RESEARCH

Pharmacy Students' Perceptions of and Attitudes Towards Peer Assessment Within a Drug Literature Evaluation Course

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Objective. To assess pharmacy students' perceptions of and attitudes towards the use of peer assessment within a drug literature evaluation course.

Methods. A 15-item, electronic survey instrument was sent to 158 second-year pharmacy students enrolled in a 2-credit required literature evaluation course at the Purdue University College of Pharmacy.

Results. One hundred fifty-two (96.2%) responses were received. Approximately 95% of students agreed that they had the necessary skills to assess their peers and 91.8% agreed that their peers possessed these skills as well. More students agreed they were comfortable receiving feedback from peers (95.7%) than agreed they were comfortable providing feedback to peers (80%). The majority of students (91.9%) agreed that peer assessment was a skill they will use in their career as a pharmacist.

Conclusion. Students were more comfortable receiving feedback from peers than providing peer assessment. This skill is used by pharmacists throughout their career; therefore, students should become familiar and comfortable with the peer assessment process.

Keywords: peer assessment, assessment, peer evaluation, pharmacy students, attitudes

INTRODUCTION

Peer assessment is the application of criteria and standards to evaluate and provide feedback on the work of peers or colleagues.¹ This practice is commonly used throughout a pharmacists' career whether during practice experiences, postgraduate training, or employment. For example, many pharmacists participate in the manuscript peer review process to maintain the integrity of pharmacy journals, and the Accreditation Council for Pharmacy Education (ACPE) endorses the use of peer reviews in annual faculty evaluations.^{2,3} The practice of peer assessment also has positive benefits for college students as it promotes critical thinking and development of self-assessment skills.⁴

Numerous studies on the use of peer assessment in the academic setting have been conducted in doctor of medicine programs.⁵⁻⁹ However, little information in this area is available about doctor of pharmacy (PharmD) programs. Kritikos and colleagues assessed the use of inter-group peer assessment in a problem-based learning (PBL)

bachelor of pharmacy (BPharm) program at the University of Sydney, Australia. Students were asked to provide peer assessment as a group in the forms of a final grade and verbal feedback on other groups' clinical case presentations. The study also assessed students' perceptions of and attitudes towards the group peer assessment activity and found students generally agreed that they understood the assessment process (95.5%), that the process was an appropriate group assessment method (71.4%), and that students should assess peers (75.5%). However, the study also found that only 43.6% of students agreed that peers can assess fairly.¹⁰ Further research is needed to evaluate pharmacy students' perceptions and attitudes towards individual peer assessment. The purpose of this study was to assess pharmacy students' perceptions of and attitudes towards the use of individual peer assessment within a drug literature evaluation course.

METHODS

Principles of Drug Information and Literature Evaluation is a 2-credit, required course offered during the fall semester to second-year pharmacy students at The Purdue University College of Pharmacy. The course is designed to teach students the basic skills necessary to access and

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provide drug information in pharmacy practice, including literature evaluation, verbal communication, and written communication. Multiple class discussions and written assignments facilitate development of these skills, with a focus on topics such as formulary management and practical implications of literature on the delivery of pharmaceutical care.

A convenience sample of 158 second-year pharmacy students enrolled in Principles of Drug Information and Literature Evaluation during the fall 2010 semester was identified. In groups of 2 to 3, students prepared a complete formulary drug monograph containing: a description of US Food and Drug Administration-approved indications, dosing and administration, pharmacology, and pharmacokinetics for the drug; efficacy data with support from 3 relevant clinical trials; safety data including common adverse effects and tolerability; medication safety considerations; and estimated budget impact. Students were asked to compare the monograph drug to a currently available formulary drug and recommend (with justification) whether the monograph drug should be added to the formulary. This was a long-term written assignment with 4 progress checkpoints throughout the semester.

Students also completed for each member of the group a standard peer assessment form that had been constructed by investigators and pretested by drug information academics. The assessment form contained standards related to work quality and work ethic that students used to assess their partner(s). Assessment was conducted using a 5-point Likert scale that ranged from strongly agree to strongly disagree. The form also asked for students' written feedback with regard to their partner's specific strengths and areas for improvement. Completed drug monographs and peer assessment forms were due November 23, 2010.

