



Brief Report

Transitioning From Points-Based Grading to a Modified Pass/Fail Grading Approach in a Simulated Patient Program

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ABSTRACT

Objective: To determine the impact of transitioning from points-based grading to a modified pass/fail grading approach in a simulated patient (SP) program on first year pharmacy (P1) student performance in a PharmD curriculum.

Methods: Course-level data from the 2021–2022 and 2022–2023 academic years were collected to assess the impact of transitioning to a modified pass/fail grading approach on P1 student performance. During the 2021–2022 academic year, points-based grading was used. In 2022–2023, a modified pass/fail grading approach was implemented: communication assessment used pass/fail grading and clinical assessment used points-based grading; each assessment was worth 50% of the total SP activity grade. Chi-square tests were used to compare the percentage of students who passed each assessment ($\geq 70\%$) with those who failed.

Results: Across both academic years, students completed 9 formative (18 rubrics) and 6 summative (12 rubrics) SP activities. Each activity included separate communication and clinical assessment rubrics. There were no significant differences in performance on 27 of 30 rubrics. There were two formative SP activities where the percentage of students who passed the communication assessment using pass/fail grading (2022–2023 academic year) was different than points-based grading (2021–2022 academic year). In one fall semester activity, the cohort with the modified pass/fail grading approach had lower pass rates, but the opposite trend was observed in the winter semester.

Conclusion: Our program was able to successfully move to a pass/fail approach for communication assessments of SP activities while maintaining points-based grading for clinical assessments in our P1 curriculum with minimal impact on student performance.

1. Introduction

Professional communication and patient assessment are required elements of the didactic Doctor of Pharmacy curriculum as defined by the Accreditation Council for Pharmacy Education.¹ Simulated patient (SP) interactions allow for students to demonstrate their ability to carry out the Pharmacists' Patient Care Process, which includes collecting data, making assessments, formulating a plan, implementing the plan and providing education, and establishing a follow-up plan during patient interactions.² Effective patient communication skills are a large key to success in these interactions. At our small, public College of Pharmacy, SP interactions begin in the first year (P1) of the Doctor of Pharmacy (PharmD) curriculum with emphasis in the P1 year placed on

developing and refining communication skills.

Our institution uses paid community members who receive training on role playing and evaluating each SP activity. This practice agrees with previous research, which demonstrated that pharmacy students prefer community members over their peers or faculty/staff members due to believability of the interaction and the opportunity to work with someone they do not otherwise know.³ However, there are some limitations to having community members evaluate SP interactions in place of pharmacy faculty, including lack of background pharmacy knowledge and limited experience with rubric-based evaluations. Variable grading in clinical simulation exams by trained raters is a well-known and extensively studied concern in the education of health care providers. Weaver and colleagues⁴ found that when compared to a

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reference faculty member, raters graded students on Objective Structured Clinical Examinations (OSCEs) up to 19.5 points lower ($P = .001$) and 12.3 points higher ($P = .039$) than the reference evaluator.⁴ Our faculty and staff have worked to continuously improve our SP program through data collection and interventions, including creating an SP program assistant director position and formalizing SP program assessments.⁵

Despite the program's use of continuous quality improvement, the SP program assistant director and faculty regularly received student feedback focused on variations in communication scores that students perceived to be unfair. This is likely due to several factors, including the inherent subjective nature of communication preferences and difficulty standardizing SP use of patient scripts, prompts, and grading approaches. One potential approach for addressing this concern is to use a modified pass/fail grading scheme. Jham and colleagues⁶ reviewed the large body of literature in the education of medical students, demonstrating that pass/fail grading can decrease student anxiety and encourage effective self-directed learning without negatively impacting learner clinical performance.⁶ Given the paucity of literature investigating pass/fail grading of SPs in pharmacy education, the authors piloted a modified pass/fail grading approach for a subset of our PharmD students. The objective of this study was to determine the impact of transitioning from points-based grading to a modified pass/fail grading approach for communication skills in an SP program on P1 student performance in a PharmD curriculum.

