ORIGINAL RESEARCH

Relationships between student peer and faculty evaluations of clinical performance: A pilot study

Youngshook Han, David H. James, Rhonda M. McLain

University of Alabama, Birmingham, USA

Correspondence: Rhonda M McLain. Address: NB 512 1720 Second Avenue South, Birmingham, AL 35294-1210, USA. Email: Rho211@uab.edu.

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Abstract

Background: Student peer evaluation is widely used as a form of formative or summative evaluation in a variety of classroom settings; however, the utilization of peer evaluation is not well reported in the nursing literature as part of the clinical evaluation process.

Purpose: The purpose of this pilot study was to examine relationships between student peer and faculty evaluations of clinical performance in a baccalaureate nursing program. Participants consisted of clinical faculty (n = 2) and their nursing students (n = 23) enrolled in their first clinical course in a pre-licensure baccalaureate nursing program. The specific research questions were: 1) Is there a relationship between nursing student peer and faculty evaluation of clinical performance? 2) And if there is a relationship between the two groups, is there a difference between nursing student peer and faculty evaluations?

Methods: A peer evaluation tool was developed with a 5-point Likert scale consisting of 21 items that comprised five domains of clinical performance (communication, professionalism, teamwork, nursing process, and patient safety). Content validity of the tool was established using a panel of nurses with expertise in clinical performance and psychometric measurement. At midterm, students were asked to evaluate each other's performance using the tool and the faculty also evaluated each student using the same tool. A subscore for each of the domains was created for both student peer and faculty evaluations. The relationships between student peer and faculty evaluation scores were assessed using Pearson's product-moment correlation coefficients. Comparisons between student peer and faculty evaluations were made using paired *t*-tests. A p-value < 0.05 was considered statistically significant.

Findings: Significant positive correlations were found between peer and faculty evaluations for all domains. Statistically significant differences between the two groups were found in all of the domains, with students evaluating their peers highest in the domains of patient safety and communication; faculty scored students highest in the domains of patient safety and teamwork. The findings suggest that student peer evaluation can be valuable for students and faculty in clinical education.

Conclusion: Previous studies provided that peer evaluation is a valid and reliable evaluation procedure in dentistry, medicine, pharmacy, and social behavioral sciences. This pilot study has demonstrated that student peer evaluation as part of a formative assessment can be also used for faculty to evaluate students' clinical performance in a baccalaureate nursing program.

Key words

Peer evaluation, Faculty evaluation, Clinical performance

1 Introduction

Challenges of the 21st century healthcare environment demand that professional nurses demonstrate competency in both clinical and interpersonal skills. During pre-licensure nursing education, clinical experiences provide the context necessary to develop these skills. Clinical faculty supervising these experiences must consistently evaluate if students are, indeed, developing skills necessary to meet course objectives, with the ultimate goal of preparing them to assume the role of a novice nurse. A key challenge for faculty teaching these clinical experiences is the evaluation of student performance. Traditionally, clinical evaluation of student performance is done by faculty members using a pre-determined evaluation tool. The Evaluation of Learning Advisory Council of the National League for Nursing reported that the predominant clinical evaluation strategy used was observation of student performance (93%) in pre-licensure baccalaureate nursing programs [1]. Because observation and interpretation of student clinical performance is largely subjective, the challenge of clinical evaluation lies in the inconsistency and subjectivity of professional judgments. Just as the classroom setting where various evaluation methods are used to determine achievement of student learning, additional methods of clinical evaluation are needed to enhance the overall evaluation process.

The terms peer review, peer evaluation, and peer assessment are used interchangeably and are viewed as purposeful processes that provide an opportunity for feedback among peers [2]. Peer evaluation is a systematic feedback process by which students critically appraise, assess, make judgments, and review the quality of their colleagues' behaviors and skills. Thus, peer evaluation can be a valuable source of information to assist in the professional and personal growth of both the evaluator and the evaluatee [3].

Literature regarding the use of student peer evaluation in clinical nursing courses is scarce. Fortunately, there is an abundance of literature describing the use of peer evaluation across a variety of other educational environments including classroom settings, group projects, and scholarly endeavors [4-8]. Many of these studies support the validity of this evaluation method. The peer evaluation process enhances students' interpersonal skills, professionalism, and critical thinking [4]. Studies also highlight the role of student peer evaluation in developing practicing nurses as reflective practitioners [2]. Similarly, medical students also found that the student peer evaluation process provides memorable, meaningful, and actionable feedback for their own professional growth [9].

