RESEARCH ARTICLES

Job and Career Satisfaction Among Pharmacy Preceptors

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Objectives. To examine the perceived benefit of job and career satisfaction among pharmacist preceptors and to explore other factors that might influence satisfaction.

Methods. A cross-sectional self-administered survey instrument was mailed to pharmacists in the South Central region of the United States who had active 2010 licenses to investigate whether being a pharmacist preceptor increases job and career satisfaction.

Results. Twenty-three percent of the 363 respondents were active preceptors and 62% of these reported that they had been preceptors at some point in the past. Being an active preceptor was significantly related to increased job satisfaction ($p = 0.01$) but not to career satisfaction. Having a perceived benefit of continuing education and being professionally challenged at work also were associated with increased job and career satisfaction ($p < 0.001$).

Conclusions. Pharmacist preceptors have higher levels of self-reported job satisfaction.

Keywords: preceptor, job satisfaction, career satisfaction practice experiences

INTRODUCTION

Introductory pharmacy practice experiences (IPPEs) and advanced pharmacy practice experiences (APPEs) are critical components of modern pharmacy education and training. The standards of the Accreditation Council for Pharmacy Education (ACPE) require that IPPEs and APPEs comprise a minimum of 5% (300 hours) and 25% (1440 hours) of the PharmD curriculum, respectively.¹ This experiential education mandate means that all 119 accredited colleges and schools of pharmacy² must identify and recruit significantly larger numbers of pharmacist preceptors in various practice settings to provide accredited training for student pharmacists.

The process of providing training to student pharmacists may result in tangible and intangible rewards to pharmacist preceptors. Possible tangible benefits include money (pay per student), reference materials furnished by the college or school of pharmacy for site use, various forms of appreciation events, support for continuing education

and professional development, academic title, and preceptor license reimbursement. However, the less tangible benefits may, in fact, be more important to pharmacist preceptors.^{3,4} The perceived benefit of precepting student pharmacists has been explored in the literature but only to a limited extent.^{3,5,6} Additional studies that provide greater understanding of pharmacists' perceptions regarding the intangible rewards of precepting would be of great value in recruiting and retaining preceptors.

Educating students and influencing the professionalization process of new practitioners is clearly an opportunity for preceptors to engage in professional activities, but it is also a likely source of professional job satisfaction. In contrast to some components of professional practice, which may be possible only within institutional settings, the professional function of preceptorship is one in which pharmacists in any practice setting can participate. This is especially important in light of a report noting a significant shortage of willing preceptors, despite the benefits to the profession, the student, and the preceptor.⁵ Although the pharmacist vacancy rate has fallen from 8% in 2000 to 5% in 2004, a substantial growth in supply is still needed over the next 2 decades to meet the projected surge in demand for pharmacy services in the US healthcare system.⁷ The need for pharmacists, which continues to grow faster than the average for all other

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occupations, is expected to increase by 17% between 2008 and 2018.⁸ As of October 2010, the national demand for pharmacists was still moderate (3.4 on a 5-point scale on which 1 = high surplus to 5 = high demand).⁹ The need to replace pharmacists leaving the occupation and the limited capacity of training programs are the factors still fueling the pharmacy workforce shortage. Results of a 2008 survey from the American Society of Health-System Pharmacists showed that the rate of pharmacist turnover reached 8.6%, a 1% rise from the previous year.¹⁰ Costs related to pharmacist turnover were as high as \$89,000 per pharmacist in 2005 dollars.¹¹ Therefore, providing rewards and satisfying experiences for pharmacists is increasingly important in retaining valuable professionals.

Job and career satisfaction are latent concepts that cannot be measured directly. Employees' perception of their work determines their level of job satisfaction. In 1976, Locke defined job satisfaction as, "a pleasurable or positive emotional state resulting from the appraisal of one's job or job experiences."¹² While job satisfaction provides a measure of job-specific affect, career satisfaction represents individuals' feelings toward their selected professions, or the accumulated work-related experiences and activities over an entire career.^{6,13}

Job and career satisfaction are recognized to relate to happiness with a pharmacist's worklife.¹⁴ High satisfaction benefits employers because satisfied employees are less likely to change jobs. Alternately, high pharmacist turnover negatively impacts employers by generating additional recruiting and training costs for replacement. On average, pharmacists stay at their jobs less than 3 years.¹⁵ Enhancing pharmacist job satisfaction may lead to higher level of pharmacist retention and significantly reduce the burden of retraining costs. Moreover, there is a link between satisfied physicians and positive patient outcomes.^{16,17} Thus, increasing pharmacist job satisfaction may result in greater productivity, better quality healthcare services, and more satisfied patients.