2. Methods

Prior to this pilot, our program evaluated students on both their communication and clinical skills in formative and summative assessments using points-based rubrics that aligned with the percentage earned on the assessment (0%–100%). During the 2022–2023 academic year, the first-year courses involving SPs (Patient Communication, Self-Care Therapeutics, and Pharmacy Practice Skills II) piloted a pass/fail grading scheme for the communication portion of each SP activity. SPs continued to assess students using the existing rubric with free-text comments, and this data was provided to students after SP activities. However, the score that was recorded in the gradebook for the communication assessment was either 100% (if a student earned 70% or higher and therefore passed) or 0% (if a student earned 69% or less and therefore did not pass). The clinical assessment continued to be graded using the points-based grading scale (0% to 100%). Each assessment (communication and clinical) was worth 50% of the total activity grade. The communication checklist is weighted equally and assesses the following categories: initiating the interaction, acknowledging the patient (building rapport), verbal communication, nonverbal communication, collecting information, organization/flow, and concluding the encounter. Clinical scenarios were updated for the 2022–2023 academic year by the experienced course instructor in collaboration with the assistant director of the SP program. Cases from the previous year were used as a template to help ensure a consistent level of difficulty across years.

Given the program's emphasis on formative assessment, a remediation plan was developed for students who earned less than 70% on either the communication assessment or the clinical assessment. Students were eligible for activity remediation if they did not pass the communication and/or clinical assessment. If they successfully remediated the activity, the score on the assessment they initially did not pass was increased to 70% in the gradebook. During this pilot, remediation was required in the fall semester and optional in the winter semester based on course requirements.

Course-level data from the 2021–2022 and 2022–2023 academic years was collected to assess the impact of the grading change on student performance. All SP activities during both years were conducted virtually via Zoom.⁷ All course data, including students who took a leave of absence or decided to not continue in the program, was

included when evaluating individual activities. Chi-square tests were used to compare the percentage of students who passed each assessment. Two-sample t tests comparing the average number of assessments that students passed for each year among (1) communication assessments; (2) clinical assessments; (3) all formative assessments; (4) all summative assessments; and (5) all assessments overall were assessed among students who completed all activities during the academic year. Descriptive statistics were used to summarize the percentage of students who did not pass each assessment who completed the required (fall 2022) and optional (winter 2023) remediation activities. The mean overall course percentages for both academic years were also calculated. This study was deemed exempt by our institution's Health Sciences and Behavioral Sciences Institutional Review Board.

3. Results

During the 2021–2022 academic year, 15 communication assessments and 15 clinical assessments were completed for each student ($n = 79$). Of these assessments, 18 were formative assessments and 12 were summative assessments. During the 2022–2023 academic year, the same assessments were completed for each student ($n = 78$). There was no significant difference in the average number of passed clinical assessments, communication assessments, formative assessments, summative assessments, or overall student performance when comparing the two academic years (Table 1). The average final course grade increased by 1.3% (range 0.4% to 2.2%) during the academic year where the SP communication rubric was graded using pass/fail.

However, in a secondary analysis comparing individual semester scores, there were two formative SP activities where the percentage of students who passed the communication assessment was statistically different between the two years. Students were more likely to earn at least 70% on the communication assessment for the first SP activity of the program, which was related to empathy and listening, when points-based grading was used compared to pass/fail grading (100% vs 93.8%, $P = .022$). During the winter semester, students were less likely to earn a 70% on the communication assessment for the first SP activity of the semester, which was related to motivational interviewing, when points-based grading was used compared to pass/fail grading (94.9% vs 100%, $P = .043$) (Table 2).

In a similar semester-to-semester comparison, clinical assessments were graded using points-based grading for both the 2021–2022 and 2022–2023 academic years. There was only one summative SP activity, over the counter counseling in the winter semester, where students were less likely to earn a 70% on the clinical assessment (89.9% vs 98.7%, $P = .017$).

Students remediated all communication ($n = 8/8$) and clinical ($n = 7/7$) assessments that were not passed in fall semester as remediation was required per the course policy. Students remediated 75% ($n = 3/4$) of communication assessments and 42% ($n = 5/12$) of

Table 1
Average Number and Percentage of Assessments Passed Per Student by Activity Type.