The literature provides several strategies to maximize the reliability and validity of student peer evaluations [2, 3, 6]. One of the first approaches for faculty is deciding whether to use student peer evaluations as a formative or summative evaluation tool. Although either is acceptable, the use of these evaluations as a summative evaluation tool may influence the degree of objectivity provided by students [5]. Regardless of whether the primary purpose of the information from the evaluation is used to help students grow or to assign grades, it is important to ensure the anonymity of those providing the feedback. Strict anonymity enhances the overall degree of objectivity of data received [10].

Additional strategies for ensuring reliability and validity of the peer review process include careful consideration when examining discrepancies in ratings between faculty evaluations and student peer evaluations and educating student raters on the tool, such as specific guidelines, criteria, and rubrics [2]. Possible causes of such discrepancies include unconscious student rater biases and the tendency of raters to simplify multiple complex processes observed into broad impressions [10]. Group dynamics such as social bonds may also influence student raters' evaluations, thereby leading to discrepancies in ratings [3].

The purpose of this pilot study was to evaluate the implementation of student peer evaluation in the clinical setting of a pre-licensure baccalaureate nursing program. Specifically, this descriptive pilot study examined relationships between nursing student peer and faculty clinical evaluations. The identified research questions were:

(1) Is there a relationship between nursing student peer and faculty evaluations of clinical performance? If there is a relationship between two groups?

(2) Is there a difference between nursing student peer and faculty evaluations of clinical performance?

2 Methods

2.1 Sample and setting

Following approval from the Institutional Review Board, 23 pre-licensure baccalaureate nursing students enrolled in 3 clinical groups were introduced to the student peer evaluation tool. Students were in their first clinical experience in the program. Two clinical faculty supervising the students in the clinical setting also participated in the pilot study. All students were informed they could withdraw at any time during the study if they wished, although all completed the study.

2.2 Procedure

Prior to implementing student peer evaluation in the clinical setting, clinical faculty agreed the information from student peer evaluations would only be used as formative evaluation and thus would not affect students' overall grade in the clinical setting. Faculty ensured that students were clear on the purpose of the peer evaluation by providing guidance on how to offer meaningful feedback. To meet this goal, faculty provided and reviewed information with their respective clinical groups prior to implementing the student peer evaluation process. This information not only explained the concept of peer evaluation but also addressed common issues associated with peer evaluation, including the reassurance of anonymity for students. The faculty also outlined strategies for providing objective feedback (i.e., not giving everyone the top score or everyone the same score). Students were informed their evaluation would have no impact on the course grade of the student being evaluated.

Students were asked to evaluate each other's clinical performance for each of domain in the evaluation tool at midterm and the clinical faculty also used the same tool for evaluating each student's clinical performance. Each student in a group evaluated the performance of 6 or 7 of their peers and these scores were averaged for each student. During their midterm conference, the clinical faculty shared average peer evaluation scores confidentially with each individual student.

2.3 Instrument

The peer evaluation tool (see Table 1) was developed using a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). The AACN's Essentials of Baccalaureate Education for Professional Nursing Practice [11] serves as the framework for the study's undergraduate nursing program and for clinical evaluation tools in all nursing practicum courses. Hence, the peer evaluation tool used the same framework. The tool represents five domains: communication, professionalism, teamwork, nursing process, and patient safety. In order to delineate these specific domains, observable behavior stems were included into each of the domains. The evaluation tool included five domains with 3 to 7 items under each domain for a total of 21 items.

Content validity of the instrument was examined by three individuals with expertise in evaluation of clinical performance in nursing as well as one reviewer with expertise in psychometric measurement. A series of three rounds were used to evaluate and revise the tool until consensus was reached regarding the appropriateness and clarity of the tool.

Cronbach's alpha for the five domains of the tool ranged from 0.75 to 0.91 for student peers and from 0.61 to 0.88 for faculty. The internal consistency of the faculty's patient safety domain (Cronbach's alpha = 0.61) was most likely attributed to only 3 items used to measure this domain [12].

