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## ABSTRACT

The purpose of this study was to assess the level of caring ability of a sample of pharmacy students and assess the relationship between selected predictor variables and pharmacy students' caring ability. Caring was viewed as the ability to assume responsibility for the protection and welfare of another without being perfunctory or begrudging. Questionnaires, including the Caring Ability Inventory (N. Nkongho, 1990) (CAI), a measure of parental bonding, and a measure of school climate, were administered in 3 pharmacy schools in the United States, and 322 surveys were returned, for a response rate of 93%. The mean caring score on the CAI for pharmacy students was 198, below the low, medium, and high CAI norms for nurses and approximately at the median norm for female college students. Whether or not this is an adequate level of caring to provide pharmaceutical care is not clear. The developed model explained a modest amount of variance in pharmacy students' level of caring, with maternal bonding and school climate morale as statistically significant predictors. Students have been attracted to pharmacy traditionally because of the business orientation and the science foundation. The affective domains may become more important as the profession moves toward a patient orientation. (Contains 2 tables and 24 references.) (SLD)

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**Developing the Care in Pharmaceutical Care**

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## **Developing the Care in Pharmaceutical Care**

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### **Introduction**

Pharmacy as a profession has redefined itself through the delivery of pharmaceutical care. The term pharmaceutical care implies direct patient contact and assuming responsibility for therapeutic outcomes (1). The past decade has seen a series of papers identifying competencies that underlie pharmacist performance in delivering pharmaceutical care (2-4). Caring has been identified as an integral component in pharmaceutical care (6-7). Background Paper II of the American Association of Colleges of Pharmacy Commission to Implement Change in Pharmaceutical Education defined the concept of pharmaceutical care and included that “Finally, it espouses caring, an emotional commitment to the welfare of patients as individuals who require and deserve pharmacists compassion, concern and trust” (2).

The attitude of caring manifests itself in behavior. Caring can only be effectively demonstrated and practiced interpersonally (8). The profession of pharmacy is just beginning to understand how pharmaceutical care is translated into interpersonal behaviors. Galt has suggested a list of specific behaviors that demonstrate pharmacists’ caring behaviors. These behaviors range from personal behaviors such as “praying for the patient” to professional responsibilities such as “act to improve the patients therapeutic regimen to better achieve desired outcomes.” (8) Whether or not patients’ perceive pharmacists’ behavior as caring is not known.

Colleges of pharmacy have embraced the concept of pharmaceutical care. Colleges of pharmacy are changing their curriculums to teach students the necessary knowledge and skills needed to deliver pharmaceutical care. For example students are taught how to obtain all information regarding the patient, identify and assess pharmacotherapeutic and patient-related problems, assess medications and treatments, monitor and document outcomes. Students are taught the necessary knowledge and the skills needed to implement the process, but Colleges have not systematically addressed the “care” in pharmaceutical care. The literature has suggested various strategies by which to teach students caring behavior (4-5). Certainly pharmacy education may draw from medical education and nursing to examine successful strategies. There has been some studies in medical education that suggest that opportunities for more student/faculty

interaction such as smaller classes and problem based learning result in more humanistic physicians (9-11). Pascarella and Terenzini report that “A large part of the impact of college is determined by the extent and content of one’s interactions with major agents of socialization on campus, namely, faculty members and student peers. The influence of interpersonal interaction with these groups is manifest in intellectual outcomes as well as in changes in attitudes, values, aspirations, and a number of psychosocial characteristics.” (12) Given this premise, it is reasonable to expect that faculty role modeling and opportunities to interact with faculty can promote caring attitudes and behaviors.

The dimension of caring has long been integral to the profession of nursing and to nursing education (13-14). On the other hand, others in nursing have suggested that “a science for caring is possible, but a science of caring is not.” (15). Whether or not caring can be taught, it has been noted in pharmacy education that “little has progressed with educational methods and courses that actually help students understand the meaning of caring for and about another human being” (16-17).

We suggest that before pharmacy educators implement strategies to teach caring behavior, a better understanding of pharmacy students’ level of caring ability and predictors for caring behavior is needed. Therefore, the objectives of this study are to: 1) assess the level of caring ability of a sample of pharmacy students, 2) assess the relationship between selected predictor variables and pharmacy students’ caring ability.