Type of assessment	Average number of assessments that were passed per student (%)		
	2021-2022 ($n = 79$) ^a	2022-2023 ($n = 78$) ^a	<i>P</i> value
Communication ($n = 15$)	14.86 (99.1)	14.85 (99.0)	.840
Clinical ($n = 15$)	14.67 (97.8)	14.72 (98.1)	.685
Formative ($n = 18$)	17.70 (98.3)	17.67 (98.2)	.790
Summative ($n = 12$)	11.84 (98.6)	11.90 (99.2)	.362
Overall ($n = 30$)	29.53 (98.4)	29.56 (98.5)	.836

^aAmong students who completed all simulated patient activities during the academic year.

Table 2
Number and Percentage of Students Who Earned at Least 70% on the Communication and Clinic Assessments During Simulated Patient Interactions^{a,b}.

Activity	Type of Assessment	Communication assessments			Clinical assessments		
		Number of students who passed (%)			Number of students who passed (%)		
		Points-based grading 2021-2022	Pass/fail grading 2022-2023	<i>P</i> value	Points-based grading 2021-2022	Points-based grading 2022-2023	<i>P</i> value
Fall semester							
Patient communication							
Empathy and listening	Formative	81 (100)	75 (93.8)	.022	-	-	-
Patient counseling	Formative	79 (97.5)	79 (98.8)	.567	80 (98.8)	80 (100)	.319
Motivational interviewing	Formative	81 (100)	78 (97.5)	.152	81 (100)	78 (97.5)	.152
Medication history	Formative	80 (98.8)	80 (100)	.319	79 (97.5)	75 (93.8)	.240
Patient counseling	Summative	81 (100)	79 (98.8)	.313	81 (100)	80 (100)	1.00
Motivational interviewing	Summative	80 (98.8)	80 (100)	.319	81 (100)	79 (98.8)	.313
Medication history	Summative	81 (100)	80 (100)	1.000	79 (97.5)	77 (96.3)	.639
Winter semester							
Self-care therapeutics							
Motivational interviewing	Formative	75 (94.9)	78 (100)	.044	77 (97.5)	73 (93.6)	.239
OTC counseling – collecting data	Formative	-	-	-	79 (100)	78 (100)	1.000
OTC counseling – recommendation	Formative	79 (100)	77 (98.7)	.313	77 (97.5)	74 (94.9)	.396
OTC counseling – all steps	Formative	79 (100)	78 (100)	1.00	75 (94.9)	77 (98.7)	.810
OTC counseling – all steps telephone	Formative	79 (100)	78 (100)	1.00	76 (96.2)	78 (100)	.082
Motivational interviewing	Summative	77 (97.5)	77 (98.7)	.567	79 (100)	76 (97.4)	.152
OTC counseling	Summative	79 (100)	78 (100)	1.00	71 (89.9)	77 (98.7)	.017
Pharmacy practice skills II							
Healthcare professional	Formative	78 (98.7)	75 (96.2)	.305	77 (97.5)	76 (97.4)	.990
Healthcare professional	Summative	79 (100)	78 (100)	1.00	78 (98.7)	78 (100)	.319

Abbreviation: OTC, over the counter.

Bold: $P < 0.05$.^a Number of students: fall 2021 ($n = 81$), winter 2022 ($n = 79$), fall 2022 ($n = 80$), winter 2023 ($n = 78$).^b One activity was not listed due to not being graded by the simulated patient. One activity was not listed due to being added in fall 2022.

clinical assessments during the winter semester when remediation was optional.

4. Discussion

Over the past year, the authors successfully piloted a transition to pass/fail for the communication portion of our SP activities within our P1 class while maintaining points-based grading for clinical activities. While minor changes were made to the cases, the overall concepts, activities, and assessments/rubrics remained consistent across the two years assessed. While there were no significant differences in most assessments over the two years, there was a statistically significant difference in two sessions related to communication. One of these sessions from the fall term focused on empathy and listening. Fewer students (93.8%) passed the communication portion of this activity (when graded using the modified pass/fail approach) compared to all students passing the year prior. The second session occurred in the winter term and focused on motivational interviewing. In this activity, all students passed the session with implementation of the modified pass/fail approach compared to 94.9% of students passing the year prior. Ultimately, we do not feel that switching to a modified pass/fail approach accounted for the differences observed.

