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Third-Year Pharmacy Students' Work Experiences and Attitudes

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Cover Page Footnote
We would also like to thank Ted Kasha from Creighton University for assistance with survey administration and data extraction.

Third-Year Pharmacy Students' Work Experiences and Attitudes

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ABSTRACT

Objectives. *To describe pharmacy students' work experience for pay; examine student attitudes towards work; examine student perceptions of how pharmacist preceptors feel about their jobs; and determine how pharmacy student work environment influences career aspirations and whether or not gender or academic pathway have any influences.*

Methods. *An electronic survey was administered to third-year doctor of pharmacy (PharmD) students at a Midwestern school of pharmacy over five consecutive years.*

Results. *Four hundred eighty nine students (response rate = 61.0%) completed the electronic survey instrument. Over 90% reported working in a pharmacy by the time their advanced pharmacy practice experiences (APPEs) began. Of these respondents, 67.4% reported working in a community pharmacy while 23.0% reported working in hospital inpatient pharmacy. Students working for independent pharmacies were most likely to feel that this type of practice site would offer an optimal work schedule and work environment for their career.*

Conclusions. *Most students are working in community pharmacy practice. Having a fulfilling career and a desirable work schedule was the variable most strongly associated with optimal career choice.*

Keywords: pharmacy student; work experience; attitudes; community pharmacy; hospital pharmacy; chain pharmacy

INTRODUCTION

There have been few studies on pharmacy student work experiences, attitudes, and perceptions. One study conducted in 2001 with students from eight pharmacy programs found that nearly 100% pharmacy students had worked in a pharmacy for pay prior to their advanced pharmacy practice experiences.[1] This study concluded that work schedule and career fulfillment had the most influence on choice of favorable careers. Key findings from a study of pharmacy students in Australia were that students valued the patient-focused aspect of practice and contributing to patient care, but had limited opportunities for these aspects of their professional identities due to the nature of their work.[2]

Previous studies have described characteristics of pharmacists work environments, as well as practice characteristics.[3,4] In one study, the most positive aspects of the work environment were motivation to work at the pharmacy and job satisfaction.[3] In another study, practicing in community pharmacy setting had the strongest influence on time spent dispensing and time spent in patient care activities.[4]

The focus of pharmacy practice has seen significant changes in the last 15 – 20 years, from drug product preparation and distribution to patient-centered care. In 1990, patient-centered care practice was clearly defined by Hepler and Strand as pharmaceutical care.[5] Subsequently, many pharmacy educators and pharmacy organizations decided to make pharmaceutical care the primary focus of pharmacists' activities. The evolution of this concept has resulted in pharmacists' involvement of Medication Therapy Management (MTM) that was formally established under the Medicare Part D prescription drug benefit in 2006.[6] The passage of the Patient Protection and Affordable Care Act in 2010 encouraged many of pharmacy's advocates to believe that pharmacists should and would become even more involved in drug therapy management.[7] As a result, pharmacists were now being included in the newly created Patient Centered Medical Homes to address the challenges of medication therapy management in primary care medical practice.[8] Pharmacists' expertise in MTM has recently spurred discussions regarding the establishment of collaborative practice arrangements with physicians in pediatric practice and with physicians who treat patients with diabetes.[7,9] Now even physician assistants are recognizing that pharmacists can provide valuable expertise in the management of drug therapy.[10] At the same time, patient care services, including biometric screenings and comprehensive medication reviews, are being established by grocery store chains, allowing pharmacy students to experience the provision of clinical services in the community pharmacy.[11] Delivery of MTM during Advanced Practice Pharmacy Experiences (APPEs) allows students to apply skills learned in the PharmD curriculum and is perceived by them as a valuable service for patients.[12] As pharmacy practice has changed over time, it is important to determine if pharmacy students experience these changes in their work environments, and the extent attitudes and opinions about the profession have been influenced.

