

## RESEARCH ARTICLE

# Comparing Self-reported Burnout of Pharmacy Students on the Founding Campus With Those at Distance Campuses

L. Douglas Ried, PhD,<sup>a,b</sup> Carol Motycka, PharmD,<sup>a</sup> Cary Mobley, PhD,<sup>a</sup> and Michael Meldrum, PhD<sup>a</sup>

<sup>a</sup>College of Pharmacy, University of Florida

<sup>b</sup>North Florida/South Georgia Veterans Affairs Medical Center

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**Objectives.** To compare burnout among students: (1) assigned to the founding campus and those assigned to distance campuses and (2) in different academic years of the curriculum. The third objective was to determine the relative ability of each factor to predict burnout among pharmacy students.

**Methods.** Students in Gainesville (founding campus) and the Jacksonville, Orlando, and St. Petersburg distance campuses were surveyed using the Maslach Burnout Inventory. Internet-based survey methods were used to evaluate the emotional exhaustion, personal accomplishment, and depersonalization domains. Students responded using a Likert-type scale (1 = do not feel this way to 7 = feel this extremely strongly).

**Results.** Among 18 items, 8 significant differences were revealed. Within the emotional exhaustion domain, Gainesville students responded that they were more likely to “feel fatigued in the morning” ( $p < 0.001$ ), “burned out” ( $p = 0.001$ ), “used up” ( $p = 0.02$ ), “frustrated” ( $p = 0.02$ ), and “emotionally drained” ( $p < 0.02$ ) compared to the distance students. Gainesville students had the highest average score on the item “I feel as though I treat my student colleagues impersonally” ( $p = 0.02$ ). Academic year was the best predictor of burnout. Campus assignment was significant for emotional exhaustion, with the highest levels occurring on the founding campus.

**Conclusions.** With few exceptions, students at the founding campus in Gainesville reported more emotional burnout than students attending classes at the distance campuses.

## INTRODUCTION

In fall 2002, the University of Florida College of Pharmacy in Gainesville expanded its first professional degree doctor of pharmacy program by establishing 3 academic campuses in Jacksonville, Orlando, and St. Petersburg, Fla. The College used distance education to increase the cultural diversity of the student body and to provide persons who are geographically bound an opportunity to receive training as pharmacists.<sup>1</sup> Distance education is a relatively new and evolving pedagogy and many things about it still are unknown. One concern with the distance education format is its effect on students' emotional burnout.

The University of Florida distance program is an asynchronous, hybrid, distance education program.<sup>1</sup> Pharmacy students attending the distance education campuses view lectures by Gainesville-based faculty mem-

bers by video streaming technology on the Internet within 2 to 3 hours of their presentation on the founding campus. Students are required to come to a local campus site on a regular basis to participate in discussion sessions, case studies, review sessions, quizzes, and examinations. The course coordinator directs these activities on the Gainesville campus and local faculty members facilitate them at the distance campuses. Course activities and requirements are the same for students attending the founding campus in Gainesville and the distance campuses to ensure curricular comparability. Examinations are given at the same time across the 4 campus sites. Gainesville-based course coordinators travel to the distance campuses and participate in live examination reviews, question-and-answer sessions, and discussion sessions. Sometimes Gainesville-based faculty members use distance technologies to conduct these activities from Gainesville. Given the newness of the technology and teaching methods and their concerns about factors associated with ineffective learning, the Accreditation Council for Pharmacy Education asked the College to assess students' burnout as part of their continuing review of the College's distance education program (ACPE Guideline 15.5).<sup>2</sup>

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**Corresponding Author:** L. Douglas Ried, PhD. Address: Pharmacy Health Care Administration, PO Box 100496, University of Florida, Gainesville, FL 32610-0496. Tel: 352-273-6259. Fax: 352-273-6270. E-mail: ried@cop.ufl.edu

Burnout is defined as exhaustion resulting from excessive demands on energy and resources.<sup>3</sup> Burnout is a long-term reaction to stress and is of significant concern among the helping professions, including physicians,<sup>4,5</sup> nurses,<sup>6</sup> mental health workers,<sup>7</sup> and pharmacists.<sup>8,9</sup> In studies of pharmacists' burnout, those working primarily in community chain store settings reported greater levels of burnout than those working in hospital or institutional pharmacies, independent community pharmacies, academia, or home health care.<sup>8</sup> Respondents who performed primarily nondistributive roles experienced lower levels of burnout than those involved primarily in drug distribution. In another study, personal accomplishment was significantly lower among health maintenance organization pharmacists than the normative score.<sup>9</sup> With regard to other health professionals, burnout among dental students in their experiential programs was found to differ among students in different European cities.<sup>10</sup> To the best of our knowledge, burnout among pharmacy students has not been previously reported.

Factors that contribute to burnout among health professionals and health professional students are also of concern in pharmacy education. For decades, pharmacy students' anecdotal reports have indicated high levels of stress and emotional exhaustion. Feelings of being undervalued by professors and colleagues, perceptions of excessive academic demands and workloads, and limited latitude in decision-making due to time and resource constraints are also inherent in being a student. Another consideration in the development of burnout is the chronic nature of these factors. Given a nearly continuous schedule of examinations, assignments, laboratories, and family and social pressures over the course of an academic year, it is plausible that pharmacy students suffer the same emotional ups and downs as medical residents, among whom, only 4.3% reported a high level of burnout initially, compared with 55.3% at year's end ( $p < 0.0001$ ).<sup>4</sup>

The goal of the study was to examine burnout levels among its students to assess if there are significant differences between the students attending the founding campus and those attending the distance campuses. Specific objectives were to compare burnout among students who were: (1) assigned to the founding campus with those assigned to distance campuses and (2) in different academic years of the curriculum. The final objective was to determine the relative ability of each factor to predict burnout among pharmacy students to assess factors with the greatest impact on burnout.