The investigators constructed survey items to assess students' perceptions of the peer assessment activity, confidence in their peer assessment ability, and factors that might affect their attitudes towards completing and/or receiving peer feedback. After pretesting the questions with a group of drug information academics, a 15-item survey instrument was constructed. A 10-minute in-class discussion was held November 18, 2010, to educate students about the study's purpose and methodology. On November 24, 2010, an electronic invitation was sent to students containing a hyperlink to the electronic survey instrument. Students were assured that participation was voluntary and anonymous. To encourage participation and ensure an adequate response rate, students who completed the survey instrument received 5 additional points towards their final course grade. One reminder e-mail was sent December 1, 2010. Students did not receive the results of

their partner(s)' peer assessment(s) until after the survey closed on December 2, 2010. Qualtrics Research Suite software (Qualtrics Lab, Provo, Utah) was used to design and distribute the survey instrument electronically as well as maintain confidentiality of all responses. The project was approved by the institution's Investigational Review Board and received exempt status. Descriptive data are presented.

RESULTS

One hundred sixty survey instruments were submitted; however, analysis revealed that 8 students had completed and submitted the questionnaire twice. Both submissions of these 8 students were included in the final analysis. One hundred fifty-eight students were enrolled in the class, so the actual response rate was 96.2% (152/158).

Students' perceptions and attitudes towards peer assessment are presented in Table 1. Ninety-five percent of students agreed they had the necessary skills to assess their peers and 91.9% agreed that their peers possessed these skills as well. More students agreed that they were comfortable receiving feedback from peers (95.7%) than agreed they were comfortable providing feedback to peers (80%). The majority of students agreed that they would provide an honest assessment to their peers (88.8%) and agreed their peers would do the same for them (91.3%).

Students were divided in their agreement with the statement "assessment of students is the responsibility of faculty and not of other students" with 34.4% agreeing, 23.1% undecided, and 42.6% disagreeing. The majority of students (91.9%) agreed that peer assessment was a skill that would be used in their career as a pharmacist. Finally, 64.4% of students agreed that their peers' assessment of their performance should be a component of their total monograph assignment grade.

Students' ratings with regard to factors that were helpful towards providing and/or receiving peer assessment are presented in Table 2. Making the process anonymous was rated as helpful or very helpful towards providing and/or receiving peer assessment by the most number of students (71.3%). Approximately 44% of students indicated that completing an online tutorial was a helpful or very helpful method of learning how to conduct peer assessment, while 34% said a 1-hour lecture was helpful or very helpful, and 35% said a focus group was helpful or very helpful. Friendship was rated as a helpful or very helpful factor in providing peer assessment by 37.5% of students. Students were also asked to write in other factors that they felt would help their ability to provide and/or receive peer feedback; however, no common trends in their responses were identified.

Table 1. Pharmacy Students' Perceptions of and Attitudes Towards Peer Assessment (N = 160)^a

	Agreement, No. (%) ^b	Undecided, No. (%)	Disagreement, No. (%) ^c
I believe I have the necessary skills to accurately assess my partner's work.	152 (95.0)	5 (3.1)	3 (1.9)
I believe my partner has the necessary skills to accurately assess my work.	147 (91.9)	9 (5.6)	4 (2.5)
I am comfortable providing an honest assessment to my partner.	128 (80)	16 (10.0)	16 (10.0)
I am comfortable receiving an assessment from my partner.	153 (95.7)	6 (3.8)	1 (1.9)
I will provide an honest assessment to my partner.	142 (88.8)	13 (8.1)	5 (3.1)
I believe my partner will provide an honest assessment to me.	146 (91.3)	11 (6.9)	3 (1.9)
I believe the assessment of students is the responsibility of faculty and not of other students.	55 (34.4)	37 (23.1)	68 (42.5)
I believe peer assessment is a skill I will use in my pharmacy career.	147 (91.9)	10 (6.3)	3 (1.9)
I believe peer assessment should be a factor of the total monograph assignment grade.	103 (64.4)	25 (15.6)	32 (20.0)

^a Based on a 5-point Likert scale (strongly agree, agree, undecided, disagree, and strongly disagree).

^b Agreement = strongly agree + agree.

^c Disagreement = disagree + strongly disagree.

DISCUSSION

This study differs from other published studies regarding students' perceptions of and attitudes towards peer assessment in that it surveyed students enrolled in a PharmD program on individual peer assessment in a non-PBL setting. Other previously published studies surveyed medical students, undergraduate pharmacy students (ie, pre-professional year), or pharmacy students on inter-group peer assessment in a PBL setting.⁵⁻¹¹ Additionally, this survey instrument asked students to indicate how much certain factors affected their attitudes towards completing and/or receiving peer feedback.