### **Model and Variables**

The notion of role modeling to teach affective domains is certainly not innovative or novel. Children and students learn values and morals from parents and teachers, as they observe their behavior. This premise is integrated into professional curriculums and practiced in experiential courses and rotations where students learn to be a professional by modeling their behavior after their preceptor. Therefore, it is reasonable and likely that the two primary groups that students are influenced by, teachers and parents, have an influence on students’ level of caring ability. The model used in this study assesses the effect of parental bonding-maternal, parental bonding-paternal, school climate (a proxy for teacher interactions) on students’ level of caring abilities.

For the purpose of this study, caring is viewed as the ability to assume responsibility for the protection and welfare of another without being perfunctory or begrudging (18). Caring is inherently an

interactive process. Noddings has further suggested that “the capacity to care may be dependent on adequate experience in being cared for” (18). This premise is instrumental in models developed that predict students’ level of caring behavior (19).

The constructs in the model will be measured as follows. The dependent variable is caring ability. This will be measured by the Caring Ability Inventory (CAI) (20). This inventory measures the degree of a person’s ability to care for others and has been found to be a reliable and valid measure of this construct (20). The independent variable parental care will be measured by the Parental Bonding Instrument (21). This instrument has been tested and used extensively on medical students and nursing students (19). Two subscales will be used from this inventory; maternal bonding and paternal bonding. These subscales assess the level of caring behavior from both the maternal caregiver and the paternal caregiver. The culture or climate of a school is derived from the quality of personal interactions that occur within that environment. The independent variable school climate will assess how respondents perceive the teaching –learning environment of their college of pharmacy. School climate can be defined as its atmosphere for learning and was measured by the CFK School Climate Profile (22). Four scales were selected from the instrument (respect, trust, morale, caring) and permission was obtained to modify the instrument to make it appropriate to students enrolled in professional programs. These four scales out of the eight on the instrument were felt to represent key areas that faculty can model behavior. These four have been selected and used previously to predict nursing students’ level of caring ability (19, 23). In summary, this study assessed the effect of maternal bonding, paternal bonding, school climate respect, school climate trust, school climate morale, and school climate caring on students’ level of caring abilities.

The resulting survey was composed of Likert scale items.

### **Sample and Methods**

A multi-school sample was selected from American Association of Colleges of Pharmacy member schools. The school sample consists of three Colleges of Pharmacy representing various geographic areas, private and public sectors. School A is a private suburban university located in the midwest. School B is a public research university located in the southeast. School C is a private, church-related urban school in the midwest.. The Dean of Students at each of the schools was contacted and asked to assist in this project. Individual packets for each student containing a cover letter, survey instrument, return envelope and token

\$1.00 of appreciation was sent to the Dean of Students at the sample schools who asked to either mail them to third year pharmacy students or administered them in person. All three sample schools chose to administer them in person at class meetings. A modest honorarium was sent to the staff person at the sample school who assisted in the mailing. The student sample consisted of 125 students from School A, 100 students from School B, and 120 students from School C. The students were all third year professional pharmacy students enrolled in a full-time program. A total of 322 usual surveys were returned for a response rate of 93%, due to the method of administration.

While demographic data was not collected on the respondents, the sample school enrollments mirror national enrollment trends. In 1999, the most recently reported data, 64.9 percent of the enrolled pharmacy students were female, and the majority were White Americans (58.4 percent) (24).

### **Analysis**

Data was entered and analyzed using SPSS. The total score for each scale was the sum of responses. Negative items were reverse coded. Scores were converted to percentages for the ANOVA. Frequencies and other descriptive statistics are described. Multiple regression was used to test the effect of parental care and school climate on students' level of caring ability. Significance level is set a priori at 0.05.

### **Results**

A principle component factor analysis was utilized to examine the construct validity of the four school climate subscales (trust, respect, morale, and caring). This inventory was originally designed for schools, and not professional programs. Although permission was obtained to modify the instrument as appropriate, and the instrument was used previously on other professional programs, we wanted to examine the items to determine if they adequately measured the school climate constructs for pharmacy students. All of the original 18 items loaded on three factors, each reporting an eigen value greater than 1, therefore, the four scales were reduced to three scales. The majority of the individual items loaded on one factor each with loadings greater than .35. We named the first factor caring. This factor had four of the original caring items, one morale item (This school makes students enthusiastic about learning) and one trust item (Our dean is a good spokesperson for our interests and needs). We named the second item trust. This factor had four of the original trust items plus two respect items (In this school even low achieving students are

respected, and Teachers treat students as persons.). The third factor we named morale. This factor had three of the original morale items plus two respect items (Teachers from one subject area or grade level respect those from other subject areas and Teachers in this school are proud to be teachers.) and one caring item (Most people in this school are kind). The reliabilities for the three subscales are high. The alpha coefficients for the three scales are respectively, .882, .846 .805. The variables are described in Table 1.