Although factors affecting job and career satisfaction among pharmacists have been widely discussed,¹⁸⁻²⁰ few studies have explored the intangible benefits of being a preceptor and its association with job and career satisfaction.^{3,6} While the demand for preceptors creates recruitment challenges for new and existing colleges and schools of pharmacy, knowledge of the intangible benefits perceived by preceptors may prove helpful in recruitment efforts. The objectives of this study were to investigate whether preceptorship increases job and career satisfaction and to explore which factors, such as age, gender, practice settings, employment status, stress, challenging

work, and workload, are associated with job and career satisfaction among pharmacists.

METHODS

This study used a cross-sectional self-administered survey instrument. The sampling frame was 41,599 pharmacists with active licenses for 2010 in the US South Central region, which includes Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Oklahoma, Tennessee, and Texas. Mississippi had the lowest number of active licensed pharmacists (2,864) and Texas had the highest (18,857). The list of pharmacists in this region was obtained through the State Boards of Pharmacy except for Alabama, which was supplied by KM Lists (Krejcie & Morgan, West Marlton, NJ). Krejcie & Morgan's approach to determining sample size for survey research was used.²¹ The appropriate target sample size to represent the population adequately was determined to be 381. Because we anticipated a low response rate from this population and assumed there would be some undeliverable addresses in our sampling frame, we determined that 2000 survey instruments needed to be distributed. To generate a representative sample of the population of licensed pharmacists in the South Central region, we used a stratified random sampling technique based on relative numbers of active licensed pharmacists located in the 8 states.

A modified Dillman's method for mail survey instruments was used.²² The survey package included a personalized cover letter explaining the purpose of the research project, a numbered survey instrument, and a postage-paid return envelope. The packets were mailed in March 2010, and a reminder postcard was sent 1 week later. One month after the first mailing, a second survey packet was sent to nonrespondents, followed by a reminder postcard 1 week later. Numbered survey instruments enabled us to keep individual data confidential while tracking response rates. Survey instruments that were returned within 2 months of the first mailing date were included in the analysis. Identifiable information, such as name, address, license number, or phone number, was not collected. This research protocol was approved by the University of Arkansas for Medical Sciences Institutional Review Board.

The survey instrument used in this study was modified from one used in previous surveys.^{6,19,23} The instrument is valid and reliable in measuring pharmacists' job and career satisfaction,²³ and was designed to obtain data in 4 general areas: individual information, such as demographics, educational background, and postgraduate advanced training; job features, such as employment status (part-time or full-time pharmacist), practice settings, and

years of practice in current position; preceptorship history and current status; and personal perspectives on job and career as a pharmacist, including satisfaction. Two additional questions exploring family commitments were added to the survey instrument but were not included in the current analysis.

Preceptorship status was identified by asking the pharmacist if he/she had been or was currently a preceptor for pharmacy students. A 5-point Likert-type scale was used for responses to personal perspective questions, and a 4-point scale was used for response options for questions used to determine stress level and challenging work. Details of the survey items used in the analysis and the corresponding responses are presented in Table 1. A copy of the survey instrument is available from the corresponding author upon request. Descriptive statistics (means and standard deviations for continuous variables; frequencies and percentages for categorical variables) were used to delineate participant demographics and characteristics. Job and career satisfaction were measured using multi-item scales. Job satisfaction level was determined by totaling the scores from questions 51-53 (lowest possible score = 3, highest possible score = 15). A summary score from questions 56-59 represents career satisfaction level (lowest possible score = 4, highest possible score = 20). Higher summary scores represent greater satisfaction.²³ Mean imputation approach was used for missing data on job and career satisfaction scales. Participants had to provide responses to at least 2 survey items on both the job and the career satisfaction scales for their survey instrument to be included in the analysis. Internal consistency reliabilities of both job and career satisfaction scales were reported as Cronbach alphas. A Cronbach alpha of at least 0.7 for each scale was desired.

The analysis used to explore whether preceptorship is associated with increased job and career satisfaction was carried out using analyses of covariance (ANCOVA) to account for variability of other variables (covariates), such as preceptor's age and gender. Respondents were divided into 3 groups: non-preceptors, previous preceptors, and active preceptors. The active preceptor group included participants who were new to preceptorship and those who had been and currently were precepting pharmacy students. ANCOVA models were controlled for gender; age; pharmacy degree (bachelor or doctor of pharmacy [BS or PharmD]); pharmacy practice setting, ie, chain pharmacy, independent pharmacy, hospital pharmacy, and other (academia, nuclear pharmacy, long-term care, etc); and type of employment (part-time or full-time).