Ninety-five percent of pharmacy students agreed that they had the necessary skills to assess their peers' work. This is slightly higher than a 2010 study of Australian undergraduate pharmacy students in which 84% of respondents indicated agreement.¹¹ Our sample population was enrolled in a PharmD program rather than a bachelor

of pharmacy program, which may account for the variance in agreement. Another explanation for the slight variance is that the 2010 study asked students' to assess the content of their peers' medication management reviews whereas our study asked students to assess their peers' work quality and work ethic.¹¹ Students may feel more equipped assessing peers' work ethic than their actual medication management clinical skills. Additionally, differences seen in our study regarding students' comfort level with providing versus receiving peer feedback are similar to those in a 2008 survey of medical students in which students indicated that they felt more comfortable receiving than giving feedback (81% versus 72%).⁷ Finally, the generally favorable view of peer assessment found in our study is consistent with views held by students surveyed in other studies.^{7,8,10-11}

Anonymity appears to be a factor that promotes students' comfort with providing and/or receiving peer

Table 2. Pharmacy Students' Ratings of Level of Helpfulness Towards Completing and/or Receiving Peer Assessment (N = 160)^a

Learning Method	Very Helpful, No. (%)	Helpful, No. (%)	Undecided, No. (%)	Somewhat Helpful, No. (%)	Not Helpful, No. (%)
Attending a 1-hour lecture on how to conduct peer assessments.	10 (6.3)	44 (27.5)	29 (18.1)	34 (21.3)	43 (26.9)
Completing an online tutorial on how to conduct peer assessments.	11 (6.9)	59 (36.9)	23 (14.4)	37 (23.1)	30 (18.5)
Participating in a focus group discussing how to conduct peer assessment.	8 (5.0)	48 (30.0)	32 (20.0)	30 (18.8)	42 (26.3)
Making the peer assessment process anonymous.	48 (30.0)	66 (41.3)	19 (11.9)	11 (6.9)	16 (10.0)
Being friends with my partner.	21 (13.1)	39 (24.4)	47 (29.4)	20 (12.5)	33 (20.6)

^a Based on a 5-point Likert scale (very helpful, helpful, undecided, somewhat helpful, not helpful).

feedback.^{5-7,9,11} The students in our study seemed conflicted as to whether having a preexisting friendship with their partner(s) helped them to complete and/or receive peer assessment (13.1% found it very helpful, 24.4% found it helpful, 12.5% found it somewhat helpful, and 20.6% found it not helpful). A 2007 study found that medical students believed that reporting a peer's behavior would "somewhat encourage" disruption of their relationship.⁶ As such, there does not appear to be a general consensus about whether having a preexisting relationship helps the process itself.

A higher percentage of students (>90%) in our study agreed that they and their peers possessed the necessary skills to conduct peer assessment, but a lower percentage (80%) felt comfortable providing feedback. This implies that students may need more opportunities to conduct peer assessment rather than additional instruction on how to conduct peer assessment.

Limitations of the study include the duplicative survey instruments submitted by 8 students who thought the Qualtrics software did not capture their responses. Also, students were allowed to choose their own partners within a selected subset of their classmates. If they chose to work with their friend(s), this may have confounded the survey results as having a preexisting friendship could potentially increase or decrease a students' comfort level in providing honest feedback because of concerns for their friendship. Additionally, as friends, they may have been familiar and comfortable with one another's strengths and weaknesses. Assigning partners through a randomization process would have minimized this potential effect. Peer assessment was a known component of the monograph assignment; however, the peer assessment form was not given to students until a week before the assignment was due. As such, standards and expectations were not established before students began working on the monograph assignment. The study also did not evaluate differences in perceptions of and attitudes towards providing and receiving verbal versus written peer feedback. Moreover, the study was not designed to evaluate the quality of the peer assessments, but rather the students' attitudes toward and perceptions of the peer assessment process. Future research may include evaluating whether the feedback's mode of delivery affects students' perceptions of or attitudes toward peer assessment; what perceived impact (if any) peer assessment activities have on students; the influence of friendship on students' perceptions and attitudes toward peer assessment; and the quality of students' peer assessments compared to that of an instructor's assessment. Future studies may also explore whether a relationship exists between students' comfort level and the type of peer assessment they provide (ie, if a student gives a favorable

assessment to a peer, are they more likely to feel comfortable with the process"?).

CONCLUSION

Pharmacy students enrolled in a Principles of Drug Information and Literature Evaluation course agreed that peer assessment is a skill they will use during their pharmacy career. Additionally, they were more comfortable receiving feedback from peers than providing peer assessment. Because peer assessment is used by pharmacists throughout their careers, students should become familiar and comfortable with this process.

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