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RESEARCH ARTICLE

Student self-evaluation of professionalism during advanced pharmacy practice experiences

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Abstract

Objectives: To analyse pharmacy students' self-evaluation of professionalism criteria during their fourth year in Advanced Pharmacy Practice Experience (APPE) rotations. The authors hypothesised that at least 50% of the evaluation questions will have a self-evaluation rating of 'exceeds expectations'. **Methods:** Towards the end of each APPE rotation, students self-evaluated themselves against ten professionalism criteria using a rubric. The data were aggregated and analysed by rotation type and professionalism criteria. **Results:** A total of 8,120 self-evaluations were reviewed. The percentage of evaluations that were rated at 'exceeds expectations' are as follows: Ambulatory Patient Care, 51.9%; Community Pharmacy, 63.4%; Inpatient General Medicine, 48.4%; Hospital/Health Systems, 53.9%; and Electives, 57.1%. **Conclusion:** The percentage of professionalism self-evaluation ratings for all rotation types, except Inpatient General Medicine, were greater than 50% at the 'exceeds expectation' level. This data will be used for accreditation and quality improvement purposes.

Introduction

Professionalism is critically important for the success of today's pharmacist (Dubbai *et al.*, 2019). To prepare competent practitioners, schools of pharmacy should inculcate professionalism skills in students throughout both their didactic and experiential curricula. Measuring and monitoring student professionalism during Advanced Pharmacy Practice Experiences (APPE) is a method to assure and improve quality in the curriculum of pharmacy schools in the United States. Both the International Pharmaceutical Federation (FIP) Nanjing Statements and the Accreditation Council for Pharmacy Education (ACPE) Guidance for the 2016 Standards detail the importance of schools of pharmacy teaching professionalism and self-evaluation skills (ACPE, 2015; FIP, 2017).

Cluster 1.3 of the FIP (2017) Nanjing Statements on Pharmacy and Pharmaceutical Education speaks to the requirement that students attain professionalism competencies. In addition, cluster 8 discusses the Continuous Professional Development (CPD) process, of which student self-evaluation is required. Section 24b of ACPE's Guidance to the 2016 Standards (2015) recommends that the evaluation plan contain the following: *"Student self-evaluations, and faculty and preceptor evaluations of student professional development, achievement of professional competencies, and demonstration of professional behaviours."*

Student self-evaluation is associated with self-regulated learning, specifically goal setting and self-monitoring (Andrade, 2019). During their second and third year at the University at Buffalo School of Pharmacy and Pharmaceutical Sciences, students of the Class of 2021 self-evaluated themselves on professionalism criteria (Table I) a total of ten times during their five Introductory Pharmacy Practice Experiences (IPPEs). The professionalism criteria were extracted from the 2013 *Center for the Advancement of Pharmacy education 2013 Educational Outcomes* (Medina *et al.*, 2013). In the middle, and towards the end of these IPPE rotation experiences students receive both verbal and written professionalism feedback from their direct preceptor. Thus, at the time of conducting this study, the APPE students in their fourth year had become quite familiar

with the professionalism criteria and the expectations of pharmacy practice experiences as a student.

In a study by Tejeiro and colleagues (2012), self-evaluations that did not count towards the student's grades were more similar to a faculty member's evaluations, compared to self-evaluations that did count towards a student's grades. This suggests that students are more likely to assess themselves accurately when the self-evaluation does not count towards a grade. In addition, Fuller and authors (2021) suggest that self-awareness and student self-evaluation may improve when students use the same instrument over time. The student self-evaluations described in this study did not count towards the students' grades, and the students had multiple opportunities to self-evaluate themselves against the professionalism rubric prior to the start of their APPEs. These factors should help provide a more accurate self-evaluation by the students in this current study.

This study was aimed at analysing pharmacy students' self-evaluation of professionalism criteria during their fourth year in APPE rotations. The authors hypothesised that at least 50% of the evaluation questions will have a self-evaluation rating of 'exceeds expectations'.