Other factors explored to ascertain associations with job and career satisfaction included postgraduate training

(question 7), stress (question 17), perceived benefit from continuing education (question 68), workload (question 44), and challenging work (question 15) (Table 1). Bonferroni post-hoc tests were conducted for pairwise comparisons between the different preceptor groups and pharmacy settings. Demographic and characteristic differences among the 3 groups were evaluated using analysis of variance (ANOVA), Kruskal-Wallis test, and chi-square test, as appropriate. The perceived benefit of being a preceptor (question 70) was reported in frequencies and percentages of the level of agreement. The criterion for significance in this study was set at an alpha level of $p < 0.05$. All statistical analyses were conducted with SAS 9.2 (SAS Institute Inc., Cary, NC, USA).

RESULTS

Of the 2,029 survey instruments mailed, 30 were returned as undeliverable. Three hundred sixty-nine (230 from the first mailing and 139 from the second) were received, for an 18.5% response rate. Six of the returned survey instruments were excluded because of the respondents' current work status (4 retired, 1 unemployed, 1 not practicing pharmacy), leaving 363 responses for analysis. Demographics and characteristics of the participants are presented in Table 2. Average age of the participants was 48 ± 14 years, 57% of the participants were female, and the majority (74%) were married. The participants' mean years of practicing pharmacy since receiving their license was 22.9 ± 14.8 . Sixty percent ($n = 217$) had a BS degree, 40% ($n = 144$) had a PharmD degree, and 47% ($n = 169$) had some type of advanced training (eg, residency, fellowship, certification). Average reported number of prescriptions filled per day was 268 ± 143 (range, 15 to 800). Forty-one percent ($n = 148$) of the participants currently worked at chain pharmacies, 18% ($n = 67$) at independent pharmacies, and 25% ($n = 89$) in hospital settings. Approximately 16% worked in other pharmacy settings, including mail order ($n = 9$), long-term care ($n = 7$), home infusion ($n = 4$), academia ($n = 6$), and nuclear pharmacy ($n = 3$).

Twenty-three percent ($n = 84$) of participants were active preceptors, 2 of whom had never precepted previously. Sixty-two percent ($n = 218$) had been preceptors in the past; 65.6% ($n = 143$) were not currently training pharmacy students. Demographics and characteristics of the non-preceptor, previous preceptor, and active preceptor groups are shown in Table 3. Age, pharmacy degree, type of employment, advanced training, and number of years as a practicing pharmacist were significantly different among the 3 groups. These factors, along with practice setting, were subsequently included in the ANCOVA model.

Seventy-nine percent of the active preceptors reported "tend to agree" or "strongly agree" with the statement

Table 1. Variables and Questions Included on the Pharmacy Preceptor Survey Instrument

Variables	Questions	Responses
Independent		
Advanced training	Q7: Advanced training/credentialing/certification received	yes=1, no=0
Work challenged	Q15: To what extent do you feel professionally challenged by your work?	1=seldom challenged, 2=occasionally challenged, 3=challenged, 4=highly challenged
Stress	Q17: How stressed do you feel during an average workday?	0=not at all stressed, 1=not too stressed, 2=somewhat stressed, 3=highly stressed
Active preceptor	Q19a: Are you currently precepting pharmacy students?	yes=1, no=0
Had been a preceptor	Q19b: Have you ever precepted pharmacy students?	yes=1, no=0
Workload	Q44: My workload is excessive.	1=strongly disagree, 2=tend to disagree, 3=neither agree nor disagree, 4=tend to agree, 5=strongly agree
Perceived benefit from continuing education	Q68: Continuing education related to my job has improved my job performance.	1=strongly disagree, 2=tend to disagree, 3=neither agree nor disagree, 4=tend to agree, 5=strongly agree
Perceived benefit from being a preceptor	Q70: Precepting students help me hone and maintain my clinical skills.	1=strongly disagree, 2=tend to disagree, 3=neither agree nor disagree, 4=tend to agree, 5=strongly agree
Dependent		
Job satisfaction	Q51: All things considered, I am satisfied with my current job.	1=strongly disagree, 2=tend to disagree, 3=neither agree nor disagree, 4=tend to agree, 5=strongly agree
	Q52: The idea of spending the remainder of my working life in a job like my current one is depressing.	1=strongly agree, 2=tend to agree, 3=neither agree nor disagree, 4=tend to disagree, 5=strongly disagree
	Q53: I often leave work with a "bad" feeling, a feeling that I am doing something which I do not enjoy.	1=strongly agree, 2=tend to agree, 3=neither agree nor disagree, 4=tend to disagree, 5=strongly disagree
Career satisfaction	Q56: Knowing what I know now, if I had to decide all over again whether to go into pharmacy, I would choose another field.	1=strongly agree, 2=tend to agree, 3=neither agree nor disagree, 4=tend to disagree, 5=strongly disagree
	Q57: If I had a son who told me he was interested in pursuing a career in pharmacy, I would encourage him.	1=strongly disagree, 2=tend to disagree, 3=neither agree nor disagree, 4=tend to agree, 5=strongly agree
	Q58: If I had a daughter who told me she was interested in pursuing a career in pharmacy, I would encourage her.	1=strongly disagree, 2=tend to disagree, 3=neither agree nor disagree, 4=tend to agree, 5=strongly agree
	Q59: If I were free to pursue any type of career I wanted I would stay in pharmacy.	1=strongly disagree, 2=tend to disagree, 3=neither agree nor disagree, 4=tend to agree, 5=strongly agree