Table 1. Peer Evaluation Form

		Student Name
Communication	Demonstrates respect, compassion and empathy.	1 2 3 4 5
	Makes self-available and shows interest and concern for others.	1 2 3 4 5
	Being attentive to what the patient is saying, verbally and non- verbally.	1 2 3 4 5
	Demonstrates effective patterns of communication when interacting with team.	1 2 3 4 5
Professionalism	Takes responsibility for own behavior as a professional nursing student.	1 2 3 4 5
	Demonstrates attentiveness to the contributions of others.	1 2 3 4 5
	Adheres to the appropriate dress code when in clinical.	1 2 3 4 5
	Accepts responsibility for her/his own actions.	1 2 3 4 5
	Deals with others (peers, faculty, patients) in a respectful, sensitive and nonjudgmental manner.	1 2 3 4 5
	Is a role model for professional student behavior in the clinical setting.	1 2 3 4 5
	Takes the initiative to learn.	1 2 3 4 5
Teamwork	Is willing to help other members.	1 2 3 4 5
	Gathers information and shares useful ideas for discussions.	1 2 3 4 5
	Works well with others and shows interest in teamwork.	1 2 3 4 5
Nursing Process	Well prepared for clinical; Presents extra materials; Supports statements with appropriate references.	1 2 3 4 5
	Identifies and solves problems correctly using pertinent data.	1 2 3 4 5
	Able to explain clearly his or her reasoning process with regard to solving a problem.	1 2 3 4 5
	Identifies appropriate priority nursing diagnosis for patient.	1 2 3 4 5
Safety	Provides the safe administration of medication.	1 2 3 4 5
	Follows safety measures (side rails up x 2, x 4, Bed in low position and locked, nurse call in reach).	1 2 3 4 5
	Follows Universal Precautions (hand washing, wearing gowns or gloves).	1 2 3 4 5

Note. 1. Strongly disagree; 2. Disagree. 3. Neither disagree or agree; 4. Agree; 5. Strongly Agree

2.4 Statistical analysis

The data were analyzed using the Statistical Package for Social Sciences (SPSS) version 20.0. A subscore for each of the domains was created for both student peer and faculty evaluations. The relationships between student peer and faculty evaluation scores were assessed using Pearson's product-moment correlation coefficients. Comparisons between student peer and faculty evaluations were made using paired t-tests. A p-value < 0.05 was considered statistically significant.

3 Results

Relationship between student peer and faculty evaluations of clinical performance

Table 2 presents Pearson correlation coefficients for peer and faculty evaluation scores. Significant positive correlations were found between peer and faculty evaluations for all of the domains, ranging from 0.45 to 0.87. Accordingly, students who received high scores from faculty also received high scores from peers; likewise, students who received low scores from faculty also received low scores from peers. The strongest correlation between the two groups was observed in the nursing process domain (r = .87, p < .001), while the weakest correlation was in the patient safety domain (r = .45, p < .05).

Table 2. Correlation between peers (n = 23) and faculty (n = 2) evaluation scores over five domains

Domains	Peers				
	C	P	T	N	Patient Safety
Faculty					
Communication	0.621**				
Professionalism		0.752**			
Teamwork			0.703**		
Nursing process				0.874**	
Patient Safety					0.446*

Note. C = communication; P = professionalism; T = teamwork; N = nursing process

** $p < 0.01$; * $p < 0.05$

Differences between student peer and faculty evaluations of clinical performance

Upon determining a significant relationship between student peer and faculty evaluations of clinical performance, additional analyses were conducted to determine whether there were differences between student peer and faculty evaluations of clinical performance and if so, what those differences were. Therefore, paired *t*-tests were undertaken to determine whether statistically significant differences existed between peer and faculty evaluation scores for each domain. Comparisons of the two groups are shown in Table 3. Statistically significant differences between the two groups were found in all of the domains.

Table 3. Comparison of mean scores between peer (n = 23) and faculty (n = 2) evaluations in the five domains

Domains	Students Mean ± SD*	Faculty Mean ± SD	*t* value	*p* value#	Effect size^
Communication	4.55 ± 0.25	4.15 ± 0.61	3.82	.001	0.91
Professionalism	4.54 ± 0.27	4.19 ± 0.50	4.90	.000	0.92
Teamwork	4.52 ± 0.37	4.25 ± 0.66	2.71	.013	0.53
Nursing Process	4.17 ± 0.46	3.96 ± 0.71	2.61	.016	0.36
Patient safety	4.83 ± 0.13	4.45 ± 0.46	4.45	.000	1.31

Note. *SD = Standard Deviation; #Paired t-test was used.; ^Cohen's *d*

The mean of student peer scores was significantly higher than the scores graded by their faculty for all domains (t = 2.61 to 4.90; $p < 0.05$). Students tended to grade their colleagues higher for the patient safety (4.83 ± 0.13) and communication (4.55 ± 0.25) domains than for the professionalism (4.54 ± 0.27) and teamwork (4.52 ± 0.37) domains. The faculty tended to grade students higher for the domains of patient safety (4.45 ± 0.46) and teamwork (4.25 ± 0.66) than for the domains of professionalism (4.19 ± 0.50) and communication (4.15 ± 0.61). Among the five domains, the nursing process received the lowest evaluation scores by both student peers and faculty (4.17 ± 0.46; 3.96 ± 0.71). Figure 1 displays the mean ratings by student peers and faculty in response to each domain.

