequency with which students have done, or would do things in the future when employed full-time(30). Sample questions include "I call in sick to get a day off when I'm not sick," and "I accept gifts from suppliers in exchange for giving them business."

RESULTS

Fifty-three of the sampled protocols passed the various DIT consistency tests (35 females and 18 males). The mean P percent score of the sample was 30.40. Thus, the majority of pharmacy students in this sample reasoned at the conventional level of moral reasoning(26). The results are presented in Table II.

Hypothesis One posited that higher moral reasoners would score high on internal locus of control. A Pearson product-moment correlation was used to assess this hypothesis and revealed a significant positive relationship at the 0.01 alpha level (r=0.418). Hypothesis Two predicted that those students at higher levels of moral reasoning would score lower on Machiavellianism. A Pearson product-moment correlation supported this and was significant at the 0.01 level (r= -0.388). The third hypothesis predicted a significant association between scores on Machiavellianism and external locus of control. A Pearson correlation supported this by revealing a significant relationship between internal locus of control and Machiavellianism (r= -0.361), which was significant at the 0.01 alpha level.

Finally, the fourth hypothesis predicted that moral reasoning, locus of control, and Machiavellianism would explain a significant amount of the variance associated with students' ethical behavior. A step-wise multiple regression analysis was used to test this hypothesis. Partial support was found for hypothesis four. Specifically, of the three variables in the regression equation, only moral reasoning contributed significantly to predicting students' ethical behavior (*P*= 0.032).

DISCUSSION

In general, this investigation supported the hypotheses and the relationships were generally in line with what would be expected theoretically. As expected, moral reasoning and LOC were significantly related. Previous research has generally supported the notion that high externals are more likely than high internals to succumb to outside pressure to act unethically(15,26). A higher level of moral reasoning, on the other hand, is associated with resisting the temptation to succumb to outside pressures to act unethically(15,31,32).

Similarly, those who score high on Machiavellianism are more likely to believe that the ends can justify the means. This attitude is not consistent with high moral reasoning. Additionally, previous studies have demonstrated that those who score high on Machiavellianism are more likely to score high on external locus of control(18). This investigation corroborated previous results by demonstrating that pharmacy students at higher levels of moral reasoning were significantly

more likely to score high on internal locus of control.

The final hypothesis posited that moral reasoning, locus of control, and Machiavellianism would predict a significant amount of the variance in ethical behavior. Previous studies have demonstrated that all three variables influence ethical behavior(24,25,31). Surprisingly, only moral reasoning was found to significantly influence ethical behavior. It was expected that LOC, Machiavellianism, and moral reasoning would all be predictors of students' ethical behavior. Any explanation as to why is speculative. Further investigations should be conducted to assess Machiavellianism, LOC and ethical behavior in pharmacy students. Perhaps the ethical behavior instrument used was not precise enough to allow for an accurate assessment of the relationship between it, Machiavellianism, and LOC. This may be because the items on the instrument pertained to ethical behavior in the work place. Since many of the tested students do not work, the precision of the instrument may be suspect, given the sample. Alternatively, LOC and Machiavellianism were just not significant predictors for this relatively small sample, and further investigations should be conducted to buttress any speculative argument.

CONCLUSION AND LIMITATIONS

The present investigation explored the relationship between pharmacy students' moral reasoning, locus of control, and Machiavellianism. An additional objective was to assess the predictive ability of these three variables on pharmacy students' ethical behavior. Results demonstrated that moral reasoning is significantly related to ethical behavior, belief in personal control, and low Machiavellianism. Consistent with theory and practice, belief in personal control and low Machiavellianism were significantly related. However, Machiavellianism and locus of control were not significantly related to students' ethical behavior.

Conclusions drawn from the present study results should be guarded because of the study limitations. First, the sample chosen included only one class of one school of pharmacy and it was a convenience sample. Thus, this investigation may bear different results if done in different parts of the United States. Second, the methodology selected had the limitation of assessing only correlations among variables, rather than cause and effect relationships. Third, the items on the ethical behavior instrument used pertained to work behavior. Since many of the pharmacy students in the sample do not work, answers provided may be different than from a sample of full-time pharmacists. Fourth, the instrument used to measure moral reasoning, the DIT, assumes that pharmacy students' moral reasoning is subject to measurement.

Despite these caveats, this investigation substantially corroborates with theory and previous empirical investigations using different research designs and hundreds of subjects. This study contributes to the extant pharmacy literature by providing insight into the relationships among various individual variables that have been found to influence workplace behavior.

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