Methods

The University at Buffalo School of Pharmacy and Pharmaceutical Sciences fourth year curriculum consists of seven experiential rotations that each student must successfully complete (Table I). Towards the end of each rotation, students are required to self-evaluate using the ten professionalism criteria via an electronic learning management system (Table II). Students self-evaluate each criterion at three levels:

1. Does not meet expectations
2. Meets expectations
3. Exceeds expectations

Table I: Professionalism questions written as outcomes[†]

Outcome	Professionalism questions
Outcome 1	Motivation: displays eagerness to learn and to effectively care for patients.
Outcome 2	Commitment to excellence: actively engaged; demonstrates strong work ethic; strives to exceed minimum requirements; punctual; prepared; conscientious; seeks additional knowledge and skills.
Outcome 3	Adaptability: able to modify behaviour accordingly when presented with different situations.
Outcome 4	Accountability: accepts personal responsibility (e.g. for own learning, patient care, etc.); demonstrates preparedness, punctuality, and reliability with commitments in a timely manner; is accountable for their performance, initiates activities when necessary, and contributes overall to the profession; exhibits awareness and adherence to various site policies and procedures.
Outcome 5	Time management & organisation: constructively uses spare time, able to prioritise and manage multiple tasks, independently manages times and tasks, meets deadlines.
Outcome 6	Communication: oral, written, and non-verbal communication is courteous, respectful, and situationally appropriate; listens attentively.
Outcome 7	Integrity & trustworthiness: demonstrates high degree of integrity, truthfulness, and fairness; adheres to ethical standards; maintains confidentiality.
Outcome 8	Professional demeanour: displays a positive attitude; non-judgmental; controls emotions appropriately; carries oneself with professional presence.
Outcome 9	Compassion & respect for others: displays empathy and sensitivity; respectful of different socioeconomic backgrounds and cultural traditions; avoids promoting gossip and rumour; respects authority.
Outcome 10	Independent learner: commits to lifelong learning; seeks and applies feedback for self-improvement; sets and achieves realistic goals (S.M.A.R.T.); maintains personal health and well-being; avoids harmful behaviours.

[†] Rating Scores: 1= Does not meet expectations; 2 = Meets expectations; 3 = Exceeds expectations

Table II: APPE rotation types

Rotation type	Rotation duration (hours)	Direct patient care	Direct or non-direct patient care
Ambulatory patient care	240	X	
Community pharmacy	160	X	
Hospital/health system pharmacy	160	X	
Inpatient general medicine patient care	240	X	
Elective I	240	X	
Elective II	240		X
Elective III	160		X

In this study, student self-evaluation data from the Class of 2021 were collected in aggregate by rotation type and professionalism criterion. The data were accessed from a web-based learning management system and transferred to Microsoft Excel for analysis. The University at Buffalo Institutional Review Board (IRB) reviewed this study and found the research did not involve human subjects.

Results

Tables III and IV describe the self-evaluation data related to 'exceeds expectations' and 'meets expectations', respectively. Figures 1, 2, and 3 graphically display the percentage of professionalism questions that students self-evaluated at the 'exceeds expectations' level. Figure 4 graphically displays the

self-evaluation data related to 'meets expectations'. It should be noted that no student rated a self-evaluation criterion as 'does not meet expectations'.

Based on the data, the Community Pharmacy professionalism questions had the largest number of ratings at the 'exceeds expectations' level, (63.4%) and the Inpatient General Medicine rotation had the lowest number of ratings at the 'exceeds expectations' level, (48.4%). In addition, the questions on *Integrity* and *Trustworthiness* had the largest percentage of ratings for 'exceeds expectations' (61.9%) and the questions on *Time Management* and *Organization* had the lowest percentage of ratings for 'exceeds expectations' (46.6%).

The number of students that completed the self-evaluation in Ambulatory Patient Care, Community Care, Hospital/Health Systems Pharmacy, Inpatient General Medicine Patient Care, Elective I, Elective II, and Elective III were 117, 116, 117, 116, 117, 117, and 112 respectively. Each student answered ten professionalism questions for each of the seven rotations, resulting in a total of 8,120 self-evaluations.