Effect size for each domain was calculated using the group mean difference and the pooled standard deviation to assess the magnitude of the difference. Based on Cohen's operational definitions [13], the largest effect size estimate of the difference was 1.3 for the patient safety and then 0.9 for both the communication and professionalism. The greatest differences between student peers and faculty evaluation scores were found in the domain of patient safety and the second greatest difference in the domains of communication and professionalism.

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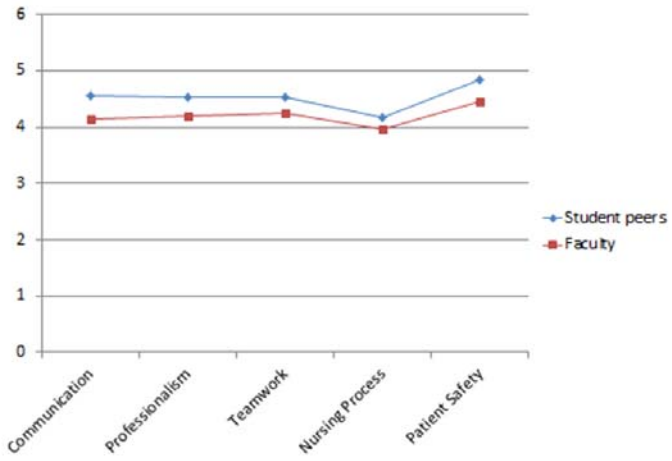

Figure 1. Mean Domain Ratings by Student Peers and Faculty

4 Discussion

Previous studies determined that peer evaluation is a valid and reliable evaluation procedure in dentistry, medicine, pharmacy, and social behavioral sciences. This pilot study supports the use of student peer evaluation as part of a formative assessment in evaluating students' clinical performance in a baccalaureate nursing program. Results of this study illustrated a clear association between student peer and faculty evaluation scores in all five evaluation domains: communication, professionalism, nursing process, teamwork and patient safety. Correlation coefficients were higher for the nursing process and teamwork but lower for the patient safety, professionalism, and communication.

These results support previous findings that student peer evaluation can be a valid tool and an additional evaluation method in clinical courses. In an analysis of 30 studies in higher education, Topping [14] found that 25 studies reported a high correlation between faculty and student peer evaluation scores. In a meta-analysis of 48 studies, Falchikov and Goldfinch [15] also reported that peer evaluation results showed similarity with faculty evaluation results. Both studies argued that peer evaluation can be used as a reliable tool to improve the effectiveness and quality of learning.

Peer evaluation can provide an opportunity for students to encourage personal and professional growth and develop the important ability of providing and accepting constructive feedback. Student peers have unique opportunities to observe personal and professional skills or behaviors of their colleagues. The value of student peer evaluation needs to be emphasized in clinical education of nursing students as a formal part of the learning process in baccalaureate nursing programs. From the learner's perspective, the peer evaluation process may help nursing students to reinforce their learning objectives in clinical settings. In addition, students can identify their own strengths and weaknesses as compared with their peer and faculty evaluation feedback.

Students tended to grade their colleagues more generously than did the faculty for all of the domains. The tendency for students to give higher evaluations than faculty has been reported in other studies [5, 16, 17]. The hesitancy to give negative peer evaluation has been attributed to friendship bonds, perception of criticism as socially uncomfortable, distrust of faculty intentions, fear of harming their peers' grades, and concern about disrupting collegiality. Additionally, because students spend more time together, they may have an opportunity to observe or review a different set of skills in their peers than do faculty members. These discrepancies between student peers and faculty suggest that when peer evaluation is used as part of the summative course assessment, their ratings may be less reliable because it may falsely inflate the true academic merit of student's performance.

To decrease the potential bias of peer ratings, faculty need to create a supportive and trusting learning environment in order to facilitate and support the process of student peer evaluations [5]. Peer evaluations have been reported to resemble faculty evaluations more often when global judgments are based on well-understood criteria related to academic products or processes [15]. To receive meaningful and accurate student peer ratings, it is essential for faculty to provide specific guidelines and information about the benefits of peer evaluations and also educate students how to observe, make judgments and provide balanced feedback.