Table 2. Participants' Demographics and Characteristics (N = 363)

Variable	Participant Responses ^a
Age, Mean (SD), range	48 (14), 24-90
Gender	
Female, No. (%)	203 (57)
Married, No. (%)	269 (74)
Degree	
BS, No. (%)	217 (60)
PharmD, No. (%)	144 (40)
Full-time pharmacist, No. (%)	260 (79)
Years of practicing pharmacy since receiving licenses, Mean (SD)	22.9 (14.8)
Received advanced training, No. (%)	169 (47)
Practice settings	
Community – Chain, No. (%)	148 (41)
Community – Independent, No. (%)	67 (18)
Hospital, No. (%)	89 (25)
Others (eg, nuclear, mail-order, academia, long-term care, etc.), No. (%)	59 (16)
Average prescription/day, Mean (SD), range	268 (143), 15-800
Currently precepting pharmacy students, No. (%)	84 (23)
Had ever precepted pharmacy students, No. (%)	218 (62)

^a Missing data varies from 0 to 10% except for the information on average prescription/day that were reported from 189 participants.

“Precepting students helps me hone and maintain my clinical skills.” Sixty-four percent of the previous preceptors but only 20% of the non-preceptors tended to agree or strongly agreed with this statement. There was less than 1% of missing data on each job and career satisfaction scale. Internal consistency reliabilities (Cronbach's alphas) of the job and career satisfaction scales were acceptable at 0.86 and 0.85, respectively. Sixty-five percent of participants reported “tend to agree” and “strongly agree” to all questions except question 59. Table 4 shows the estimates and standardized estimates of the influence of various factors on job and career satisfaction scores from the ANCOVA model, adjusted for gender, age, pharmacy degree earned, practice setting, and type of employment. Job satisfaction scores for the non-, previous, and active preceptors were significantly different ($F_{2, 295} = 3.32$, $p = 0.038$). The adjusted marginal means with a 95% confidence interval show that active preceptors had the highest level of job satisfaction, with least squares adjusted mean of 11.6 (95% CI: 10.90-12.24) (Figure 1). Non-preceptors had the lowest job satisfaction scores, with least squares

mean of 10.6 (95% CI: 10.02-11.17). The least squares mean job satisfaction scores among the previous and non-preceptors, on average, for this sample, were not significant after Bonferroni correction. Stress level, continuing education, workload, and being professionally challenged at work also were highly associated with level of job satisfaction. As expected, higher stress level and heavier workload resulted in lower job satisfaction, ($p = 0.003$ and $p < 0.001$, respectively). Conversely, respondents who felt professionally challenged by their work and felt strongly about the value of continuing education were more likely to report greater job satisfaction ($p < 0.001$).

When examining career satisfaction scores, the least squares means of non-, previous, and active preceptor groups were similar (14.13, 14.41, and 14.67, respectively; $p = 0.57$) after adjusting for covariates in the ANCOVA analysis (Table 4 and Figure 1). As with job satisfaction, stress level, workload, having professionally challenging work, and continuing education all were associated with level of career satisfaction. High level of stress and heavy workload were associated with reports of lower career satisfaction while higher perceived values of continuing education and being professionally challenged were associated with higher career satisfaction. Pharmacy degree was highly associated with level of career satisfaction. Those who received PharmD degree, on average, had a higher least squares means of career satisfaction scores, compared with those without a PharmD (15.54 vs. 13.27; $p < 0.001$). Two-way interactions between non-, previous, and active preceptor groups and covariates were not significant for either job or career satisfaction models (Table 5).

DISCUSSION

Being an active pharmacist preceptor was associated with increased job satisfaction among pharmacists in the South Central United States but not necessarily associated with increased career satisfaction. Also, those pharmacists who had never precepted reported the lowest job satisfaction scores. Factors associated with higher job and career satisfaction among this study sample included perceived benefit of continuing education and having professionally challenging work. In contrast, high stress level and workload were associated with lower job and career satisfaction. To our knowledge, this is the first study to examine the perceived intangible benefit associated with preceptorship among pharmacists in various practice settings located in the South Central United States.