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Pharmacy students receive formal education through their APPEs and Introductory Pharmacy Practice Experiences (IPPEs) and are influenced by those experiences. Students often struggle to reconcile the promise of more patient focused career prospects that they hear about from pharmacy educators and often experience in their IPPEs and APPEs, versus the market place reality of the product focused pharmacy practice encountered in the workplace. Many students also receive pharmacy practice experience through their work for pay as interns, and this study further explores the impact of those experiences on student attitudes about career aspirations by building on previous work. For some or possibly many of our students, these workplace experiences are very relevant in their ultimate career choice, certainly at the very least as they begin their careers. This study also attempts to show if student work experiences have changed over time by comparing results from previous studies.

OBJECTIVES

The objectives of this study are to: 1) describe pharmacy student work experience for pay; 2) examine student attitudes and opinions towards their work in a pharmacy setting; 3) examine student perceptions of how pharmacist preceptors feel about their jobs; and 4) determine how pharmacy student work environment influences career aspirations and whether or not gender or academic pathway have any influence.

METHODS

A survey was developed based on previous research studying pharmacy student work experience and attitudes along with research profiling the national pharmacy workforce.[1,13,14,15] An exempt status for this study was then obtained from the University's Institutional Review Board.

A total of 489 third year PharmD students from a Midwestern Pharmacy School volunteered to participate in this study by completing an electronic survey. The survey was administered to third year PharmD students each spring for five consecutive years starting in 2006. Data collection included demographics, workplace descriptive information, and Likert scale items to measure students' attitudes toward their work environments. Information collected on student work experience and attitudes was part of a larger study that included an assessment of student professionalism, pharmacist participation in decision-making and the extent of control they have over their work. Study participants were considered a convenience sample. The survey was voluntary, and no incentives were offered to students for their participation. Students completed electronic surveys using Microsoft FrontPage (Microsoft, Seattle, WA), where the voluntary nature of the survey was indicated in the survey directions that preceded the survey items. Students were first sent an email that introduced and described the survey. Several days later, they were sent a link to the survey and asked to participate. Seven days after the first email asking students to participate, all students who had not yet completed the survey were sent another email with a link to the survey and were again asked to participate. Finally a third request was sent seven days after the second request, this time to all students who had not yet completed the survey after two requests. As with the first two emails, there was a link to the survey and a request to participate. The link to the survey website remained open for seven days after the third survey request was sent to the students.

Eighteen items on the survey were used to collect demographics (10 items), as well as work experience, attitudes and opinion information (eight items), all of which are found in in the tables the manuscript. Reliability and validity of these measures has been established previously.[1] Demographic data and work experience was collected using fill-in-the-blank questions, multiple response items, and dichotomous (yes/no) responses. Specific demographic data included age, gender, marital status, whether or not a student had a college degree prior to entering pharmacy school, and instructional pathway (i.e. campus or distance). Specific data collected on work experience included practice setting (i.e. independent, chain or corporate-owned retail pharmacy, hospital, nursing home, nuclear pharmacy, pharmacy benefit manager, pharmaceutical industry, and other). Student attitudes and opinions about their work experience were collected using items on a 5-point Likert scale with anchors ranging from -2 = strongly disagree to 2 = strongly agree. All Likert scale items are found in Tables 3 – 7.

Statistical Approach

All analyses were performed using IBM SPSS Statistics for Windows, version 22.0 (IBM Corp., Armonk, NY). Means and percentages were calculated for descriptive items. The Chi-square test was used to test for a significant relationship between the independent variable work site (hospital, independent community, chain/grocery store/ mass merchandiser community) and eight separate dependent variables, which were the responses to the eight questions on experience, attitude and opinion. The Chi-square test was further confirmed using the Kruskal-Wallis test for nonparametric ordinal data that determined differences in student attitudes and opinion regarding work setting and perception of their preceptor pharmacist, with significance set *a priori* at <0.05 Finally, three separate multiple linear regressions were performed to measure associations between a career in independent community pharmacy, hospital pharmacy, and chain pharmacy providing an optimal work environment for students who work in those respective settings. Three multiple regressions were run to determine if there is a difference based on the three major types of workplaces. For each work setting, separate regressions were run for male respondents, female respondents, campus pathway respondents, distance pathway respondents, and all students who had worked in that area. The sub-analyses were

performed to determine whether or not gender or educational pathway had any influence on student career choices and aspirations.