## **METHODS**

Students at all 4 campuses in the first 3 professional years were sent an e-mail asking them to participate in an

Internet-based survey in spring 2004. Questions regarding burnout had been embedded in an annual survey of students conducted since 1998.<sup>11</sup> The founding campus is located in Gainesville, Fla, and the 3 distance campuses are located in Jacksonville, Orlando, and St. Petersburg, Fla. To encourage participation in the survey, students were given 5 extra credit points in a required course in the curriculum if they completed the survey in each of the 3 academic years.

The Maslach Burnout Inventory (MBI) was used to evaluate students' perceptions of burnout resulting from the stresses of their educational experience.<sup>3</sup> The MBI was initially developed to assess burnout in the "helping" professions, such as social work and mental health workers.<sup>7</sup> However, it has since been applied to medical interns,<sup>4</sup> medical residents,<sup>5</sup> and pharmacists.<sup>8,9</sup> It has also been used to examine dental students in their experiential part of their education,<sup>10</sup> although to the best of our knowledge, this is the first time it has been used among pharmacy students.

The MBI is a reliable and valid indicator of burnout within the profession of pharmacy.<sup>9</sup> The MBI is sensitive enough to discern differences among groups with varying demographic and practice characteristics.<sup>8,9</sup> In a study of European dental students, the MBI was sensitive enough to differentiate burnout levels in different geographic areas.<sup>10</sup> The MBI consists of 18 items to evaluate the emotional exhaustion, personal accomplishment, and depersonalization of colleagues and other persons. Emotional exhaustion is a feeling that one's emotional resources have been depleted, leading persons to feel unable to give of themselves at a psychological level; depersonalization is characterized by negative, cynical attitudes and feelings about clients and co-workers; and reduced personal accomplishment is a negative evaluation of oneself. Students were asked to evaluate how they felt on each of the inventory's items using a Likert-type scale (1 = do not feel this way; 7 = feel this extremely strongly). The reliability of the scales was satisfactory for all 3 domains in this group of students (Cronbach's alpha: emotional exhaustion, 0.91; personal accomplishment, 0.66; depersonalization, 0.77).

The 4 primary explanatory variables were age (in years), gender (0 = female; 1 = male), academic year in the professional curriculum and campus assignment (0 = Gainesville; 1 = distance campus). For the purposes of this study, students were surveyed in the first- through third-professional years of the University of Florida first professional degree doctor of pharmacy curriculum. Two separate variables were created to represent the students' academic year in the curriculum. First, a single variable was created with 3 levels, 1 for each of the 3 academic

years. Next, a binary dummy variable was created to represent the first- and second-professional years. The first-professional year (P1) was designated as the reference category.

The same general strategy was used to evaluate differences in burnout levels among students assigned to the 4 campuses and to compare the relative influence of the campus assignment variable on the prediction of burnout. In the bivariate analyses, a single variable with 4 levels was used to represent the students' assignment to campus; 1 level for each of the 4 campuses. When responses from distance education students were combined for comparison with those of students on the founding campus at Gainesville, a binary variable was created (0 = Gainesville campus, 1 = distance campus).

First, the proportion of students responding within each of the response categories was reported. The mean score and standard deviation were reported for each of the MBI items. Next, one-way analysis of variance (ANOVA) was used to evaluate whether the burnout levels differed among students assigned to the Gainesville campus compared to students assigned to the 3 distance campuses in the aggregate and individually. The analytic strategy used to reach this objective was to first conduct an omnibus test with an a priori comparison of the Gainesville campus to the grand mean of the 3 distance campuses to test whether mean scores on any of the MBI items were statistically different. Afterward, the mean score on each of the MBI items for students attending individual distance campuses was compared with the mean score of students attending the Gainesville campus using Bonferroni post hoc comparisons to correct for multiplicity of tests.

Multiple regression models were used to predict students' burnout in each MBI domain and to evaluate the joint influence of the students' characteristics. The independent effect of campus assignment upon students' MBI scores was evaluated using hierarchical multiple regression techniques. Students' gender and academic year were first added to the model. Next, the distance campus variable was added to the model. If the change in explained variance ( $R^2$ ) was statistically significant, then addition of the campus assignment measure added significantly to the prediction. The a priori level of statistical significance was  $\alpha = 0.05$ . SPSS for Windows was used to conduct the statistical analyses. Interactions involving the distance campus variable were tested. None were statistically significant. The study was conducted according to the principles of the Declaration of Helsinki and was approved by the University of Florida Health Sciences Institutional Review Board.

## RESULTS

The MBI was completed by 629 (90.9%) students attending the College in the first-, second-, and third-professional years (P1, P2, and P3, respectively). Respondents included 369 (59%) assigned to the Gainesville campus, 72 (11%) to the Jacksonville campus, 96 (15%) to the Orlando campus, and 92 (15%) to the St. Petersburg campus. Sixty-four percent of the students in the P1 and P2 academic years responding to the survey were female. More than 68% of those on the Gainesville campus were female. The proportion of females among the respondents at the distance campuses was lower, although it was not different from expected across the 4 campuses ( $p = 0.14$ ). The average age of students in the P1 and P2 classes was 25.0 years ( $SD = 5.7$ , range 19 to 51). On average, the Gainesville students were about 3.4 years younger than the distance students (23.3 versus 26.7,  $p < 0.001$ ). The age difference was statistically significant among students enrolled at the Gainesville campus compared to those at the Orlando and St. Petersburg campuses.

Nearly 47% of the students completing the survey instrument were enrolled in the P1 curriculum. The remaining student respondents were in P2 (36%) and P3 (17%). The proportion of students in P1 and P2 classes at each campus was compared and was similar on all 4 campuses (Table 1;  $p = 0.20$ ). During the 2003-2004 academic year, all of the students in P3 class were enrolled at the founding campus in Gainesville because it was only the second year of the distance program.