Table III: Percentage of professionalism scores that exceed expectations by rotation type and professionalism question†

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Avg.
AC	54.7%	48.7%	47.0%	53.0%	41.0%	49.6%	58.1%	61.5%	61.5%	43.6%	51.9%
CP	56.9%	67.2%	65.5%	62.1%	55.2%	63.8%	69.8%	72.4%	66.4%	54.3%	63.4%
H/HS	54.7%	52.1%	54.7%	55.6%	45.3%	55.6%	60.7%	56.4%	57.3%	46.2%	53.9%
GM	51.7%	48.3%	44.0%	49.1%	42.2%	39.7%	57.8%	52.6%	52.6%	45.7%	48.4%
Electives	61.0%	56.6%	57.2%	57.2%	49.1%	53.2%	63.3%	59.8%	60.7%	53.2%	57.1%
Average	55.8%	54.6%	53.7%	55.4%	46.6%	52.4%	61.9%	60.5%	59.7%	48.6%	

†AC= Ambulatory Patient Care, CP=Community Pharmacy, H/HS=Hospital Health System, GM=Inpatient General Medicine

Table IV: Percentage of professionalism scores that meet expectations by rotation type and professionalism question†

Question	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Avg.
AC	45.3%	51.3%	53.0%	47.0%	59.0%	50.4%	41.9%	38.5%	38.5%	56.4%	48.1%
CP	43.1%	32.8%	34.5%	37.9%	44.8%	36.2%	30.2%	27.6%	33.6%	45.7%	36.6%
H/HS	45.3%	47.9%	45.3%	44.4%	54.7%	44.4%	39.3%	43.6%	42.7%	53.8%	46.1%
GM	48.3%	51.7%	56.0%	50.9%	57.8%	60.3%	42.2%	47.4%	47.4%	54.3%	51.6%
Electives	39.0%	43.4%	42.8%	42.8%	50.9%	46.8%	36.7%	40.2%	39.3%	46.8%	42.9%
Average	44.2%	45.4%	46.3%	44.6%	53.4%	47.6%	38.1%	39.5%	40.3%	51.4%	

†AC= Ambulatory Patient Care, CP=Community Pharmacy, H/HS=Hospital Health System, GM=Inpatient General Medicine