RESULTS

According to student class lists held by the investigators, there were a total of 802 students eligible to participate in this study over the five-year period of data collection. Of this total, 489 completed surveys for a response rate of 61.0%. Eighteen surveys were dropped from analysis because of missing data that was needed to determine student attitude and opinions of their work settings. An additional 45 surveys were dropped from the analysis phase because of the respondents did not have pharmacy work experience for pay. Consequently, the final analytic set consisted of 426 respondents or 87.1% of the students who completed the survey. The analytic set is defined as those respondents who had pharmacy work experience and were consequently asked to provide their opinions and attitudes about those experiences. Respondents without pharmacy work experience were not asked to provide their opinion and attitudes about pharmacy work experience because they simply lacked that type of experience.

Demographics

Respondents' demographic characteristics are summarized in Table 1 and are based on data collected from all respondents (n = 489). All students who completed the survey were analyzed for demographics, but only those who worked and had completely answered all work related items were part of the analytic set used for subsequent analyses. The average age of respondents was 29.2 years with campus pathway students averaging 25.2 years and distance pathway students averaging 33.2 years. Female respondents represented 64.3% of all respondents. The percentage of females in the campus pathway was 61.2% and the percentage of females in the distance pathway was 66.5%. When considering all respondents, 50.7% were single, with 16.4% of distance and 69.1% of campus respondents indicated their personal relationship as single. When considering all respondents, 39.9% of were married, with 21.9% of campus and 73.7% of distance respondents indicating their personal relationship as married. Overall, 58.9% of respondents reported earning either a Bachelor of Science or a Bachelor of Arts degree prior to entering pharmacy school, with 50.3% of campus respondents and 74.9% of distance respondents indicated that they earned a bachelor's degree prior to entering pharmacy school. After removing 18 subjects from analysis due to missing data, 426 out of the remaining 471 respondents (90.4%) reported at least one experience working in a pharmacy for pay (Table 2). Nearly two out of three respondents (67.4%) worked in a community pharmacy, 58.0% worked for a chain/grocery store/ mass merchandiser pharmacy and slightly less than one out of every 10 respondents (9.4%) worked for an independent community pharmacy. Twenty-three percent of respondents reported working in a hospital inpatient pharmacy setting.

Attitudes and Opinions about Work

Table 3 summarizes respondent attitudes and opinions regarding their work setting. The Chi-square test in conjunction with the Kruskal-Wallis test for nonparametric ordinal data revealed statistically significant differences between three work setting types for three out of five items measuring student attitudes and opinions. Only significant findings are reported here. Respondents working in independent pharmacies were most likely to believe a career in this area would offer an optimal work schedule (70.0%) and believed a career in this area would offer the optimal work environment (65.0%). Respondents working in hospital inpatient pharmacies were most likely to see themselves having a fulfilling career in this area (90.8%). Respondents working in chain/grocery store/mass merchandiser pharmacies were least likely to believe a career in this area would offer the optimal work schedule (30.8%) or the optimal work environment (29.2%).

Table 4 summarizes respondent perceptions of the pharmacists with whom they worked primarily. The Chi-square test in conjunction with the Kruskal-Wallis test revealed a statistically significant difference between work setting for two out of three of these items. Respondents working in independent pharmacies most likely felt the pharmacist they primarily worked with had a positive view of his/her work (87.5%) and had a positive view of the pharmacy profession (95.0%). Respondents working in chain/grocery store/mass merchandiser pharmacies were least likely to feel that the pharmacists they worked for had a positive view of his/her work (11.3%) and had a positive view of the profession (7.7%).