The increased levels of job satisfaction associated with being a pharmacist preceptor and the perceived benefit of being a preceptor (ie, maintaining clinical skills) reported in this study are similar to findings reported in previous studies exploring this issue in North Carolina,

Table 3. Participants' Demographics and Characteristics

Variables ^a	Preceptor Status			P
	Nonpreceptor	Previous Preceptor	Active Preceptor	
N (%)	133 (39.7)	143 (23.3)	84 (36.9)	
Age, Mean (SD)	46.8 (14.9)	50.9 (13.2)	44.0 (12.1)	< 0.001
Female, %	58.5	58.5	52.4	0.63
Received PharmD degree, %	43.6	24.5	54.2	< 0.001
Full-time pharmacist, %	83.3	72.8	87.5	0.02
Received advanced training, %	62.4	48.3	47.6	0.03
Practice settings, %				0.48
Community – chain	40.6	35.7	46.4	
Community – independent	19.6	18.9	13.1	
Hospital	24.8	23.1	25.0	
Others (eg, nuclear, mail-order, academia, long-term care, etc.)	15.0	22.4	15.5	
Years of practicing pharmacy, Mean (SD)	20.8 (15.2)	26.5 (13.7)	19.8 (14.0)	< 0.001
Late responder, %	30.8	34.3	33.3	0.82

^a Numbers less than 363 are due to missing data.

Indiana, and Arkansas.^{3,4,6} However, the sample population explored in the current study included various pharmacy settings and a much larger geographic area. Latessa and colleagues showed that the intrinsic benefits (eg, enjoyment of teaching) outweighed the extrinsic rewards (eg, financial compensation) among community preceptors.³ Similarly, in results reported among APPE preceptors in Arkansas, the “professional satisfaction/giving back to pharmacy profession” item was ranked as most important of all rewards of precepting students.⁴

Interestingly, Murawski and colleagues showed that pharmacists who had been preceptors exhibited low levels of career satisfaction. However, their study was conducted solely in a community pharmacy setting in Indiana (2 grocery chain pharmacy sites), had a small sample size, and examined the relationship of preceptorship and career satisfaction using a different approach from that used in our study. Murawski and colleagues found that while the perceived value of preceptorship contributed significantly to extrinsic factors related to job satisfaction, it was associated with a negative impact on career satisfaction. The current study found that career satisfaction is not impacted by whether pharmacists are preceptors but rather by pharmacy degree earned, stress, workload, professionally challenging work, and perceived benefit from continuing education. This finding is consistent with a “career satisfaction” definition that is determined by life-long work-related experiences and activities over an entire career.¹³ Because job satisfaction is a short-term concept, precepting students may be associated with job satisfaction but not necessarily career satisfaction, which ultimately is determined by larger issues in the pharmacist's career. The

inverse relationship between job-related stress and job satisfaction found in this study is consistent with that of studies in the literature.²⁴⁻²⁶

Advanced training was not significantly associated with increased job and career satisfaction in our sample. This result contradicts that of the Murawski study.⁶ This difference may be attributable to the more diverse pharmacy settings and different geographic locations of our study. We also did not find any impact of age, gender, or type of employment on job and career satisfaction, as reported in a previous study.¹⁸ Levels of job satisfaction among pharmacists who held a PharmD degree was significantly higher than among those with BS degrees, but the differences disappeared after correcting for stress, workload, and professionally challenging work. A similar finding also was associated with advanced training.

In contrast to reports in the literature, pharmacy practice setting did not impact levels of job and career satisfaction in our sample. Maio and colleagues¹⁸ and Cox and colleagues²⁷ reported that pharmacists in chain pharmacy settings had significantly lower rates of job satisfaction compared with those working in other settings. This discrepancy may arise from the different populations sampled, considering that the previous studies were carried out among pharmacists who were practicing in all regions in the United States while ours focused only on the South Central region. Another factor contributing to this discrepancy may be that levels of job satisfaction in Maio's study were assessed with a single item, whereas ours used a composite score of 3 questions. We believe our approach is a more appropriate measure of a latent concept such as satisfaction. We also used Bonferroni adjustment