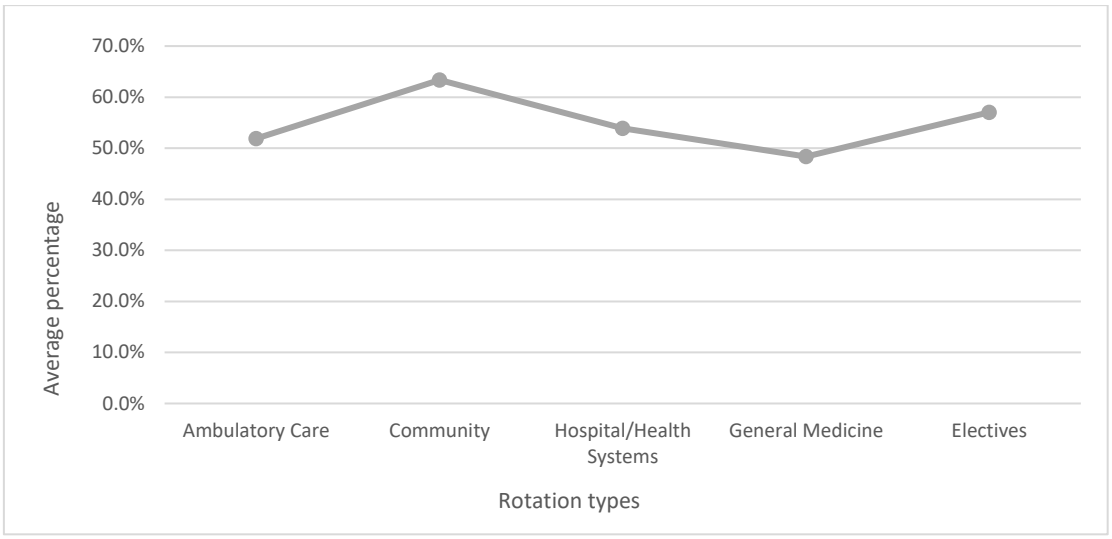

Figure 1: Percentage of scores that exceed expectations by rotation type

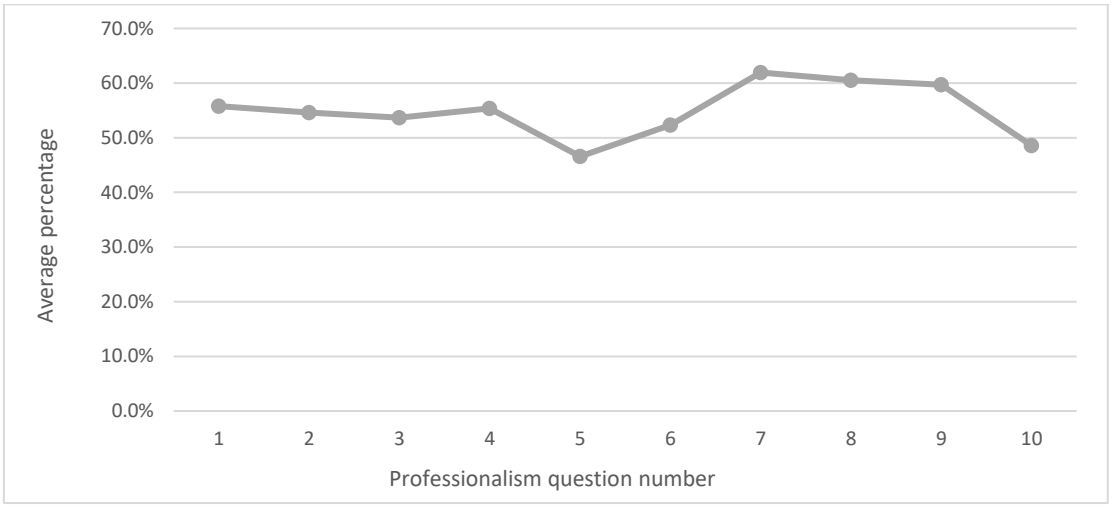

Figure 2: Percentage of scores that exceed expectations by professionalism question

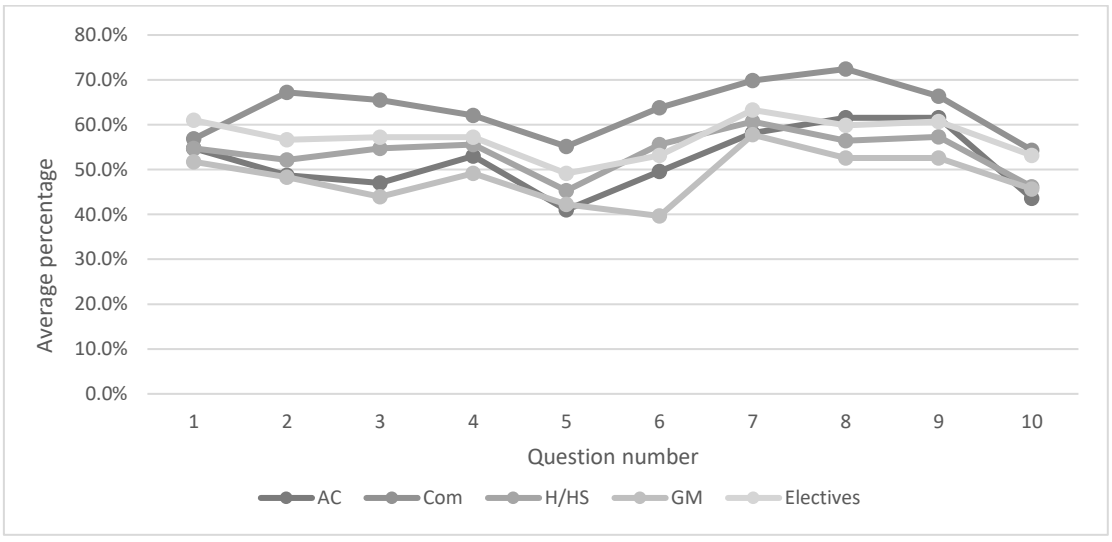

Figure 3: Percentage of scores that exceed expectations by professional question and rotation type