Influence on Career Aspirations

Results from separate regression analyses show associations between a career in independent community pharmacy, hospital pharmacy, and chain pharmacy providing an optimal work environment for respondents who work in those respective settings (Tables 5, 6, and 7 respectively). The coefficient presented in these tables is interpreted as an estimate of the effect of each work-related measure providing a career with an optimal work environment in these three areas. With each work setting, separate regressions were run for male respondents, female respondents, campus pathway respondents, distance pathway respondents, and all respondents who worked in that area. Table 5 illustrates that a career in independent community pharmacy providing an optimal work environment was associated with an increased likelihood that respondents felt they would have a fulfilling career for all respondents. Analysis of subgroups found that male respondents and campus pathway respondents, indicated that a career in independent community pharmacy providing an optimal work environment was associated with

an increased likelihood of having a fulfilling career. Female respondents and distance pathway respondents, indicated that a career in independent community pharmacy providing an optimal work environment was associated with both an increased likelihood that a respondent felt they would have a fulfilling career and an optimal work schedule.

Table 6 illustrates that a career in hospital pharmacy providing an optimal work environment was associated with an increased likelihood that respondents felt they would have a fulfilling career, an optimal work schedule, and a current experience in a hospital pharmacy that was favorable for all respondents. Analysis of subgroups found that female respondents and campus pathway respondents indicated that a career in hospital pharmacy providing an optimal work environment was associated with both an increased likelihood that respondents felt they would have a fulfilling career and an optimal work schedule. Distance pathway respondents, indicated that a career in hospital pharmacy providing an optimal work environment was associated with an increased likelihood that they would have a fulfilling career. There was no significant association between male respondents and a career in hospital pharmacy providing an optimal work environment.

Table 7 illustrates that a career in chain/grocery store/mass merchandiser pharmacy providing an optimal work environment was associated with an increased likelihood that respondents felt they would have an optimal work schedule, a fulfilling career, a financially rewarding career, and a current experience in a chain/grocery store/ mass merchandiser pharmacy that was favorable for all respondents, female respondents, and campus pathway respondents. In all three of these analyses, work schedule had the strongest association with a career in chain/grocery store/mass merchandiser providing an optimal work environment. Male respondents indicated that a career in chain/grocery store/ mass merchandiser pharmacy providing an optimal work environment was associated with both an increased likelihood that respondents felt they would have an optimal work schedule and a fulfilling career, with optimal work schedule providing the strongest association here. Distance pathway respondents indicated that a career in chain/grocery store/ mass merchandiser pharmacy providing an optimal work environment was associated with an increased likelihood that respondents felt they would have a fulfilling career, an optimal work schedule, and recent experience in chain/grocery store/ mass merchandiser pharmacy that was favorable.

DISCUSSION

By the time pharmacy students are in the semester prior to the beginning of rotations, most of them have at least one pharmacy experience working for pay. Overall, 90.8% of respondents had at least one pharmacy work experience. This high percentage of students with previous pharmacy work experience is not unusual. A survey of 509 pharmacy students from eight Midwestern pharmacy schools in 2001 found that 97.1% had previous pharmacy work experience for pay by the time they reached their final year of pharmacy school.[1] A similar survey of 251 pharmacy students during the 1980s found that 95% had previous pharmacy work experience by the time they reached their final year of pharmacy school.[16]

In this study, 58.0% of recent graduates from the study institution practice in a chain /grocery store/mass merchandiser pharmacy, such as Walgreens, Kroger, or Target, most likely due to market forces. This is also where graduates are able to identify employment opportunities at the time of graduation. Significantly fewer pharmacy students received experience in hospital inpatient pharmacy (23.0%), independent community pharmacy (9.4%), and other areas including hospital outpatient pharmacy and long-term care pharmacy. These results are somewhat different as compared to a national survey of pharmacists in 2000 and 2004.[17] In those studies, only about 40% of pharmacists reported working in chain pharmacy, with about 25% working in a hospital and about 15% working in and independent community pharmacy. A similar national survey of pharmacist in 2009 found that 53.8% practiced in traditional community practice settings such as independent, chain, mass merchandiser, and supermarket pharmacies.[18] In this study most student respondents received their work experience in a chain pharmacy environment, while the experience of practicing pharmacists would indicate a smaller proportion actually work in these setting. This would indicate the need to expose pharmacy students to experiences other than chain pharmacies, so they get a broader perspective of their career options.

