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RESEARCH ARTICLE

Third-Year Pharmacy Students' Work Experience and Attitudes and Perceptions of the Pharmacy Profession

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Objectives. To describe PharmD students' work experiences and activities; examine their attitudes towards their work; examine perceptions of preceptor pharmacists they worked with; and determine important issues associated with career preference.
Methods. A written survey was administered to third-year doctor of pharmacy (PharmD) students at 8 colleges and schools of pharmacy in the Midwest.
Results. Five hundred thirty-three students (response rate = 70.4%) completed the survey instrument. Nearly 100% of PharmD students reported working in a pharmacy by the time their advanced pharmacy practice experiences (APPEs) began. Seventy-eight percent reported working in a community pharmacy, and 67% had worked in a chain community pharmacy. For all practice settings, students reported spending 69% of their time on activities such as compounding, dispensing, and distribution of drug products.
Conclusions. Most students are working in community pharmacy (mainly chain) positions where their primary function is traditional drug product dispensing and distribution. Having a controllable work schedule was the variable most strongly associated with career choice for all students.
Keywords: pharmacy student, work experience, work activities, attitudes, career choice

INTRODUCTION

The focus of pharmacy practice has changed over the past 10-15 years from drugs and their distribution to patient-centered care. The suggestion of pharmacy practice focused on patient care was first articulated by Hepler and Strand in 1990 as *pharmaceutical care*.[1] Many major pharmacy organizations and pharmacy educators have embraced pharmaceutical care as the primary focus of pharmacists' activities. However, for many pharmacy students, there is a clear disconnect between what they are being told by pharmacy faculty members and the reality they see in their pharmacy work experiences.[2] Pharmacy students hear about the importance of patient-centered care from faculty members, but these students face a different reality when they work in a pharmacy. Students find themselves in practice settings that are dominated by older models of practice.[3] By the time they reach their third-professional year in the doctor of pharmacy (PharmD) program, many students have worked in a pharmacy-related job. This study is a description of those work experiences along with student attitudes and opinions about those experiences.

The objectives of this study were to describe pharmacy students' work experience for pay. In addition, we examined some quality of work issues by examining student attitudes and opinions towards their work. Finally, we examined student perceptions of how the preceptor pharmacists with whom they worked felt about their jobs.

METHODS

A written survey instrument was developed to collect data on pharmacy work experience from third-year pharmacy students at 8 colleges and schools of pharmacy in the Midwest. The core variables were categorized as follows: work status, including whether the respondent ever worked in a pharmacy; current employment, including practice setting, work activities, attitudes and opinions regarding the work setting, and student perceptions of the pharmacists with whom they worked; and demographic information, including age, sex, marital status,

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and education. Variables were selected based on past research profiling the national pharmacy workforce.[4-6] The information collected on student work experience was part of a larger study on the assessment of student career aspirations that was previously reported.[7]

Study participants were considered a convenience sample. All students in either the third-year of a 4-year PharmD program (7 schools) or the fourth year of a 5-year PharmD program (1 school) were expected to participate. At each of the 8 colleges and schools, much effort was expended in arranging to have all students at that school or college of pharmacy assembled as one group to complete the survey instrument. Classrooms were reserved and exact dates and times were arranged with faculty members several months in advance at each data collection site to make administration of the survey as convenient as possible and to enhance student participation. The principal investigator administered the survey instrument at each site. Whenever possible, the survey instrument was administered during class time. The survey was conducted during class at 4 of the schools. Class time for administering the survey could not be arranged at the other 4 schools so students had to be recruited. A light meal (pizza and soft drinks) was used as an incentive to increase student participation.

Forty-one items on the survey instrument were used to collect demographic (15 items) and work experience (26 items) data. Demographic data and work experience information was collected using fill-in-the-blank questions, multiple-response items, and dichotomous (yes/no) responses. Demographic data included age, gender, marital status, and whether or not a student had a college degree prior to entering pharmacy school. Data collected on work experience included practice setting (independent, chain or corporate-owned retail pharmacy, hospital, nursing home, nuclear pharmacy, pharmacy benefit manager, pharmaceutical industry, other); and work activities (medication dispensing, providing direct patient care, providing brief medication consultation to patients, and providing consultative services to health care professionals). Student attitudes and opinions of their work experience were collected using items on a 5-point Likert scale with anchors ranging from 1 = strongly agree to 5 = strongly disagree.