Several health care fields use pass/fail grading in their curricula. Spring and colleagues⁸ demonstrated that pass/fail grading in medical schools had a positive impact on student well-being without negatively impacting objective academic performance.⁸ Spiess and colleagues⁹ recently published findings from seven pharmacy programs that use pass/fail grading in didactic courses. Each program defined its own minimum passing score, ranging from 70% to 90%. Additionally, each program defined whether remediation was required for each activity and, if so, whether it occurred within the semester or after the semester ended. Similar to this review, in the analysis of our program, only

minimal changes in the number of students who passed or failed SP assessments were seen.⁹

Objective Structured Clinical Examinations (OSCEs) use both formative and summative assessment of student performance and are often used in high-stakes evaluations of critical skills within programs, including the ability to effectively communicate with patients and as part of a team. While they did not use a pass/fail approach, Weaver and colleagues⁴ looked at faculty grading of pharmacy student performance during an OSCE and found that out of 17 faculty evaluators, six graded students significantly lower and one rated students significantly higher when compared to a reference evaluator.⁴ While there is still the potential for intergrader variability with a pass/fail approach for communication skills, the anticipated impact of this variability on grades is anticipated to be less.

Mechanisms for assessing communication skills can be subjective and may be assessed by a variety of individuals within a curriculum, including faculty, preceptors, staff, residents, peers, and standardized patients. To help with standardization of this subjective assessment, Barnett and colleagues¹⁰ published a universal evaluator rubric to assess pharmacy students' communication skills. This rubric has been tested and validated across multiple schools of pharmacy and found to be an effective tool that can be used across any level of evaluator. Our program uses a similar communication rubric in the P1 year that is then built upon as students progress throughout the curriculum. In attempt to improve efficiencies and intergrader reliability, we have opted to keep using our internal rubric as our SPs grade in real-time as opposed to retrospectively based on videos.

Data from our pilot show students remediated more activities ($n = 3$ of 4) when zero points were assigned for a failed communication assessment vs points-based grading for clinical assessments ($n = 5$ of 12). Due to the design of the activities and rubrics, students who did not pass the clinical assessment typically had a score in the 60% range, and

therefore, completing remediation to earn a 70% may not have significantly improved their activity or course grade. Remediation does take time as well, both for the faculty, staff, and student, and may involve creating a new activity, training an SP, and finding time to repeat the activity or meet to perform a verbal reflection. Overall, we did not see a significant difference in passed assessments between these two academic years.

Due to the success of this pilot in the P1 year, the authors aim to expand this grading approach for communication skills to the second year pharmacy and third year pharmacy SP program activities. This expansion may help alleviate student concerns surrounding evaluator differences along with having a positive impact on student well-being without compromising academic outcomes. In addition, the move to pass/fail for the communication portion of SP activities for the second year pharmacy and third year pharmacy students will not have as large of an impact, as the communication portion of these graded activities is weighted less than the clinical portion as the student progresses in our curriculum. Assessment of incorporating pass/fail for the communication assessment should continue as this is expanded within our curriculum, particularly evaluation of any impact on academic outcomes and student well-being. Future directions could include the exploration of moving clinical assessments within the SP activities to a pass/fail grading strategy as well and measuring the impact of these changes on students' perception of the activities and their well-being.

There are some limitations to our report, including that data are limited to comparing two years as we are reporting on a one-year pilot of modified pass/fail grading. Additionally, given our program focuses heavily on formative feedback, most of our students passed these activities prior to shifting to the modified pass/fail approach. Lastly, our interactions were conducted virtually using Zoom so caution should be used in extrapolating our findings to other formats for SP encounters.

5. Conclusion

Our program successfully incorporated pass/fail grading into the communication assessment of our SP program. This change did not lead to a significant impact on student success in completing SP activities throughout the P1 year.

Author Contributions

Conceptualization, Methodology, Writing – original draft, Writing – review & editing: E.A. *Conceptualization, Data curation, Writing – original draft, Writing – review & editing:* M.G. *Writing – original draft, Writing –*

review & editing: A.T. *Writing – original draft, Writing – review & editing:* K.W. *Writing – original draft, Writing – review & editing:* T.W. *Writing – review & editing:* J.B. *Conceptualization, Methodology, Formal analysis, Writing – original draft, Writing – review & editing:* S.V.

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Declaration of Competing Interest

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