Student Attitude and Opinion

From the chi-square analysis, it was clear that there were significant statistical differences based on work setting when looking at career fulfillment, optimal work schedule, and optimal work environment. Independent community pharmacy practice scored highest for optimal work environment and optimal work schedule. Hospital inpatient pharmacy scored highest for having a fulfilling career. These results are slightly different from previous results where independent pharmacy practice scored highest on all variables except being financially rewarding.[1] This change may be reflected by the growth in the number of students seeking clinical inpatient residency positions due to the perception of a more fulfilling professional work environment.[19]

There were statistical differences based on work setting for precepting pharmacists having a positive view of his/her work and whether the primary pharmacist had a positive view of the pharmacy profession. For both of these measures, the independent community pharmacy setting scored the highest as compared to chain and hospital practice.

Regression Analyses

Regardless of career preference, having a fulfilling career is clearly a major factor for respondents when choosing a career. For all respondents with independent community pharmacy exposure, it was the only significant factor. For all respondents with inpatient hospital practice exposure, it was the most significant factor. For all respondents with chain/grocery store/mass merchandiser exposure, it was the second most significant factor behind work schedule.

When considering gender, females who experienced both independent community practice and hospital inpatient practice indicated a fulfilling career and an optimal work schedule were the most significant factors. Female respondents who experienced chain/grocery store/ mass merchandiser practice indicated that all factors were statistically significant, with optimal work schedule having the most significance. Male respondents who experienced independent community practice indicated a fulfilling career was the most significant factor. Male respondents who experienced chain/grocery store/mass merchandiser practice indicated optimal work schedule and a fulfilling career were significant factors.

Students at the study institution can be educated in either the traditional campus pathway or in a distance learning pathway. Demographic differences between students in the educational pathways have been discussed previously in this manuscript. So, does educational pathway make a difference in work environment influences on student career choice? Distance pathway respondents who prefer independent community practice indicated the most significant factor in this decision was optimal work schedule. Distance pathway respondents who prefer chain/grocery store/mass merchandiser or hospital practice indicated that a fulfilling career was the most important factor. Campus pathway respondents indicated a fulfilling career was the only factor influencing career choice for independent community pharmacy and hospital practice. Campus pathway respondents indicated that a fulfilling career was a major factor influencing career choice just behind optimal work schedule for chain/grocery store/mass merchandiser practice.

Comparison to Previous Work

Clearly most respondents regardless of gender, educational pathway or work setting are interested in having a fulfilling career. A second important factor for many is an optimal work schedule. This is similar to results from previous studies of pharmacy students where work schedule was most important and for graduating medical students where controllable lifestyle was strongly associated with medical specialty.[1,20,21,22] It is clear from this survey and previous work that non-financial factors matter when it comes to career motivation and satisfaction of pharmacy students.[23,24]

As indicated earlier in this manuscript, students in the distance pathway have a different demographics than the campus students when you consider their age, marital status, and prior education. However, when it comes to optimizing one's career, seeing oneself having a fulfilling career is important no matter which pathway the students were educated in and which work setting type they were in. While there appeared to be some variation with the issue of optimal work schedule between campus and distance pathway students, it is possible this difference may be simply due to a low number of respondents.

Limitations

Study findings should be interpreted keeping the study's limitations in mind. The first is related to non-response bias, which could be problematic because non-respondents might have significantly different views than respondents. Another study design limitation involved the population from which the sample was drawn. Survey respondents were drawn from one school of pharmacy in the Midwestern United States that has two different instructional pathways. Therefore, the findings from this study may have limited generalizability. Also, students in the distance pathway are a unique demographic with respect to their age (on average they are eight years older than campus students) and marital status (the percentage of married respondents in the distance pathway is more than three times as the percentage of married respondents in the campus pathway). Some of the regression analyses had sample sizes that were small (less than 30), and this may have an effect on the regression coefficient values. Finally, we investigated a limited set of variables that were measured with single items.