On average, students in all 3 professional years of the curriculum responded that they felt "moderately" (1) burned out from school, (2) fatigued in the morning, and (3) used up (Table 2). However, the majority of students stated that being with people did not cause them stress or "only mildly stresses or strains me." The students' negative perceptions about their interactions with people were generally not burdensome because they were described as "pretty strong," "very strong," or "extremely strong" by less than 5% of the students responding.

Students in all 3 professional years of the curriculum reported feeling as though they were helping their student colleagues to a moderate degree (Table 2). On the other hand, the negatively worded items were less strongly endorsed and the students usually responded that they did not feel this way or felt that "very mildly." For example, when they were asked if they did *not* feel as though they were positively influencing others, nearly 3 of 4 students responded that they did not feel that way or only mildly. In other words, they feel as though they are positively influencing others. Students stated they rarely felt unable to (1) accomplish worthwhile things or (2) create a relaxed

Table 1. Comparison of Maslach Burnout Inventory Scores of Pharmacy Students Attending Classes at a Founding Campus and Distance Campuses

	Total (N = 523)	GNV (N = 263)	JAX (N = 72)	ORL (N = 96)	St. P (N = 92)	<i>p</i>
Gender						
Female, %	64.0	68.8	59.2	57.8	60.9	0.14 <sup>†</sup>
Average age, y (SD)	25.0 (5.7)	23.3 (4.2)	25.1 (4.6)	27.0* (6.9)	27.6* (7.2)	<0.001 <sup>‡</sup>
Academic class						
P1, No. (%)	311 (57.6)	148 (54.8)	50 (65.8)	55 (53.9)	58 (63.0)	0.20 <sup>†</sup>
P2, No. (%)	229 (42.4)	122 (45.2)	26 (34.2)	47 (46.1)	34 (37.0)	
Scores on MBI domains (Mean ± SD)						
Emotional Exhaustion	28.1 (11.9)	29.4 (11.8)	24.7* (10.3)	25.7* (11.2)	29.5 (13.3)	0.002 <sup>‡</sup>
Personal Accomplishment	13.5 (3.5)	13.6 (4.9)	12.0 (4.4)	14.1 (5.4)	13.9 (5.4)	0.04 <sup>‡</sup>
Depersonalization	6.7 (3.5)	6.8 (3.4)	6.1 (3.0)	6.7 (3.7)	7.1 (4.0)	0.32 <sup>‡</sup>

GNV = Gainesville; JAX = Jacksonville; ORL = Orlando; St. P = St. Petersburg; SD = Standard Deviation

\*Post hoc comparison (Bonferroni) of Gainesville versus distance campus, *p* < 0.05

<sup>†</sup>*p* value of Chi square

<sup>‡</sup>*p* value of ONEWAY Analysis of Variance

atmosphere with their student colleagues and professors. In general, students in all 3 professional years of the curriculum indicated that burnout to the point of depersonalizing their colleagues and others was not a severe problem (Table 2). For example, when asked if they treated their colleagues impersonally or whether they were becoming more callous, 70% to 80% of the students responding indicated that they did not feel this way or felt this way only mildly. Students responded even more strongly to the question, “I don’t really care what happens to my colleagues,” to which nearly 90% indicated that they did not feel that way or felt so only mildly.

Individual items of the 3 domains of burnout were compared among the 4 campuses (Table 3). Among 18-items, 8 significant differences were revealed; 6 in the emotional exhaustion domain and 1 each in the personal accomplishment and depersonalization domains.

Six of the omnibus ANOVA comparisons were statistically significant, indicating differences among the campuses. Within the emotional exhaustion domain, Gainesville students responded that they were more likely to feel “emotionally drained” (*p* = 0.04). Comparison A shows that the Gainesville students were more likely to endorse this item compared to the distance campus students as a whole (*p* = 0.02).

The students at the founding Gainesville campus also were most likely to endorse the feeling of being “burned out” than the students at a distance (*p* = 0.001). They expressed this perception to a significantly greater degree than students in Jacksonville and Orlando, but to a similar degree to the students in St. Petersburg.

Although the St. Petersburg students had the highest average score (3.9) on the question regarding feeling

“used up,” the Gainesville students’ average score was 3.8. For this item, when the Gainesville students’ average score was compared to the distance campus students’ score in the aggregate (comparison A), the difference was both significant (*p* = 0.02) and significantly higher than that of the Orlando students (*p* = 0.005).

Gainesville and St. Petersburg students also had the highest scores on the “I feel as though I am at the end of my rope” item. Although the omnibus ANOVA was significant (*p* = 0.04), the Gainesville versus the distance campuses comparisons were not significant after the post hoc adjustments.

Students at the founding Gainesville campus were most likely to state that they felt “frustrated at school” (*p* = 0.02). Post hoc comparisons revealed the difference appeared to be between the Gainesville and Jacksonville students.

Compared to the distance campus students, Gainesville students were most likely to state that they felt “fatigued in the morning” (*p* < 0.001). The Gainesville students’ responses indicated more fatigued than the Jacksonville and Orlando students. Gainesville students endorsed the item to a similar degree as the St. Petersburg students. The distance campus students’ responses to the remaining 3 items were similar to that of the Gainesville students.