All analyses were done using SPSS version 14.0. Means and percentages were calculated for descriptive items. The Kruskal-Wallis test for nonparametric ordinal data was used to determine differences in student attitudes and opinion regarding work setting and perception of their preceptor pharmacists, with significance set a priori at <0.05.

RESULTS

According to faculty contacts at each institution, 757 students were eligible to participate in this study from the 8 colleges and schools of pharmacy selected. Of those, 533 actually completed survey instruments for an overall response rate of 70.4%. Twenty-four survey responses were excluded from the study because of incomplete data. The final analytic set consisted of 509 pharmacy students or 95.5% of the students surveyed.

Respondents' demographic characteristics are summarized in Table 1. The average age of the respondents was 24.5 years, with a range of 23.3 to 26.2 years. By a 2 to 1 margin, the majority of respondents were female. The majority (68.8%) of respondents were single, with a range of 47.7% to 79.7% among the colleges and schools. Only 20.8% of respondents were married, with a range of 10.0% to 39.5% at among individual colleges and schools. Among all the schools, 19.2% of respondents reported earning either a bachelor of science or a bachelor of art degree prior to entering pharmacy school, with a range of 5.3% to 37.6% at each college or school. Four hundred ninety-six out of 509 respondents (97.4%)

Table 1. Demographics of Participants in a Survey to Determine the Work Setting Experiences and Preferences of Pharmacy Students

School	No. of Students	Average Age	Min. Age	Max. Age	% Female	% Male	Bachelor's Degree, No. (%)
A	42	24.1	21	42	69.0	31.0	5 (11.9)
B	64	25.0	22	36	62.5	37.5	24 (37.6)
C	115	23.8	21	35	73.0	27.0	18 (15.6)
D	69	26.2	22	45	76.8	23.2	23 (33.3)
E	90	24.3	21	54	58.9	41.1	15 (16.6)
F	47	24.7	22	46	57.4	42.6	6 (12.8)
G	44	24.6	22	37	61.4	38.6	5 (11.4)
H	38	23.3	22	30	76.3	23.7	2 (5.3)
All	509	24.5	21	54	67.2	32.8	98 (19.2)

reported at least one experience working in a pharmacy (Table 2). Most schools had 100% or close to 100% of their students reporting at least one pharmacy work experience. The only exception to this was school F, where only 80.9% (38 out of 47) of respondents reported having at least 1 pharmacy work experience. Overall, 35.0% reported having at least 2 pharmacy work experiences, and 19.2% reported having 3 or more pharmacy work experiences. More than 3 out of every 4 respondents (78.4%) reported working in a community pharmacy, with 2 out of every 3 respondents (66.7%) working for a chain or other corporate-owned community pharmacy, and slightly more than 1 out of every 10 respondents (11.7%) working for an independent community pharmacy.

Table 3 summarizes pharmacy students work activities in 4 settings: independent community pharmacy (n = 58), hospital pharmacy (n = 74), chain or other corporate-owned pharmacy (n = 331), and long-term care pharmacy (n = 12). Across all work settings, respondents spent more than two thirds of their time in medication dispensing, compounding, and distribution activities, ranging from 69% in chain pharmacies to 76% in independent community pharmacies. Other work activities represented a significantly lower proportion of overall student work time, with providing brief drug information to patients at 12%, providing direct patient care/pharmaceutical care at 10%, and providing consultation to other health care professionals at 4%. Comparing work settings, respondents working in chain or other corporate-owned retail pharmacy spent the highest proportion of time in direct patient care/pharmaceutical care (12%) at work, while respondents working in long-term care pharmacy and hospital pharmacy spent the lowest proportion of time (1% and 4%, respectively) in direct patient care. Likewise, respondents working in chain or other corporate-owned retail pharmacy spent a significantly higher proportion of time providing brief drug information to patients (14%) compared to respondents working in all other settings. Finally, respondents working in hospitals and long-term care pharmacies reported spending a significantly higher proportion of their time (11% and 13%, respectively) providing consultation to other health care professionals as compared to both community pharmacy work settings.