Overall pharmacy educators need to understand the external influences on their students' ultimate career choices. Pharmacy students are similar to other professionals in the desire to have a fulfilling career and an optimal work schedule that provides them flexibility.

CONCLUSIONS

By the time pharmacy students at a private Midwestern school of pharmacy were in their third professional year, over 90% have at least one pharmacy work experience for pay. Almost two out of three received their pharmacy work experience in a community pharmacy, with over half working in chain/grocery store/mass merchandiser pharmacies. Career fulfillment and work schedule had the most influence on choice of optimal work environment. These conclusions are very similar to previous findings. Future research could compare the experiences and attitudes of students just before their APPE year to those of students just after their APPE year to see impact of experiential rotations and work as intern to determine the relative influence of each of these experiences.

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Table 1. Demographics of all Respondents

Grad Year	# of students	Ave. Age	% Single	% Married	% Female	% Male	Bachelor's degree no. (%)
2007[c]	61	24.7	70.5	18.0	68.9	31.1	28 (45.9)
2007[d]	39	34.5	17.9	71.8	56.4	43.6	25 (64.1)
2008[c]	55	25.1	72.7	14.5	57.4	42.6	25 (45.5)
2008[d]	33	31.8	15.2	78.8	60.6	39.4	28 (84.8)
2009[c]	67	25.2	67.2	25.4	61.2	38.8	36 (53.7)
2009[d]	35	32.9	17.1	65.7	57.1	42.9	27 (77.1)
2010[c]	75	25.9	65.3	26.7	60.0	40.0	45 (60.0)
2010[d]	35	32.3	13.9	80.6	85.7	14.3	28 (80.0)
2011[c]	61	25.2	71.0	22.6	60.7	39.3	27 (44.3)
2011[d]	28	34.7	17.9	71.4	75.0	25.0	19 (67.9)
Both pathways, all years	**489**	**29.2**	**50.7%**	**39.9%**	**64.3**	**35.7**	**288 (58.9%)**
Campus, all years	**319**	**25.2**	**69.2%**	**21.9%**	**61.7%**	**38.3%**	**161 (50.4%)**
Distance, all years	**170**	**33.2**	**16.4%**	**73.6%**	**66.5%**	**33.5%**	**127 (74.7%)**

c= campus pathway
d = distance pathway
Abbreviations: Ave. = average; no. = number

Table 2. Pharmacy Students' Work Settings for both pathways, all years (n = 426)

Setting	No. (%)
Chain /Grocery Store/Mass Merchandiser Pharmacy	247 (58.0%)
Independent Community Pharmacy	40 (9.4%)
Hospital Inpatient Pharmacy	98 (23.0%)
Other (includes LTC, nuclear, pharmacy benefit manager, etc.)	41 (9.6%)

n = number of students reporting at least one pharmacy work experience
Abbreviation: No. = number