Table 4. Estimates for Job and Career Satisfaction

Variables	Estimates ^a	Standardized Estimates	Standard Error	p
Job Satisfaction				
Preceptor				
Previous preceptor (ref. non-preceptor)	0.510	0.077	0.347	0.14
Active preceptor (ref. non-preceptor)	0.973	0.130	0.384	0.01
Male (ref. female)	-0.050	-0.008	0.334	0.88
Age	-0.010	-0.042	0.036	0.79
Early response (ref. late response)	0.504	0.074	0.309	0.10
Part-time (ref. full-time pharmacist)	0.273	0.033	0.413	0.51
No PharmD (ref. PharmD)	-0.539	-0.082	0.424	0.21
No Advance training (ref. advance training)	0.269	0.042	0.305	0.38
Stress level	-0.729	-0.174	0.240	0.003
Continuing education	0.566	0.188	0.148	< 0.001
Workload	-1.267	-0.457	0.155	< 0.001
Professionally challenged	0.756	0.193	0.194	< 0.001
Years practiced	0.005	0.024	0.034	0.88
Pharmacy current work setting				
Independent (ref. Community)	0.370	0.044	0.437	0.40
Hospital (ref. Community)	0.358	0.048	0.384	0.35
Other (ref. Community)	0.033	0.004	0.445	0.94
Career Satisfaction				
Preceptor				
Previous preceptor (ref. non-preceptor)	0.547	0.064	0.514	0.29
Active preceptor (ref. non-preceptor)	0.285	0.029	0.567	0.62
Male (ref. female)	-0.464	-0.055	0.497	0.35
Age	0.038	0.127	0.053	0.48
Early response (ref. late response)	0.708	0.080	0.457	0.12
Part-time (ref. full-time pharmacist)	-0.612	-0.058	0.607	0.31
No PharmD (ref. PharmD)	-2.274	-0.265	0.627	< 0.001
No Advance training (ref. advance training)	0.307	0.037	0.450	0.50
Stress level	-0.780	-0.143	0.354	0.03
Continuing education	0.976	0.249	0.218	< 0.001
Workload	-0.832	-0.232	0.228	< 0.001
Professionally challenged	0.822	0.162	0.287	0.005
Years practiced	-0.022	-0.077	0.050	0.66
Pharmacy current work setting				
Independent (ref. Community)	0.227	0.021	0.640	0.72
Hospital (ref. Community)	-0.181	-0.018	0.573	0.75
Other (ref. Community)	-0.774	-0.068	0.656	0.24

^a The estimates were calculated using the analysis of covariance, adjusted for gender, age, pharmacy degree earned, practice setting, and type of employment. They represent adjusted mean difference between each variable level to its reference and simply a rate of change for the continuous variables.

for multiple comparisons among the pharmacy settings to minimize Type I error in our results. We chose the ANCOVA approach in our study because it is an ideally suited statistical method to remove bias attributable to unmeasured variables that confound results. These confounding variable(s) are accounted for through their inclusion in the analysis as covariates. For example, pharmacy settings are related to different levels of stress and workload, which may contribute to the level of job satisfaction.

This study has some limitations. The sample was restricted to pharmacists in the South Central region of the United States, and the response rate was low, limiting the generalizability of the results. When the population increases, the sample size increases at a diminishing rate and remains relatively constant at approximately 380 cases, with assumed standard errors of 0.05.¹⁹ We believe that 363 responses still represents a population of 41,599, even though the standard errors might be greater than 0.05

Figure 1. Least squares means plots of job satisfaction with corresponding 95% confidence interval. Only non-preceptor vs. active preceptor was significant ($p = 0.03$).

but less than 0.10. Because all responses were entered into the analysis anonymously, the population list does not contain any information about employment or demographics. Thus, we could not investigate differences among

Figure 2. Least squares means plots of career satisfaction with corresponding 95% confidence interval. None of the pairwise comparisons were significant.

nonresponders, except for the geographic differences of respondents from the first mailing. The ratios of the respondents to the first mailing were similar to the population distribution in each state, except for Arkansas. The

Table 5. Pharmacists' Job and Career Satisfaction Scores^a

Variables	Job Satisfaction ^b (LS mean, 95% CI)	Career Satisfaction ^c (LS mean, 95% CI)
Gender		
Female	10.9 (10.5 – 11.5)	14.6 (13.8 – 15.3)
Male	10.7 (10.2 – 11.3)	14.0 (13.2 – 14.8)
Degree		
B.S.	10.7 (10.2 – 11.3)	13.2 (12.4 – 14.0)
PharmD	11.0 (10.4 – 11.7)	15.3 (14.4 – 16.3)
Type of employment		
Part-time	10.7 (9.9 – 11.4)	13.6 (12.6 – 14.6)
Full-time	11.1 (10.7 – 11.5)	14.9 (14.4 – 15.5)
Received advanced training		
Yes	11.1 (10.6 – 11.7)	14.6 (13.8 – 15.3)
No	10.6 (10.1 – 11.1)	14.0 (13.2 – 14.7)
Practice settings		
Community – Chain	10.6 (10.0 – 11.1)	14.4 (13.6 – 15.2)
Community – Independent	11.1 (10.4 – 11.9)	14.7 (13.6 – 15.7)
Hospital	11.1 (10.5 – 11.8)	14.3 (13.3 – 15.3)
Others (eg. nuclear, mail-order, academia, long-term care, etc.)	10.6 (9.8 – 11.4)	13.7 (12.6 – 14.9)
Waves		
First mailing response	10.9 (10.4 – 11.3)	14.4 (13.7 – 15.0)
Second mailing response	10.9 (10.3 – 11.4)	14.2 (13.3 – 15.0)

^a Least squares (LS) means scores from the ANCOVA model.