Table 2. Pharmacy Students' Work Settings for All Colleges and Schools of Pharmacy Surveyed (n = 496)[a]

Setting	No. (%)
Chain or other corporate owned	331 (66.7)
Independent community pharmacy	58 (11.7)
Hospital	74 (14.9)
Long-term care	12 (2.4)
Other	21 (4.2)

[a]n is defined in this table as the number of students reporting at least one pharmacy work experience

Table 3. Percentage of Time Pharmacy Students Spent in Work Activities, n = 496[a]

Work Activities	Mean (SD)
Independent Community Pharmacy	
Medication dispensing/compounding/ distribution	76 (17)
Direct patient care/pharmaceutical care	10 (13)
Providing drug information to patients	8 (8)
Consultation with other health care professionals	3 (3)
Other	2 (8)
Hospital Pharmacy	
Medication dispensing/compounding/ distribution	70 (32)
Direct patient care/pharmaceutical care	4 (10)
Providing drug information to patients	7 (11)
Consultation with other health care professionals	11 (17)
Other	8 (23)
Chain Pharmacy	
Medication dispensing/compounding/ distribution	69 (22)
Direct patient care/pharmaceutical care	12 (15)
Providing drug information to patients	14 (13)
Consultation with other health care professionals	2 (4)
Other	2 (8)
Long Term Care Pharmacy - % time spent in:	
Medication dispensing/compounding/ distribution	75 (34)
Direct patient care/pharmaceutical care	1 (3)
Providing drug information to patients	0
Consultation with other health care professionals	13 (25)
Other	10 (29)
All Work Settings - % time spent in:	
Medication dispensing/compounding/ distribution	69 (25)
Direct patient care/pharmaceutical care	10 (14)
Providing drug information to patients	12 (12)
Consultation with other health care professionals	4 (10)
Other	5 (17)

[a]n = the number of students reporting at least one pharmacy work experience

Table 4 summarizes respondent attitudes and opinions regarding their work setting. The Kruskal-Wallis test for nonparametric ordinal data revealed significant differences between work setting for each item measuring

Table 4. Pharmacy Students' Attitudes and Opinions Regarding Work Setting, %

Survey Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
My current or most recent job experience was/is favorable.[a]					
All work settings	28	51	14	6	2
Independent pharmacy	45	43	7	3	2
Hospital pharmacy	23	55	11	8	3
Chain pharmacy	26	51	15	6	2
Long-term care pharmacy	17	58	17	8	0
I see myself having a fulfil-ling career in this area of pharmacy.[b]					
All work settings	19	40	22	14	6
Independent pharmacy	31	47	14	7	2
Hospital pharmacy	19	43	20	14	4
Chain pharmacy	17	39	24	13	7
Long-term care pharmacy	17	25	17	33	8
I see myself having a financially rewarding career in this area of pharmacy.[c]					
All work settings	28	57	8	6	1
Independent pharmacy	29	60	5	5	0
Hospital pharmacy	15	49	19	15	3
Chain pharmacy	32	59	6	3	1
Long-term care pharmacy	17	50	17	17	0
A career in this area of pharmacy will provide me with the optimal work schedule.[d]					
All work settings	7	28	29	27	9
Independent pharmacy	14	45	22	14	5
Hospital pharmacy	7	23	34	26	11
Chain pharmacy	4	25	30	31	9
Long-term care pharmacy	17	33	25	17	8
A career in this area of pharmacy will provide the optimal work environment.[e]					
All work settings	6	30	33	22	9
Independent pharmacy	17	48	24	7	3
Hospital pharmacy	12	31	39	12	5
Chain pharmacy	3	23	35	28	11
Long-term care pharmacy	17	42	33	0	8

Kruskal Wallis Test used to calculate Chi-square values

All work settings (n = 496), independent pharmacy (n = 58), hospital pharmacy (n = 74), chain pharmacy (n = 331), long-term care pharmacy (n = 12)