Jacksonville campus students were most likely to feel they were helping their student colleagues. When the Gainesville students’ responses were compared to the distance campus students’ responses (comparison A), the difference was not significant (*p* = 0.89). When individual distance campuses were compared with the Gainesville students, only the difference between the Gainesville

Table 2. Students Responses to Individual Items on the Maslach Burnout Inventory (N = 629)\*

	<b>Do not feel this way (1)</b>	<b>Very mild (2)</b>	<b>A little (3)</b>	<b>Moderate (4)</b>	<b>Pretty strong (5)</b>	<b>Very strong (6)</b>	<b>Extremely strong (7)</b>	<b>Mean (SD)</b>
<b>Emotional Exhaustion, No. (%)</b>								
I feel burned out from school.	36 (5.7)	78 (12.3)	108 (17.0)	127 (20.0)	100 (15.8)	91 (14.4)	94 (14.8)	4.3 (1.8)
I feel fatigued in the morning.	85 (13.4)	127 (20.1)	118 (18.7)	94 (14.9)	75 (11.9)	45 (7.1)	88 (13.9)	3.7 (1.9)
I feel used up at day's end.	121 (19.1)	91 (14.4)	117 (18.5)	103 (16.3)	100 (15.8)	54 (8.5)	47 (7.4)	3.5 (1.9)
I feel frustrated at school.	121 (19.1)	146 (23.1)	103 (16.3)	91 (14.4)	67 (10.6)	53 (8.4)	51 (8.1)	3.3 (1.9)
I feel emotionally drained.	124 (19.6)	110 (17.4)	137 (21.6)	101 (16.0)	72 (11.4)	50 (7.9)	39 (6.2)	3.3 (1.8)
I feel as though I am working too hard at school.	133 (21.0)	127 (20.1)	108 (17.1)	96 (15.2)	74 (11.7)	53 (8.4)	42 (6.6)	3.3 (1.8)
I feel as though I am at the end of my rope.	256 (40.4)	134 (21.1)	71 (11.2)	71 (11.2)	43 (6.8)	28 (4.4)	31 (4.9)	2.6 (1.8)
Being with people stresses me.	377 (59.6)	128 (20.2)	58 (9.2)	39 (6.2)	13 (2.1)	11 (1.7)	7 (1.1)	1.8 (1.3)
Being with people strains me.	405 (64.1)	115 (18.2)	45 (7.1)	41 (6.5)	14 (2.2)	4 (0.6)	8 (1.3)	1.7 (1.2)
<b>Personal Accomplishment, No. (%)</b>								
I feel as though I am helping my student colleagues.	68 (10.8)	69 (10.9)	105 (16.6)	169 (26.7)	126 (19.9)	63 (10.0)	32 (5.1)	3.8 (1.6)
I don't feel energetic.	127 (20.2)	170 (27.0)	118 (18.7)	85 (13.5)	56 (8.9)	35 (5.6)	39 (6.2)	3.1 (1.8)
I do not feel as though I am positively influencing others.	350 (55.3)	115 (18.2)	88 (13.9)	41 (6.5)	19 (3.0)	10 (1.6)	10 (1.6)	2.0 (1.4)
I can't easily create a relaxed atmosphere.	324 (51.2)	114 (18.0)	66 (10.4)	61 (9.6)	38 (6.0)	22 (3.5)	8 (1.3)	2.2 (1.6)
I feel as though I haven't accomplished worthwhile things.	340 (53.6)	109 (17.2)	69 (10.9)	43 (6.8)	38 (6.0)	20 (3.2)	15 (2.4)	2.1 (1.6)
<b>Depersonalization, No. (%)</b>								
I worry that school is hardening me.	361 (57.0)	106 (16.7)	81 (12.8)	39 (6.2)	25 (3.9)	8 (1.3)	13 (2.1)	2.0 (1.4)
I feel as though I treat my student colleagues impersonally.	359 (56.6)	133 (21.0)	68 (10.7)	40 (6.3)	18 (2.8)	11 (1.7)	5 (0.8)	1.9 (1.3)
I have become more callous towards people.	445 (70.3)	100 (15.8)	42 (6.6)	23 (3.6)	17 (2.7)	3 (0.5)	3 (0.5)	1.6 (1.1)
I don't really care what happens to my student colleagues.	511 (80.7)	62 (9.8)	26 (4.1)	22 (3.5)	12 (1.9)	0 (0.0)	0 (0.0)	1.4 (0.9)

Likert scale: 1 = I don't feel this way, so I don't notice it at all; 2 = very mild, barely noticeable; 3 = a little, somewhat noticeable; 4 = moderate, moderately noticeable; 5 = pretty strong, pretty noticeable; 6 = very strong, very noticeable; 7 = extremely strong, extremely noticeable

\*The P3 students' responses were included in this Table for purposes of completeness and showing the emotional status of all of the students in the College. The remaining tables that follow will include information from students in the first- and second-professional years only

and Orlando campuses approached significance ( $p = 0.08$ ). The significance of the omnibus ANOVA is due to the mean difference between the scores of students on the Jacksonville and Orlando campuses ( $p = 0.03$ ).

Students at the St. Petersburg campus were most likely to endorse the item "I don't feel energetic." The difference in mean scores among the Gainesville and distance campus students was not significant ( $p = 0.19$ ). The difference between students' responses from the Jacksonville and Gainesville campuses was margin-

ally significant after the Bonferroni post hoc comparison ( $p = 0.08$ ). The significant difference indicated by the omnibus ANOVA was between students' responses from the Jacksonville and St. Petersburg campuses.

When the omnibus ANOVA was examined for the items in the depersonalization domain, only the "I feel as though I treat my student colleagues impersonally" item approached significance ( $p = 0.08$ ). Students on the Gainesville campus had the least "favorable" responses (1.9), although their perceptions were still only mild and

Table 3. First- and Second-Professional Year Pharmacy Students' Responses to Questions Regarding Burnout by Campus Location