^b Lowest possible = 3, highest possible = 15.

^c Lowest possible = 4, highest possible = 20.

Table 6. Demographics and Characteristics of the Early and Late Respondent Groups.

Variables	Respondent Group ^a		<i>p</i>
	Early	Late	
Age, Mean (SD)	47.1 (14.1)	49.5 (13.6)	0.13
Female, %	60.5	49.6	0.05
PharmD, %	41.3	32.5	0.10
Full-time pharmacist, %	79.6	80.7	0.80
Received advanced training, %	55.6	49.2	0.25
Practice settings			0.40
Community – Chain, %	38.3	43.3	
Community – Independent, %	17.3	20.0	
Hospital, %	24.3	23.3	
Other (eg, nuclear, mail-order, academic, long-term care), %	20.2	13.3	
Years of practicing pharmacy since receiving licenses, Mean (SD)	22.3 (14.9)	24.2 (14.5)	0.26
Job satisfaction scores, Mean (SD)	11.2 (3.4)	10.5 (2.9)	0.05
Career satisfaction scores, Mean (SD)	14.7 (4.3)	14.0 (4.0)	0.12

^a “Early” refers to pharmacists who responded to the 1st mailed survey instrument and “late” refers to those responding after the 2nd mailing.

higher response rate from pharmacists in Arkansas may be attributable to this study being initiated from a university in the state.

Post-hoc analyses of job and career satisfaction for the early and late responses were carried out to examine possible nonresponse bias. Participants who responded after the second mailing were expected to be similar to nonrespondents (Table 6).²³ Only gender and job satisfaction scores were slightly different ($p = 0.05$) from those of early responders. Among the late responders, there were fewer females and lower job satisfaction scores, but the differences were not significant.

We investigated further by examining internal consistency alpha reliability as well as scale variability of job and career satisfaction scales among both early and late responders. Higher alphas for job and career satisfaction were found in the early respondent group ($\alpha = 0.88$ and 0.86 , respectively) compared with these for the late respondent group ($\alpha = 0.82$ and 0.83 , respectively). Question 51 had lower item-to-total correlation, which is reflected in the lower alpha on job satisfaction in the late respondent group. However, there was no significant difference between the 2 groups in their responses to question 51 (Fisher exact test, $p = 0.06$). Item-to-total correlations for career satisfaction were generally lower across 4 items in the late respondent group. No significant difference was found between the 2 groups in their responses to career satisfaction questions. Finally, both early and late respondents were included in the ANCOVA model, and no significant difference was found in either job or career satisfaction scores, suggesting an insignificant nonresponse bias on satisfaction.

CONCLUSIONS

Given the greater emphasis on experiential education required by the current ACPE standards as well as new colleges and schools of pharmacy and expanding class sizes in response to the increasing need for pharmacists, the challenge of filling preceptor positions continues to grow. This study demonstrates that precepting student pharmacists is associated with the intangible benefits of job satisfaction for pharmacist preceptors but not necessarily with increased career satisfaction. Moreover, the job satisfaction associated with precepting students was independent of the type of pharmacy practice setting. The results of this study may be useful in recruiting additional pharmacists into preceptor roles, motivating active preceptors to maintain their involvement in educating students, and enhancing pharmacist job and career satisfaction by developing a plan to increase the number of pharmacists serving as student preceptors.

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REFERENCES

1. Accreditation Council for Pharmacy Education. Accreditation standards and guidelines for the professional program in pharmacy leading to the Doctor of Pharmacy Degree. http://www.acpe-accredit.org/pdf/ACPE_Revised_PharmD_Standards_Adopted_Jan152006.pdf. Accessed August 27, 2011.
2. Accreditation Council for Pharmacy Education. Accredited professional programs of colleges and schools of pharmacy. http://www.acpe-accredit.org/pdf/ACPE_Standards_for_Professional_Programs_of_Colleges_and_Schools_of_Pharmacy.pdf.

www.acpe-accredit.org/shared_info/programsSecure.asp. Accessed August 27, 2011.