[a]Chi-square = 10.114; $p = 0.018$

[b]Chi-square = 13.473; $p = 0.004$

[c]Chi-square = 30.224; $p < 0.001$

[d]Chi-square = 19.453; $p < 0.001$

[e]Chi-square = 48.483; $p < 0.001$

student attitudes and opinions. Respondents working for an independent community pharmacy had the most favorable response for 3 out of 4 items that addressed quality of the work environment and the work itself. Specifically, respondents working in independent pharmacies were most likely to: (1) consider that experience to be favorable (88%); (2) see themselves having a fulfilling career in this area (78%); (3) believe a career in this area would offer an optimal work schedule (59%); and (4) believe a career in this area would offer the optimal work environment (65%). Other results showed that respondents working in chain pharmacies were most likely to believe they would have a financially rewarding career in chain pharmacy (91%), while respondents working in hospitals were least likely to believe this about a career in hospital pharmacy (64%). Respondents working in long-term care pharmacies were least likely to: (1) consider that experience favorable (75%); and (2) see themselves having

a fulfilling career in that area (42%). Finally, respondents working in chain pharmacies were least likely to believe a career in that area would offer the optimal work schedule (29%) or the optimal work environment (26%).

Table 5 summarizes respondents' perceptions of the pharmacists with whom they primarily worked. The Kruskal-Wallis test revealed a significant difference between work settings for the item measuring the preceptor/primary pharmacist's interest in the financial rewards expected from being a pharmacist. Respondents felt their preceptors were equally likely to be interested in financial rewards whether they worked in independent pharmacies (28%), chain pharmacies (28%), or long-term care pharmacies (33%). Respondents felt their preceptors were least likely to be interested in financial rewards if they worked in hospital pharmacy (8%).

Results from separate regression analyses showed associations between the notion of a career in independent community pharmacy, hospital pharmacy, and chain pharmacy providing an optimal work environment for students who work in those respective settings (Tables 6, 7, and 8). 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 3 areas. For each work setting, separate regressions were run for male students, female students, and all students who had worked in that area. Table 6 shows that the notion that a career in independent community pharmacy provided the optimal work environment was associated with an increased likelihood that a student felt he/she would have a fulfilling career and an optimal work schedule, and with a reduced likelihood that a student would expect a financially rewarding career. For male students, the notion of a career in independent community pharmacy providing an optimal work environment was associated with the belief that they would have an optimal work schedule. For female respondents, the notion of a career in independent community pharmacy providing an optimal work environment was associated with the belief that they would have a fulfilling career, and a reduced likelihood that they would expect a financially rewarding career.

Significant results from the multivariate analysis are presented here. Work schedule had the strongest overall

Table 5. Perceptions of Preceptor/Primary Pharmacist, %

Survey Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The preceptor/primary pharmacist I work with has a positive view of his/her work.[a]					
All work settings	31	48	11	7	1
Independent pharmacy	48	34	12	3	2
Hospital pharmacy	26	51	15	8	0
Chain pharmacy	30	50	11	8	2
Long-term care pharmacy	33	42	17	8	0
The preceptor/primary pharmacist I work with has a positive view of the pharmacy profession.[b]					
All work settings	31	46	16	4	0
Independent pharmacy	40	40	17	2	2
Hospital pharmacy	24	61	11	4	0
Chain pharmacy	33	45	16	5	0
Long-term care pharmacy	33	42	17	8	0
The preceptor/primary pharmacist I work with is primarily interested in the financial rewards from being a pharmacist.[c]					
All work settings	7	17	34	35	5
Independent pharmacy	14	14	34	31	7
Hospital pharmacy	0	8	39	45	8
Chain pharmacy	8	20	33	34	4
Long-term care pharmacy	8	25	17	50	0

All work settings (n = 496), independent pharmacy (n = 58), hospital pharmacy (n = 74), chain pharmacy (n = 331), long-term care pharmacy (n = 12)

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

[a]Chi square = 6.214; $p = 0.102$

[b]Chi square = 0.938; $p = 0.816$

[c]Chi square = 11.576; $p = 0.009$

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

	All Respondents (n = 58)		Male Respondents (n = 20)		Female Respondents (n = 38)	
Work Related Measures	**Coeff.**	***p***	**Coeff.**	***p***	**Coeff.**	***p***
My current or most recent job experience was/is favorable.	−0.033	0.789	0.128	0.441	−0.081	0.607
I see myself having a fulfilling career in independent pharmacy	0.435	0.011[b]	−0.060	0.733	0.898	0.002[b]
I see myself having a financially rewarding career in independent pharmacy	−0.367	0.018[b]	−0.015	0.915	−0.651	0.021[b]
A career in independent pharmacy will provide me with the optimal work schedule.	0.524	<0.001[b]	0.899	<0.001[b]	0.280	0.129