We would like to know how you are feeling today....		GNV (N = 263)	JAX (N = 72)	ORL (N = 96)	StP (N = 92)	ANOVA p Value	p Value of Contrast*			
							*A	*B	*C	*D
Emotional Exhaustion										
I feel emotionally drained.	M	3.6	3.1	3.1	3.5	0.04	0.02	0.21	0.11	1.00
	SD	1.9	1.6	1.6	1.7					
I feel burned out from school.	M	4.7	3.9	4.0	4.5	0.001	0.001	0.01	0.006	1.00
	SD	1.8	1.6	1.6	1.8					
I feel used up.	M	3.8	3.3	3.1	3.9	0.002	0.02	0.22	0.005	1.00
	SD	1.8	1.7	1.7	1.9					
I feel as though I am at the end of my rope.	M	2.7	2.2	2.4	2.9	0.04	0.10	0.19	1.00	0.16
	SD	1.9	1.5	1.7	2.0					
I feel as though I am working too hard at school.	M	3.5	3.0	3.4	3.6	0.17	0.25	0.24	1.00	1.00
	SD	1.8	1.7	1.8	2.0					
I feel frustrated at school.	M	3.6	3.0	3.2	3.5	0.03	0.02	0.06	1.00	0.36
	SD	1.9	1.6	1.9	2.0					
I feel fatigued in the morning.	M	4.1	3.1	3.0	3.7	<0.001	<0.001	0.001	<.001	0.62
	SD	1.9	1.8	1.7	2.1					
Being with people stresses me.	M	1.8	1.6	1.8	2.0	0.30	0.98	1.00	1.00	1.00
	SD	1.2	1.1	1.2	1.6					
Being with people strains me.	M	1.7	1.5	1.8	2.0	0.18	0.74	1.00	1.00	0.61
	SD	1.2	0.9	1.2	1.5					
Personal Accomplishment										
I do not feel as though I am positively influencing others.	M	1.9	1.7	2.1	2.1	0.15	0.76	1.00	1.00	1.00
	SD	1.2	1.1	1.5	1.7					
I feel as though I am helping my student colleagues.	M	3.8	4.2	3.3	3.9	0.003	0.89	0.29	.08	1.00
	SD	1.6	1.7	1.6	1.4					
I can't easily create a relaxed atmosphere.	M	2.2	1.9	2.1	2.1	0.64	0.47	1.00	1.00	1.00
	SD	1.5	1.5	1.5	1.5					
I feel I haven't accomplished worthwhile things.	M	2.2	2.1	2.2	2.2	0.94	0.96	1.00	1.00	1.00
	SD	1.6	1.6	1.7	1.7					
I don't feel energetic.	M	3.2	2.6	3.0	3.3	0.03	0.19	0.08	1.00	1.00
	SD	1.7	1.6	1.7	1.9					
Depersonalization										
I feel I treat my student colleagues impersonally.	M	1.9	1.5	1.9	1.8	0.08	0.04	0.08	1.00	1.00
	SD	1.3	0.9	1.3	1.1					
I don't care what happens to my student colleagues.	M	1.3	1.3	1.4	1.4	0.69	0.43	1.00	1.00	1.00
	SD	0.8	0.8	1.0	1.0					
I have become more callous towards people.	M	1.5	1.5	1.6	1.7	0.30	0.32	1.00	1.00	0.50
	SD	1.0	1.0	1.2	1.3					
I worry that school is hardening me.	M	2.0	1.8	1.8	2.2	0.16	0.33	0.94	1.00	1.00
	SD	1.5	1.2	1.2	1.7					

ANOVA = one-way analysis of variance; GNV = Gainesville campus, the founding campus; JAX = Jacksonville campus; ORL = Orlando campus; StP = St. Petersburg/Seminole campus; M = mean; SD = standard deviation

Likert scale: 1 = I don't feel this way, so I don't notice it at all; 2 = very mild, barely noticeable; 3 = a little, somewhat noticeable; 4 = moderate, moderately noticeable; 5 = pretty strong, pretty noticeable; 6 = very strong, very noticeable; 7 = extremely strong, extremely noticeable

\*Contrast A = GNV vs. aggregate of the distance campuses; B = GNV vs. JAX; C = GNV vs. DRL; D = GNV vs. StP.

barely noticeable with respect to the way they treated their colleagues. The Gainesville campus students were most likely to say they treat their student colleagues impersonally compared to students assigned to the distance campuses ( $p = 0.04$ ). When the Gainesville campus was compared with each of the distance campuses, only the Gainesville-Jacksonville comparison approached statistical significance ( $p = 0.08$ ) after adjusting for multiple comparisons.

Three burnout domains were compared among students in the 3 academic years (Table 4). Based upon anecdotal evidence, we hypothesized that P2 students should have average higher scores on the 3 domains compared to students in other professional years.

Students' responses to 6 of 9 omnibus ANOVA comparisons were statistically significant depending upon their academic year in the College. In each instance, the P2 students endorsed responses that indicated more intense feelings of emotional exhaustion ( $p < 0.001$ ). Over 13% of students in the P2 year reported severe emotional exhaustion, whereas only 7% and 8% of the P1 and P3 students reported severe emotional exhaustion. The P2 students were more likely to feel that they were (1) burned out from school; (2) used up; (3) working too hard at school; (4) frustrated at school; and, (5) at the end of my rope. P2 students' perception of being burned out from school approached "pretty strong," whereas the P1 and

Table 4. Students' Responses to Burnout Items by Academic Year in the First Professional Degree Doctor of Pharmacy Program