3. Latessa R, Beaty N, Landis S, Colvin G, Janes C. The satisfaction, motivation, and future of community preceptors: the North Carolina experience. *Acad Med*. 2007;82(7):698-703.
4. Flowers SK, Pace A, Hastings JK. Determining motivation and overall satisfaction of Arkansas APPE preceptors [abstract]. 111th Annual Meeting of the American Association of Colleges of Pharmacy, Seattle, Washington, July 10–14, 2010. *Am J Pharm Educ*. 2010;74(5):Article 96.
5. Skrabal MZ, Kahaleh AA, Nemire RE, et al. Preceptors' perspectives on benefits of precepting student pharmacists to students, preceptors, and the profession. *J Am Pharm Assoc (2003)*. 2006;46(5):605-612.
6. Murawski MM, Payakachat N, Koh-Knox C. Factors affecting job and career satisfaction among community pharmacists: a structural equation modeling approach. *J Am Pharm Assoc (2003)*. 2008;48(5):610-620.
7. Department of Health and Human Services. The adequacy of pharmacist supply: 2004 to 2030. <http://bhpr.hrsa.gov/healthworkforce/reports/pharmsupply20042030.pdf>. Accessed August 27, 2011.
8. Bureau of Labor Statistics. Occupational Outlook Handbook, 2010-11 Edition, Pharmacists. <http://www.bls.gov/oco/ocos079.htm>. Accessed August 27, 2011.
9. Pharmacy Manpower Project I. Aggregate Demand Index for pharmacists. <http://www.pharmacymanpower.com/>. Accessed August 27, 2011.
10. American Society of Health-System Pharmacists. 2005 ASHP Pharmacy staffing survey. http://www.ashp.org/DocLibrary/MemberCenter/SPPM/Final_2008ASHP_Staffing_Survey.pdf. Accessed August 27, 2011.
11. American Society of Health-System Pharmacists. Cost of pharmacist turnover. http://www.ashp.org/s_ashp/docs/files/turnovercost.pdf. Accessed August 27, 2011.
12. Locke EA. The nature and causes of job satisfaction. In: Dunnette MD, ed. *Handbook of I/O psychology*. 1st ed. Chicago, IL: Rand-McNally;1976:1297-1349.
13. Hall DT. *Careers in organizations*. Pacific Palisades, CA: Goodyear Publishing;1976:1-20.
14. Mott DA, Doucette WR, Gaither CA, Pedersen CA, Schommer JC. Pharmacists' attitudes toward worklife: results from a national survey of pharmacists. *J Am Pharm Assoc (2003)*. 2004;44(3):326-336.
15. Mott DA. Pharmacist job turnover, length of service, and reasons for leaving, 1983-1997. *Am J Health-Syst Pharm*. 2000;57(10):975-984.
16. Linn L, Brook R, Clarke V, Davies A, Fink A, Kosecoff J. Physician and patient satisfaction as factors related to organization of internal medicine group practices. *Med Care*. 1985;23(10):1171-1178.
17. DiMatteo M, Sherbourne C, Hays R. Physicians' characteristics influence patients' adherence to medical treatment: results from the medical outcomes study. *Health Psychol*. 1993;12(2):93-102.
18. Maio V, Goldfarb NI, Hartmann CW. Pharmacists' job satisfaction: Variation by practice setting. *P & T*. 2004;26(3):184-190.
19. Barnett CW, Kimberlin CL. Levels of satisfaction among Florida pharmacists. *J Pharm Mark Manage*. 1988;2(4):23-44.
20. Robers PA. Job satisfaction among U.S. pharmacists. *Am J Hosp Pharm*. 1983;40(3):391-399.
21. Krejcie R, Morgan D. Determining sample size for research activities. *Educ Psychol Meas*. 1970;30(3):607-610.
22. Dillman D. Implementing mail surveys. In: Dillman D, ed. *Mail and telephone surveys: The total design method*. New York, NY: John Wiley & Sons;1978:160-199.
23. Barnett CW, Kimberlin CL. Development and validation of an instrument to measure pharmacists' satisfaction with their jobs and careers. *Am J Pharm Educ*. 1996;50(1):5-14.
24. Gaither CA, Kahaleh AA, Doucette WR, Mott DA, Pederson CA, Schommer JC. A modified model of pharmacists' job stress: the role of organizational, extra-role, and individual factors on work-related outcomes. *Res Social Admin Pharm*. 2008;4(3):231-243.
25. Ortmeier BG, Wolfgang AP. Job-related stress: perceptions of employee pharmacists. *Am Pharm*. 1991;NS31(9):27-31.
26. Gaither CA, Nadkarni A, Mott DA, et al. Should I stay or should I go? The influence of individual and organizational factors on pharmacists' future work plans. *J Am Pharm Assoc (2003)*. 2007;47(2):165-173.
27. Cox E, Fitzpatrick V. Pharmacists' job satisfaction and perceived utilization of skills. *Am J Health-Syst Pharm*. 2011;1999(56):1733-1737.
28. Savage L, Beall J, Woolley T. Factors that influence the career goals of pharmacy students. *Am J Pharm Educ*. 2009;73(2):Article 28.