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

association with students considering all 3 major career options as optimal career environments. This association was stronger among male students than female students. Another significant finding was that financial considerations did not have a positive association with students considering any of the 3 major careers options as the optimal career environment. However, students who were more likely to consider independent community pharmacy as an optimal career environment felt this career option would not be financially rewarding. A potentially fulfilling career was more likely to be associated with both chain and independent community pharmacy practice as the optimal career environment. Finally, favorable work experience in a hospital was associated with students viewing hospital practice as the optimal career environment.

DISCUSSION

By the time pharmacy students are in the semester prior to beginning advanced pharmacy practice experiences (APPEs), most of them have at least 1 pharmacy experience working for pay. Overall, 97.1% of respondents had at least 1 pharmacy work experience. This high percentage of students with previous pharmacy work experience is not unusual. A 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.[8] In fact, in the current study, 100% of respondents at 5 out of 8 schools reported at least 1 pharmacy work experience.

In this study, 2 out of 3 pharmacy students had pharmacy work experience at a chain pharmacy, including traditional chains (eg, CVS and Walgreens), mass merchandiser chains (eg, Target and Wal-Mart), and grocery store chains (eg, Kroger and SuperValu). Significantly fewer pharmacy students received experience in hospital pharmacy, independent community pharmacy, and long-term care pharmacy. These results are somewhat different from those of national surveys of pharmacists conducted in 2000 and 2004.[9] In those studies, only about 40% of

Table 7. Multiple Regression to Determine Work Environment Influence on Student Career Choice of Hospital Pharmacy[a]

	All Respondents (n = 74)		Male Respondents (n = 22)		Female Respondents (n = 52)	
Survey Item	**Coeff.**	***p***	**Coeff.**	***p***	**Coeff.**	***p***
My current or most recent job experience was/is favorable.	0.371	<0.001[b]	0.400	0.004[b]	0.367	0.018[b]
I see myself having a fulfilling career in hospital pharmacy	0.349	0.003[b]	0.233	0.213	0.334	0.034[b]
I see myself having a financially rewarding career in hospital pharmacy	−0.106	0.312	−0.204	0.216	−0.023	0.866
A career in hospital pharmacy will provide me with the optimal work schedule.	0.322	<0.001[b]	0.635	<0.001[b]	0.182	0.112

Abbreviations: 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 8. Multiple Regression to Determine Work Environment Influence on Student Career Choice of Chain Pharmacy[a]

	All Respondents (n = 330)		Male Respondents (n = 112)		Female Respondents (n = 218)	
Survey Item	**Coeff.**	***p***	**Coeff.**	***p***	**Coeff.**	***p***
My current or most recent job experience was/is favorable.	0.113	0.013[b]	0.114	0.132	0.114	0.047[b]
I see myself having a fulfilling career in chain pharmacy.	0.406	<0.001[b]	0.387	<0.001[b]	0.415	<0.001[b]
I see myself having a financially rewarding career in chain pharmacy.	0.062	0.153	0.090	0.221	0.047	0.384
A career in chain pharmacy will provide me with the optimal work schedule.	0.375	<0.001[b]	0.383	<0.001[b]	0.373	<0.001[b]

Abbreviations: coeff. = coefficient

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

[b]Statistically significant $p < 0.05$

pharmacists reported working in chain pharmacy, with about 25% working in a hospital and about 15% working in an independent community pharmacy.

Pharmacy students reported spending nearly 70% of their time in product-focused activities such as medication compounding, dispensing, and distribution, with a range from 69% in chain pharmacies to 76% in independent community pharmacies. In a national survey, pharmacists reported spending about 50% of their time in dispensing activities.[10] The remainder of student work activities were small in comparison to dispensing activities and included providing drug information (12% of the time), providing direct patient care/pharmaceutical care (10% of the time), and consulting with other health care professionals (4% of the time). Since pharmacy students are taught the significance and importance of patient care activities, it is likely that the proportion of time they spend doing patient care activities is much less than they would like, and the amount of time they spend doing dispensing activities is more than they would like, which reflects the results of a national survey of pharmacists.[10]