Table 3. Pharmacy Students' Attitudes and Opinions Regarding Work Setting

	Percent Responding				
Survey Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My current or most recent job experience is/was favorable.[a]					
All work settings	33.1	47.2	12.9	4.5	2.3
Chain/Grocery Store/Mass Merchandiser Pharmacy	30.0	48.6	14.6	4.9	2.0
Independent Pharmacy	45.0	40.0	7.5	5.0	2.5
Hospital inpatient pharmacy	36.7	51.0	7.1	3.1	2.0
I see myself having a fulfilling career in this area of pharmacy.[b]					
All work settings	27.9	45.5	16.0	8.0	2.6
Chain/Grocery Store/Mass Merchandiser Pharmacy	23.5	46.2	18.2	9.3	2.8
Independent Pharmacy	42.5	30.0	17.5	10.0	0
Hospital inpatient pharmacy	36.7	54.1	7.1	1.0	1.0
I see myself having a financially rewarding career in this area of pharmacy.[c]					
All work settings	25.8	59.2	11.3	1.9	1.9
Chain/Grocery Store/Mass Merchandiser Pharmacy	26.7	61.9	8.1	1.2	2.0
Independent Pharmacy	37.5	42.5	17.5	2.5	0
Hospital inpatient pharmacy	22.4	60.2	12.2	3.1	2.0
A career in this area of pharmacy will provided me with the optimal work schedule.[d]					
All work settings	8.7	35.4	29.6	20.4	5.9
Chain/Grocery Store/Mass Merchandiser Pharmacy	6.9	33.6	28.7	21.9	8.9
Independent Pharmacy	22.5	47.5	15.0	12.5	2.5
Hospital inpatient pharmacy	5.1	36.7	33.7	22.4	2.0
A career in this area of pharmacy will provide the optimal work environment.[e]					
All work settings	9.4	38.5	30.5	16.4	5.2
Chain/Grocery Store/Mass Merchandiser Pharmacy	6.9	34.4	29.6	22.3	6.9
Independent Pharmacy	22.5	42.5	27.5	5.0	2.5
Hospital inpatient pharmacy	9.2	48.0	33.7	7.1	2.0

Chain/grocery store/ mass merchandiser pharmacy (n = 247), independent pharmacy (n = 40), hospital inpatient pharmacy (n = 98); all works settings (n = 426) include 41 who listed other work settings that included LTC, nuclear pharmacy, and hospital outpatient pharmacy

Kruskal-Wallis Test used to calculate Chi-square values. Statistically significant = $p < 0.05$

[a]Chi-square = 8.117; $p = 0.072$

[b]Chi-square = 25.608; $p < 0.001$

[c]Chi-square = 10.432; $p = 0.326$

[d]Chi-square = 24.955; $p = 0.001$

[e]Chi-square = 30.318; $p < 0.001$

Table 4. Student Perceptions of the Student's Primary Pharmacist

	Percent Responding				
Survey Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The pharmacist with whom I worked the most has a positive view of his/her work.[a]					
All work settings	28.9	50.7	11.3	8.0	1.2
Chain /Grocery Store/ Mass Merchandiser Pharmacy	27.5	49.4	11.7	9.7	1.6
Independent Pharmacy	47.5	40.0	7.5	5.0	0
Hospital inpatient pharmacy	20.4	64.3	10.2	4.1	1.0
The pharmacist with whom I worked the most has a positive view of the pharmacy profession.[b]					
All work settings	30.5	53.8	10.3	4.0	1.4
Chain /Grocery Store/ Mass Merchandiser Pharmacy	27.9	53.4	10.9	6.1	1.6
Independent Pharmacy	47.5	47.5	5	0	0
Hospital inpatient pharmacy	25.5	61.2	9.2	2.0	2.0
The pharmacist with whom I worked the most is primarily interested in the financial rewards from being a pharmacist.[c]					
All work settings	4.7	14.8	29.1	42.7	8.7
Chain /Grocery Store/ Mass Merchandiser Pharmacy	6.5	14.2	28.7	41.7	8.9
Independent Pharmacy	5.0	17.5	25.0	45.0	7.5
Hospital inpatient pharmacy	1.0	12.2	30.6	46.7	9.2

Chain/grocery store/mass merchandiser pharmacy (n = 247); independent pharmacy (n = 40), hospital inpatient pharmacy (n = 98); all works settings (n = 426) include 41 who listed other work settings that included LTC, nuclear pharmacy, and hospital outpatient pharmacy

Kruskal-Wallis Test used to calculate Chi-square values. Statistically significant = $p < 0.05$

[a]Chi-square = 16.480; $p = 0.026$

[b]Chi-square = 12.980; $p = 0.011$

[c]Chi-square = 5.683; $p = 0.429$

Table 5. Multiple Regression to Determine Work Environment Influences on Student Career Choice of Independent Community Pharmacy[a]