<b>We would like to know how you are feeling today....</b>	<b>P1 (N = 292) Mean (SD)</b>	<b>P2 (N = 225) Mean (SD)</b>	<b>P3* (N 103) Mean (SD)</b>	<b>ANOVA <i>p</i> Value</b>	<b>P1<sup>†</sup> vs. P2</b>	<b>P1<sup>†</sup> vs. P3</b>	<b>P2<sup>†</sup> vs. P3</b>
<b>Emotional Exhaustion</b>							
I feel burned out from school.	4.1 (1.7)	4.8 (1.7)	3.8 (1.9)	<0.001	<0.001	0.37	<0.001
I feel fatigued in the morning.	3.5 (1.9)	3.9 (2.0)	3.7 (2.0)	0.12	0.13	1.00	1.00
I feel used up.	3.3 (1.8)	4.0 (1.9)	3.1 (1.9)	<0.001	<0.001	0.82	<0.001
I feel emotionally drained.	3.3 (1.8)	3.6 (1.8)	2.8 (1.7)	0.002	0.16	0.10	0.001
I feel as though I am working too hard at school.	3.1 (1.8)	3.8 (1.9)	2.7 (1.7)	<0.001	<0.001	0.09	<0.001
I feel frustrated at school.	3.0 (1.8)	4.0 (1.9)	2.7 (1.7)	<0.001	<0.001	0.35	<0.001
I feel as though I am at the end of my rope.	2.3 (1.7)	3.0 (1.9)	2.2 (1.7)	<0.001	<0.001	1.00	<0.001
Being with people stresses me.	1.8 (1.3)	1.9 (1.3)	1.8 (1.4)	0.45	0.66	1.00	1.00
Being with people strains me.	1.7 (1.2)	1.8 (1.3)	1.6 (1.2)	0.22	0.63	1.00	0.33
<b>Personal Accomplishment</b>							
I feel as though I am helping my student colleagues.	3.9 (1.6)	3.7 (1.6)	4.2 (1.7)	0.08	0.91	0.36	0.07
I don't feel energetic.	3.0 (1.7)	3.2 (1.8)	2.9 (1.8)	0.20	0.42	1.00	0.36
I can't easily create a relaxed atmosphere.	2.0 (1.5)	2.2 (1.5)	2.4 (1.8)	0.05	0.42	0.06	0.76
I feel as though I haven't accomplished worthwhile things.	2.0 (1.4)	2.4 (1.8)	1.9 (1.5)	0.001	0.002	1.00	0.02
I do not feel as though I am positively influencing others.	1.9 (1.4)	2.0 (1.3)	1.9 (1.4)	0.52	1.00	1.00	0.95
<b>Depersonalization</b>							
I worry that school is hardening me.	1.8 (1.4)	2.2 (1.5)	1.8 (1.3)	0.004	0.007	1.00	0.04
I feel as though I treat my student colleagues impersonally.	1.8 (1.2)	1.9 (1.3)	1.9 (1.4)	0.35	0.64	0.79	1.00
I have become more callous towards people.	1.5 (1.1)	1.6 (1.0)	1.6 (1.1)	0.72	1.00	1.00	1.00
I don't really care what happens to my student colleagues.	1.3 (0.7)	1.5 (1.0)	1.4 (0.9)	0.06	0.06	1.00	0.88

SD = standard deviation; ANOVA = one way analysis of variance

Likert scale: 1 = I don't feel this way, so I don't notice it at all; 2 = Very mild, barely noticeable; 3 = A little, somewhat noticeable; 4 = Moderate, moderately noticeable; 5 = Pretty strong, pretty noticeable; 6 = Very strong, very noticeable; 7 = Extremely strong, Extremely noticeable

\*No P3 students were assigned to distance campuses. The comparisons most relevant to the issue of differences in burnout among the distance campus students and the Gainesville students are comparison of the P1 versus the P2 students

<sup>†</sup>*p* value of multiple post hoc comparisons using the Bonferroni test

P3 students' perceptions were more moderate. This same pattern was seen for the other 4 items, although it generally was from "moderately true" to "a little true" and somewhat noticeable. The one exception to this pattern was the item indicating that they were "emotionally drained." For this item, only the P2 and P3 students' responses were significantly different from one another (3.6 versus 2.8, respectively).

Students in P2 were more likely to endorse the item, "I feel as though I haven't accomplished worthwhile things." Second-professional year students endorsed the item "mildly to a little" and it was "somewhat noticeable," whereas the P1 and P3 students endorsed it only "mildly" and it was "barely noticeable." Overall, about 5.6% of the P2 students reported a severe sense of lack of accomplishment, whereas only about 2.4% and 2.8% of the P1 and P3 students did so.

Students in the P2 class were more likely to endorse the item, "I worry that school is hardening me," but the item was endorsed at the "very mild, barely noticeable" level. Overall, <1% of students in all 3 classes reported that they strongly depersonalized their student colleagues and faculty members.

Students' scores on the 9 individual items in the emotional exhaustion domain were summed to reach an aggregate score for the P1 and P2 students. The total scores ranged from 9 to 63, with an average of 28.1 ( $\pm 11.9$ ) and a median score of 27 (Table 1). On average, students indicated that their emotional exhaustion was a little strong and somewhat noticeable. The age, academic year and gender variables were entered into the model (Table 5) in Step 1. Students in P2 were more likely than students in P1 to score higher on the emotional exhaustion domain by an average 4.4 points. Females scored an average of 4.7

points higher than males on the emotional domain scale. After adjusting for age, gender, and year in the curriculum, the "distance campus" variable was significant and added significantly to the prediction of the model. On average, the distance campus students scored 3.0 points lower than the Gainesville students. The magnitude of the distance campus standardized coefficient was approximately half the magnitude of the gender and P2 variables and similar in magnitude to the age coefficient. Overall, the model explained <8% of the variance.

The students' scores on the 5 individual items in the personal accomplishment domain were summed to reach an aggregate score. The total scores ranged from 5 to 34, with an average of 13.5 ( $\pm 3.5$ ) and a median score of 13. This indicates that on average, students' perceptions of a lack of personal accomplishment were between very mild and either barely noticeable or somewhat noticeable. The age, academic year and gender variables were entered into the model (Table 5) in Step 1. Second-professional year students were more likely than P1 students to score higher on the lack of personal accomplishment domain. Older students were more likely to endorse a perception of a lack of personal accomplishment. Females and males were similar with regard to their perceptions of a lack of personal accomplishment. The students' age and year in the curriculum were significant predictors of the lack of personal accomplishment and the magnitude of the coefficients were about 3 times the magnitude of the distance campus variable. After adjusting for age and year in the curriculum, the "distance campus" variable was not significant. Overall, the model explained only about 2% of the variance.