Interestingly, the major mean differences between the student peer and faculty evaluations were found in the three domains, patient safety ($t = 4.45$, $p < 0.05$, effect size = 1.3), communication ($t = 3.82$, $p < 0.001$, effect size = 0.9) and professionalism ($t = 4.90$, $p < 0.001$, effect size = 0.9). The difference between the two groups was greatest in the patient safety domain. Preparing nurses to provide safe nursing care has been, and continues to be, the foundation of nursing education [11]. The results suggest that it is essential that students demonstrate the ability to foster a high standard of safety in nursing practice. This finding, however, should be interpreted with caution. One of the weaknesses of this study instrument is that patient safety was measured by only three items reflecting medication safety, physical safety, and compliance with universal precautions, such as hand washing. In addition, the reliability scale for faculty was low (.61). Further study is needed to develop a reliable and valid measure of student performance for patient safety, using a larger number of instrument items.

Therapeutic communication as an integral part of professional development is a core competency in nursing and contributes to facilitating multidisciplinary collaboration with other members of the healthcare team. The importance of communication in providing safe, quality patient care has been reported in previous studies [18, 19] and clearly points to the need to ensure that nursing students learn to effectively communicate with their peers, faculty, patients, and other healthcare providers in clinical setting. First semester nursing students learn therapeutic communication skills as part of the course activities in the current curriculum; however, as the results of this study suggest, students used a different set of standards to evaluate their peers' communication skills. It may suggest that students do not know how to transfer their knowledge to actual patient care because of the lack of clinical experience. In addition, they may feel insecure about their communication skills or may not have clear understanding regarding what constitutes appropriate and effective communication skills [20].

Another major difference between the two groups was found in the domain of professionalism. Not surprisingly, it appears that students are less critical of their peers than are the faculty. This finding may be explained by the contact hypothesis that proposes having an equal relationship, sharing a common goal, or maximizing the potential of acquaintance may reduce prejudice and conflict among group members [21]. During clinical rotations students spend a considerable amount of time together as a group, share the same clinical expectations, and also help each other to achieve the highest potential of teamwork. This positive contact among group members may more likely create a collaborative learning environment and develop more positive attitudes toward student peers. Professional values and their associated behaviors are foundational to the practice of nursing. As students' progress through their clinical experiences, they have increasing opportunities to develop skills and confidence in understanding the full range of responsibilities associated with the professional role. One way to develop high standards of professionalism is through role modeling by faculty and partnerships with healthcare agencies that create opportunities for students to work with skilled, professional nurses and other professional role models [22]. Peers are also an important source of learning. Critical feedback from their peers may help students to become more open to critique and engage themselves in reflection on professional behaviors [23].

The group scores differed least in the nursing process domain. This finding provides positive feedback to the faculty that students understand criteria and has similar expectations to that of faculty. Clinical practice increases student awareness of the need to develop their critical thinking skills. In addition, the Bachelor of Science in Nursing (BSN) program in which the students in this study participate has a strong emphasis on the utilization of the nursing process to develop critical

thinking. This increased student awareness and emphasis on critical thinking skills in the program are likely to influence their expectations, thereby making students more critical of their peers' problem solving and decision making skills.

5 Limitations

The results of this pilot study are preliminary and thus, should be interpreted with caution. Although this pilot study provides an additional insight into student peer evaluation as part of the clinical evaluation process, results should be interpreted within the context of potential limitations, including non-probability sampling, a small sample size, subjective evaluation scoring, low reliability coefficients for some instrument domains, and different ways students and faculty interpret and apply evaluation criteria.

6 Conclusion

This pilot study was designed to examine relationships between peer and faculty evaluations of nursing students' clinical performance. A strong association was found between peer and faculty evaluations of clinical performance in all of the clinical evaluation domains. Evaluating clinical performance is one of the greatest challenges for clinical faculty because it lies in the subjectivity of the observational process. The findings of this study contribute to the notion that peer evaluations can be supplementary to the evaluation process in clinical nursing education. If used correctly, the combination of student peer and faculty evaluations will provide the faculty member a broad spectrum of evaluations that ensure fairness and objectivity in their evaluations. Faculty and students often interpret clinical course objectives and evaluation criteria differently. Coupled with this concern is the subjectivity of the evaluation. Faculty members need to communicate clearly with students regarding standards for the clinical performance and evaluation criteria to enhance their learning experience. Student peer evaluations may provide valuable insights into any discrepancy between faculty and students' assessment in clinical education.

Results of the pilot study also indicated that students tended to grade their peers higher than did faculty in all of the domains. These results provided faculty with tangible information regarding student learning in clinical education. The ultimate goal of nursing education is to prepare students for entry into the level of professional nursing practice and for developing essential clinical competencies to deliver safe, quality patient-centered care. Clinical education should aim at developing students' critical thinking and analysis skills, competence in communication, professionalism, and awareness of patient safety. Recommendations for future research include development of a valid and reliable peer evaluation tool and evaluating the usefulness of the tool with large sample sizes.

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