With the exception of being financially rewarding, independent community pharmacy practice scored highest for all variables. High scores were defined as the largest proportion of students either strongly agreeing or agreeing with a work-related issue. Regardless of preference for career, work schedule is clearly a major factor for pharmacy students when choosing their career. Similar results were shown with graduating medical students, where controllable lifestyle was strongly associated with choice of medical specialty for both men and women.[11] The authors of this study of graduating medical students first thought this would only be true with female medical students. In fact, the results showed that in 2003, male medical students (45%) were even more likely to choose a specialty because of controllable lifestyle compared to females (36%).[11] Likewise in our study, work schedule was more likely to be associated with career choice for male pharmacy students compared to female students. A related study of freelance self-employed pharmacists from Great Britain found the desire for flexibility in time and place were the overriding factor for choosing to work this way.[12] Further research is needed to determine factors underlying these strong associations. The results from this study also support the notion that non-financial factors are really what matters when it comes to career motivation and satisfaction.[13,14] Finally, student perceptions of their preceptors was not associated with optimal career environment in any work setting and is not reported in detail here.

A nationwide survey compared the proportion of actively practicing pharmacists working in all settings between 1990 and 2004.[9] The proportion of pharmacists practicing in independent community pharmacies decreased from 25.1% in 1990 to 15.1% in 2004. This 2004 figure is close to the proportion of students working in independent community pharmacy in the current study (11.7%). The proportion of pharmacists practicing in chain pharmacy went up from 33.0% to 41.3% during the same time. This compares to a 66.7% of pharmacy students who reported working in a chain pharmacy in the current study. Finally, the proportion of hospital pharmacists remained relatively constant during this time, going from 24.6% to 24.7%. Hospital pharmacy employment numbers remain relatively stable, and there is and will continue to be a dramatic shift of pharmacists from independent community pharmacies to chain pharmacies.

The difficulties pharmacy students often face when trying to reconcile the realities of distribution-based pharmacy with the future hope of pharmaceutical care have been discussed previously.[7] The current study demonstrates the extent to which the pharmacy work environment

is often at odds with what students learn in pharmacy school. The disconnect between practice site reality and the idealism of educational institutions has been shown in pharmacy students who report that experience in a work-for-pay setting can be significantly different than experience in a work-for-academic-credit setting at a college-approved APPE site. Clark and Mount created a Pharmacy Service Orientation (PSO) measure to identify the service orientation of pharmacy practice sites.[15] The PSO measure consists of 3 semantic differential scales for assessment of (1) practice site orientation (patient vs. product); (2) overall focus (quantity vs. quality); and (3) evaluation of pharmacist's work at that site (professional vs. technical). Work-for-academic credit sites had PSOs that were significantly more service oriented than work-for-pay sites. A possible explanation for this difference is that students in clerkships are working to *become* pharmacists with an emphasis on patient-centered care activities, while students in work-for-pay settings are similar to technicians and work to *help* pharmacists primarily with drug product distribution. Pharmacy educators should understand this, and need to become more aware of how pharmacy students are socialized to the pharmacist role during their work-for-pay experiences. As suggested by Clark and Mount, structured in-depth knowledge of student impressions about where they work-for-pay as opposed to anecdotal comments about these experiences can help in the selection of new rotation sites and in gaining a better understanding of socializing influences encountered outside of structured clerkships. Further research needs to be conducted to understand differences and similarities in professional socialization that occurs in both work-for-academic-credit and work-for-pay experiences.

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 the respondents. Another study design limitation involved the population from which the sample was drawn. Survey respondents were drawn from 8 colleges and schools of pharmacy in the Midwestern United States. Therefore, the findings from this study may have limited generalizability. Finally, we investigated a limited set of variables that were measured with single items.

CONCLUSIONS

By the time pharmacy students at 8 Midwestern college and schools of pharmacy were in their third-professional year of school, nearly 100% of them have at least 1 pharmacy work experience. Almost 4 out of 5 received their pharmacy work experience in a community pharmacy, with 2 out of 3 working in chain community pharmacies. Nearly 70% of student work time was spent focused on drug product compounding, dispensing, and distribution. Work schedule and career fulfillment had the most influence on choice of favorable careers.

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