Finally, the students' scores on the 4 individual items in the depersonalization domain were summed to reach an

Table 5. Regression of Gender, Academic Year, and Distance Campus on Emotional Exhaustion, Personal Accomplishment, and Depersonalization Domains of the Maslach Burnout Inventory (MBI)

Variable	Emotional Exhaustion		Personal Accomplishment		Depersonalization	
	$\beta$ coefficient*	p value	$\beta$ coefficient*	p value	$\beta$ coefficient*	p value
Step 1						
Age, y	0.11	0.01	0.11	0.02	-0.02	0.73
Gender	-0.19	<0.001	-0.07	0.13	0.09	0.04
P2	0.18	<0.001	0.10	0.02	0.10	0.03
Step 2						
Distance campus	-0.12	0.006	-0.04	0.40	-0.02	0.70
Adjusted R <sup>2</sup>	.08		.02		.02	
F of model	12.8		3.31		2.47	
p-value of model	<0.001		.01		.05	
R <sup>2</sup> Change between Step 1 and Step 2	0.01		0.001		0.00	
	<i>p</i> = 0.006		<i>p</i> = 0.40		<i>p</i> = 0.69	

\*Standardized regression coefficient ( $\beta$ )



aggregate score. The total scores ranged from 4 to 24, with an average of 6.7 ( $\pm 3.5$ ) and a median score of 5. This indicates that on average, students' perceptions of depersonalization (caring little, hardening, and treating students and faculty impersonally) were between "I don't feel this way and so I don't notice it at all" and "very mild and barely noticeable." Second-professional year students were more likely than P1 students to score higher on the depersonalization domain. Males' perceptions of their relationships with faculty members, staff members, and student peers were more depersonalizing than females' perceptions. After controlling for age, gender, and year in the curriculum, the "distance campus" variable did not add significantly to the prediction of the students' perceptions of depersonalizing their relationships and was about one tenth the magnitude of the influence of academic year.

## **DISCUSSION**

The first objective of this study was to compare emotional burnout between PharmD students assigned to the founding campus with PharmD students assigned to a distance campus. The aspect of burnout that influenced the College's students to the greatest degree was emotional exhaustion. While the average student reported "moderate" emotional exhaustion, only about 10% of students reported severe emotional exhaustion that was "pretty strong" or stronger. In a study of dental students, approximately 10% reported severe emotional exhaustion, explained by a lack of leisure time, examination anxiety, and the stress associated with transitioning from primarily course work to working with patients in their clinical experiences. The University of Florida College of Pharmacy certainly has its share of examinations and chronic academic stressors (eg, assignments, laboratories, presentations) and the College has undertaken multiple strategies to reduce students' stress. For example, we reduce examination anxiety by coordinating examinations among the classes within academic years before the semester begins so that students do not have more than 1 examination on a single day and usually no more than 2 examinations per week. In addition, we also (1) plan our distance campus calendars to include as many classes as possible in 1 day for less driving; (2) try not to schedule other time-consuming activities that are weighted heavily in determining students' grades; (3) allow electronic submission of homework and other assignments so that students do not have to spend time traveling to campus for that purpose alone; and, (4) coordinate active-learning sessions around periods of heavier examination loads. Specific sources of stress for this reported study about burnout were not specifically measured, although anec-

dotally, students have consistently stated in focus groups and course assessments that examination and workload anxiety cause chronic stress. The proportion of pharmacy students with extreme responses to the other domains of burnout were also much lower than among the dental students.

It was initially a concern that students at a distance would be more stressed because of the different methods of delivering the curriculum (ie, video streaming) at a distance versus the typical in-class lectures and other more traditional means of delivering the curriculum in a campus-based program. Before the distance program, students who were not within commuting distance had to relocate to the founding campus which contributed to stress, eg, separation from their families, increased travel. Students at a distance typically do not have to relocate. Students at 2 of the campuses at a distance from the founding campus reported similar or even less emotional burnout compared to students at the founding campus in Gainesville. This finding of geographic differences is similar to students in clinical dental rotations, where the students' geographic location was found to be associated with emotional exhaustion, as well. Also, the classes are smaller at distance campuses (ie, average of 50 students versus 130 in Gainesville) so students get to know one another better and provide emotional support for one another.

The only predictor of depersonalization in the study of dental students was a lack of social integration. Our initial hypothesis was that a finding of a lack of social integration may be an indicator of lack of interaction with colleagues given that most of the lectures would be viewed via video streaming by students assigned to the distance campuses. We now think that in some cases, because of the small group of students on the distance campuses, they are actually more "integrated" and working as a team. This was especially the case in the first year of the program when the distance students made special efforts to "bond" in order to convey to the Gainesville students that distance education students were equal. Other factors that may contribute include the fact that discussion sessions, classes, and laboratories for students at the Gainesville campus are spread throughout the week based on the practicum schedule set forth in the College of Pharmacy schedule of classes. The same activities on the distance campuses are usually held the same day and often in the same session. Moreover, the facilities at the distance campuses are more compact with much less distance between venues than in Gainesville. The College ensures that the distance students have frequent opportunities for interaction because of the hybrid nature of the program. As a result, the differences in personal

relationships may not differ significantly. Finally, given the smaller numbers of students on the distance campuses, they may have more opportunities to interact and get to know the campus administrators, staff members, student services personnel, and course facilitators on a personal basis. This is consistent with regard to our findings that, even within the emotional exhaustion domain, students did not feel that being with people stressed or strained them and felt they were able to help others. For the most part, they felt that they were able to help others, which is a sign of social integration. The possibility of greater integration of students at distance campuses may reflect several factors, but in part, may be due to the convergence of small classes with timing and spacing of student activities. Distance sites have greater flexibility with scheduling activities such as active-learning sessions so that large fractions of the student body may be on campus at a given time. Further, the physical spaces of the distance campuses are more concise than the relatively more dispersed and large Gainesville campus. Thus, at the distance campuses, relatively small student bodies are spatially and temporally advantaged for interpersonal communication and the development of greater integration.