Survey Item	All Respondents (n = 40)		Male Respondents (n = 14)		Female Respondents (n = 26)		Campus Pathway (n = 25)		Distance Pathway (n = 15)	
	Coeff.	*P -Value*	Coeff.	*P –Value*	Coeff.	*P - Value*	Coeff.	*P - Value*	Coeff.	*P – Value*
My current or most recent pharmacy work experience is/was favorable	0.169	0.166	0.043	0.885	0.159	0.168	0.260	0.139	0.044	0.733
I see myself having a fulfilling career in independent community pharmacy	0.700	<0.001[b]	0.906	0.012[b]	0.593	<0.001[b]	0.763	0.001[b]	0.393	0.037[b]
I see myself having a financially rewarding career in independent community pharmacy	-0.119	0.385	-0.563	0.161	-0.171	0.217	-0.201	0.326	-0.190	0.233
A career in independent community pharmacy will provide me with the optimal work schedule	0.216	0.062	-0.046	0.863	0.470	0.001[b]	0.063	0.683	0.709	0.002[b]

Abbreviation: coeff. = coefficient
[a]Dependent variable: "A career in independent community pharmacy will provide me with the optimal work environment"
[b]Statistically significant $p < 0.05$

Table 6. Multiple Regression to Determine Work Environment Influences on Student Career Choice of Hospital Pharmacy[a]

Survey Item	All Respondents (n = 98)		Male Respondents (n = 37)		Female Respondents (n = 61)		Campus Pathway (n = 73)		Distance Pathway (n = 25)	
	Coeff.	*P - Value*	Coeff.	*P - Value*	Coeff.	*P - Value*	Coeff.	*P - Value*	Coeff.	*P – Value*
My current or most recent pharmacy work experience is/was favorable	0.221	0.018[b]	0.256	0.119	0.165	0.186	0.172	0.120	0.341	0.077
I see myself having a fulfilling career in hospital pharmacy	0.423	0.001[b]	0.439	0.086	0.470	0.003[b]	0.411	0.004[b]	0.530	0.044[b]
I see myself having a financially rewarding career in hospital pharmacy	-0.126	-0.285	-0.210	0.404	-0.116	0.418	-0.182	0.192	-0.204	0.410
A career in hospital pharmacy will provide me with the optimal work schedule	0.257	0.007[b]	0.241	0.156	0.266	0.026[b]	0.326	0.007[b]	0.129	0.478

Abbreviation: coeff. = coefficient
[a]Dependent variable: "A career in hospital pharmacy will provide me with the optimal work environment"
[b]Statistically significant $p < 0.05$

Table 7. Multiple Regression to Determine Work Environment Influences on Student Career Choice of Chain/Mass Merchandiser/Grocery Store Pharmacy[a]

Survey Item	All Respondents (n = 247)		Male Respondents (n = 89)		Female Respondents (n = 158)		Campus Pathway (n = 170)		Distance Pathway (n = 77)	
	Coeff.	*P - Value*	Coeff.	*P – Value*	Coeff.	*P - Value*	Coeff.	*P - Value*	Coeff.	*P –Value*
My current or most recent pharmacy work experience is/was favorable	0.141	0.002[b]	0.096	0.245	0.173	0.001[b]	0.112	0.035[b]	0.222	0.012[b]
I see myself having a fulfilling career in chain/mass merchandiser/grocery store pharmacy	0.355	<0.001[b]	0.346	<0.001[b]	0.359	<0.001[b]	0.303	<0.001[b]	0.444	<0.001[b]
I see myself having a financially rewarding career in chain/mass merchandiser/grocery store pharmacy	0.154	0.001[b]	0.132	0.118	0.162	0.002[b]	0.144	0.005[b]	0.136	0.130
A career in chain/mass merchandiser/grocery store pharmacy will provide me with the optimal work schedule	0.434	<0.001[b]	0.462	<0.001[b]	0.418	<0.001[b]	0.514	<0.001[b]	0.258	0.001[b]

Abbreviation: coeff. = coefficient

[a]Dependent variable: "A career in chain/mass merchandiser/grocery store pharmacy will provide me with the optimal work environment"

[b]Statistically significant $p < 0.05$