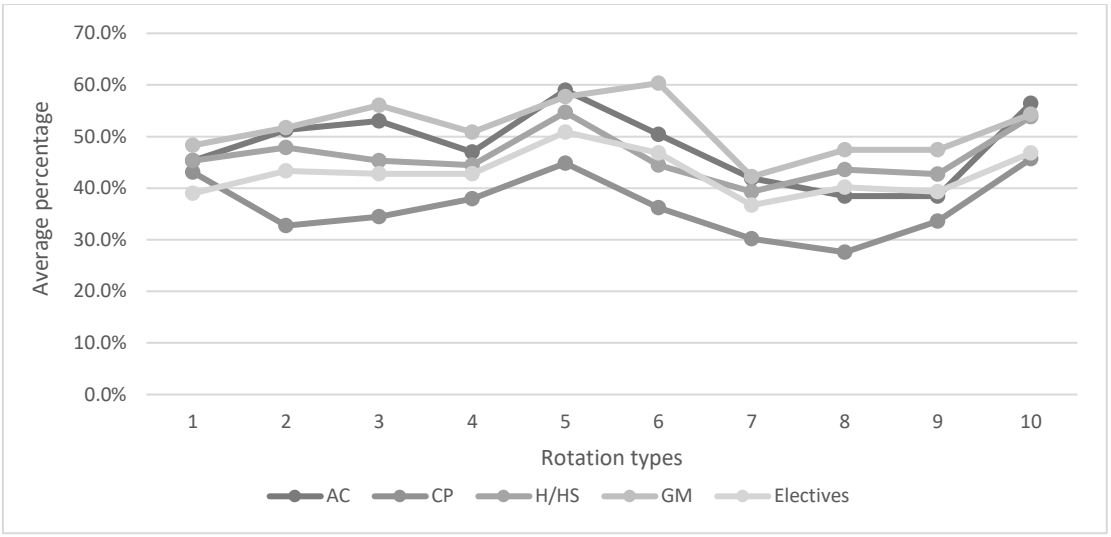

Figure 4: Percentage of professionalism scores that meet expectations by rotation type and question

Discussion

This study analysed student self-evaluation of professionalism criteria for APPE rotations in the Class of 2021. The school's threshold of 50% was not met for the Inpatient General Medicine rotation, with an average value of 48.4% of evaluations with ratings at 'exceeds expectations'. All other rotation types met the school's threshold of at least 50%.

On average, professionalism criteria five (time management) and ten (independent learner) had the lowest 'exceeds expectations' score at 46.6% and 48.6%, respectively. These two professionalism criteria are important qualities for future pharmacists and based on the data, some areas that need improvement may have been identified.

The validity of this study may be limited for two reasons. First, multiple biases have been documented in the student self-evaluation educational literature. Fuller and authors (2021) suggested that lower performing students demonstrated lower accuracy with self-assessment of Entrustable Professional Activities (EPAs). Although this APPE study focused on professionalism and Fuller and colleagues (2021) study focused on EPAs, there may be some crossover. Dunlosky and Lipko (2007) also indicate that student's global judgments may be less accurate than term specific judgments. The professionalism criteria used in this study are somewhere between global and term specific judgments indicating students may have some limited accuracy in their self-evaluations.

Second, this APPE study was only conducted for one year, and the authors desire to fully analyse the data after three continuous years of evaluation. Consequently, more research on the self-evaluation of professionalism is needed.

Conclusion

This data will be shared with the Curriculum Committee and Experiential Education Faculty Advisor Committee for Quality Improvement purposes. This was the first time this type of data was analysed at the school of pharmacy, but it is planned that this would be made an annual requirement. The Experiential Education Office will continue to look for trends and report the findings.

Conflict of interest

The authors have no actual or perceived conflict of interest to disclose.

Source of funding

The authors have no financial or personal relationships that may bias their work.

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