A composite variable caring was developed by summing the items after reverse coding the negative items. The alpha coefficient was .856. The mean caring score of pharmacy students was 198. This is below the low, medium and high CAI norms for nurses and approximately at the medium norm for female college students, as reported by Nkongho (20). The schools reported statically significant differences on all three of the caring factors. Table 2 describes the mean and standard deviations of the individual schools' climate factors and the results of the ANOVA. The schools differ considerably in all three of the school climate factors.

The independent variables (maternal bonding, paternal bonding, school climate caring, school climate trust and school climate morale) were regressed on the dependent variable caring. The model explained about 12 percent of the variance in the dependent variable (level of caring ability). The statistics are  $F=7.443$ ,  $p=.000$ ,  $df=5,261$ . The independent variables that were statistically significant in the model were maternal bonding ( $p=.003$ ) and school climate morale ( $p=.025$ ).

## **Conclusion**

It is interesting to note how pharmacy students' level of caring ability compares to nursing students and to college students. Whether or not this is an adequate level of caring to provide pharmaceutical care as described earlier is not clear. It would be interesting to assess caring ability of practicing pharmacists who are exemplary practitioners to determine what is a sufficient and adequate level of caring ability to enable pharmacists to practice and delivery pharmaceutical care. This is an area for further inquiry.

The model explained a modest amount of variance in pharmacy students' level of caring ability, with maternal bonding and school climate morale as statistically significant predictors. Clearly there are other variables that affect this outcome. Demographic variables were not collected in this study, due to perceived sensitivity by one school's student body. As noted by earlier research, demographic variables

such as gender, age, and religious orientation may be predictors of caring ability (19). However, our primary concern was to examine the effect of school climate variables on caring ability. School climate may be shaped and influenced by educators, and thereby potentially increasing students' level of caring ability. As demonstrated in Table 2, school climate can vary considerably between institutions.

Caring is a relatively new notion to pharmacy and to pharmacy education. Traditionally students have been attracted to pharmacy because of the business orientation and the science foundation. As the profession of pharmacy redefines itself and moves toward a patient orientation, the affective domains such as caring ability may become more critical to the success of the individual pharmacist as well as the profession as a whole.

### **Limitations**

Clearly this study is limited by the lack of individual demographic data. It would have been interesting to note gender differences in caring abilities, and gender differences in ratings of school climate factors. There also needs to be further examination of caring behaviors of pharmacists. This line of inquiry is just developing. Pharmacy students historically work as pharmacy technicians while in pharmacy school. Pharmacists who serve as students' supervisors also have a potential to influence students' level of caring abilities. External role models, other than parents, were not included in the model.



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**Table 1. Descriptive Statistics of the Variables (N = 267)**

Variable Scale	$\bar{x}$	St. Dev.	Cronbach Alpha
Caring	198.25	18.32	.856
Parental Bonding -- Maternal	42.45	6.01	.907
Parental Bonding -- Paternal	38.76	7.89	.932
School Climate – Caring	16.09	4.46	.888
School Climate – Trust	16.13	3.56	.843
School Climate – Morale	17.34	3.32	.804

**Table 2. Comparison of School Climate Scales of Sample Schools**

Variable Scale	School A		School B		School C		Overall	
	$\bar{x}$	St. Dev.	$\bar{x}$	St. Dev.	$\bar{x}$	St. Dev.	$\bar{x}$	St. Dev.
Caring (percent)	70.51 <sup>ab</sup>	21.61	45.69 <sup>ab</sup>	25.26	52.28 <sup>ab</sup>	23.78	55.96	55.96
Trust (percent)	61.48 <sup>a</sup>	19.01	49.69 <sup>ab</sup>	20.58	56.85 <sup>b</sup>	18.67	56.10	19.85
Morale (percent)	68.50 <sup>a</sup>	17.40	57.05 <sup>ab</sup>	20.92	64.32 <sup>b</sup>	16.60	63.47	18.72

<sup>ab</sup> Statistically significant difference at .05



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