Surprisingly, the students at the Gainesville campus reported signs of more emotional exhaustion than did the distance students on the emotional exhaustion domain; no differences in the personal accomplishment, and only one in the depersonalization domain. One possible explanation for this finding is the class size. However, responses from students at the St Petersburg and Gainesville campuses were similar. The fact that the responses from the St. Petersburg students were different from the other distance sites suggests that distance is not the only factor. Even though St. Petersburg has smaller class size, there were still higher levels of burnout than the other distance sites with similar class sizes.

The second objective was to compare emotional burnout among students in different academic years of the curriculum. Second-professional year students consistently reported more emotional exhaustion than P1 and P3 students. While individual items bear further examination to determine whether they indicate a meaningful problem, the consistency of the pattern certainly lends credence to the students' opinions that the second-professional year is more stressful and causes greater burnout. In the second-professional year, students have 5 rigorous didactic core courses (medicinal chemistry, pharmaceuticals, pharmacology, pharmacotherapy, and statistics, along with weekly rigorous active-learning sessions). This finding may provide us with the motivation needed to change the curriculum to reduce the emotional stress, for example, offering summer classes to spread out the

courses students perceive as most difficult and time consuming.

The third objective was to determine the relative ability of each of these factors to predict burnout among pharmacy students. Only in the case of emotional exhaustion was the distance campus variable significant. Contrary to the initial concerns of some parties that participating in a distance program would have a negative impact on students' emotional health compared to students attending the founding campus and a more traditional curricular delivery, the distance campus students reported less emotional exhaustion after controlling for age, gender, and academic class. Rather, academic year was the most consistent predictor. The students' assignment to a distance campus usually had less than half of the influence on students' emotional reports than did academic year and consistently less than gender and age. In each case, the students' campus location explained only a fraction of their burnout. In other words, their perceptions of burnout may have been precipitated by factors other than whether the student attended a distance campus or the founding campus.

Interestingly, gender was significant in the case of emotional exhaustion and depersonalization. Females were more likely to express emotional exhaustion and males were more likely to expression symptoms of depersonalization. While we do not have information regarding students' marital status in our analysis, students at the distance campuses were generally older. Given that the distance program was started to provide opportunities for older persons who are geographically bound by families, spousal employment, or other reasons, these students may be stressed to a greater degree because of non-academic issues competing with academic responsibilities for their time and attention. That is one plausible explanation for female students' expression of more emotional exhaustion than males. The source of the differences between men and women in these areas may reflect generalized differences between men and women, or situational differences such as family or household responsibilities.<sup>12</sup> Females have traditionally taken on greater responsibility in the household than males, even when working or going to school. When taking on additional responsibility, such as becoming a full-time student, the additional stressors of the student role may add to the emotional exhaustion a female student feels from day-to-day compared to that experienced by male students, who may not have as many day-to-day household responsibilities. Females typically have the most demanding emotional roles in the family, which adds to the overall emotional strain in school. Females also tend to feel more stressed when work, or in this case school,

directly interferes with their family activities.<sup>12</sup> In addition to females actually performing more duties in the household, the perception of taking on greater responsibility than males appears to cause women greater emotional stress as well.<sup>13</sup> Finally, male partners do not support female students in the household as well during highly stressful times in their lives, which may further add to emotional exhaustion among female students.<sup>14</sup> Further inquiry and analysis may yield valuable information that would enable us to target some remedies based on gender or life situation.

Although the average student assigned to the Gainesville campus was younger than students on the 3 distance campuses, older students were more likely to report higher scores on emotional exhaustion and personal accomplishment. This finding is also consistent with the previous hypothesis about family and outside of school conflicts with rigorous school activities. Possibly, these older students have accomplished more in life through early careers and family; therefore, school does not seem to have as large of an impact on their feeling of personal accomplishment, but does add to emotional exhaustion.

The findings from this study should be interpreted with the following limitations in mind. First of all, to the best of our knowledge, this is the first study reporting burnout among pharmacy students. Consequently, we do not have a baseline to ascertain what a "normal" level of burnout is among pharmacy students. As faculty members in the College, we do not know if we should be alarmed at these students' reports and whether extraordinary measures need to be taken to safeguard the emotional well being of our students or whether the levels of stress are normal. We found that these pharmacy students appeared to be less stressed than dental students. However, without a baseline measure to gauge these reports of emotional exhaustion, we do not know if they are of sufficient concern to take action to reduce the chronic stress associated with pharmacy education. We also have mechanisms to refer students for counseling on how to cope with stress.

Another limitation is that we did not assess the reasons for the students' reports of stress in this study. However, in separate focus groups and open-ended comments accompanying this Internet-based survey, students mentioned such things as multiple course-related activities in the same week (eg, examinations and assignment deadlines), neglecting family obligations due to school-related pressures, balancing personal needs with the pressures of the academic workload, getting ready to transition into advanced pharmacy practice experiences, and working in groups where one or more members are not fully participating, and especially, not meeting their own academic expectations.

Given these students' reports about chronic stressors associated with the academic requirements of the College, we need to further investigate their causes. In the open-ended comments section of the Internet-based survey instrument and anecdotally, students have historically given "stress" associated with the workload as reasons for their unprofessional behaviors, which may be investigated as a reason for ineffective learning experiences (Standard 15, ACPE).<sup>2</sup> Similarly, we also need to investigate whether burnout is associated with other factors not included in the regression model but which also predict academic performance, such as learning styles, PCAT, and science and math GPA. So, for example, do students with weaker academic preparation before entering the PharmD program report higher levels of stress or is it another individual attribute, such as perceptions of not meeting personal expectations for performance?

## CONCLUSIONS

Academic year in the College's curriculum was the only factor that consistently predicted students' burnout. Female students reported more emotional exhaustion and male students reported more depersonalizing behaviors. In the case of emotional burnout and personal accomplishment, higher levels of burnout were associated with increased age. Finally, and most important to the College of Pharmacy's program concerns about reasons for ineffective learning at a distance, while the students' campus assignment was a significant predictor of their emotional exhaustion, students assigned to a distance campus reported lower burnout levels than students at the founding campus.

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