

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_188_21

Exploring physical therapy students' experience of peer learning in a student-run clinic

Susan Paparella-Pitzel, Ellen Zambo Anderson¹, Pamela Rothpletz-Puglia², James Scott Parrott^{3,4,5}

PT, DPT, MS, School of Health Professions, Department of Rehabilitation and Movement Science, Rutgers, The State University of New Jersey, Newark, NJ, USA, ¹PT, PhD, GCS, Department of Rehabilitation and Movement Science, School of Health Professions, Rutgers The State University of New Jersey, Newark, NJ, USA, ²EdD, RD, School of Health Professions, Department of Interdisciplinary Studies, Rutgers, The State University of New Jersey, ³School of Health Professions Methodology and Statistics, ⁴Department of Interdisciplinary Studies, Rutgers School of Health Professions, Blackwood, NJ, USA, ⁵Department of Biostatistics and Epidemiology, Rutgers School of Public Health, Blackwood, NJ, USA

Address for correspondence:

Dr. Susan Paparella-Pitzel, School of Health Professions, Rutgers The State University of New Jersey, 65 Bergen Street, SSB 710 Newark, NJ 07107, USA. E-mail: paparesu@shp.rutgers.edu

Received: 09-02-2021
Accepted: 23-05-2021
Published: 29-10-2021

Abstract:

BACKGROUND: Participation in a student-run pro bono clinic (SRPBC) provides opportunities for students to develop professional skills, engage with the community, and provide an often-underserved population with needed care.

MATERIALS AND METHODS: This paper describes the results of a mixed-method analysis of student experiences in an SRPBC. A survey with both Likert-type and write-in elements was administered to three cohorts of students enrolled in a doctoral program of physical therapy. Students were prompted to provide their perspective on the value of the clinic experience with respect to professional development, academic relevancy, and personal growth.

RESULTS: The analysis discovered that perspective value of the clinic in the areas of personal growth and academic relevancy differed by cohort. Specifically, 1st-year students reported that they benefitted immensely by learning from their peers, especially in the use of outcome measures. Second-year students did not report the same benefits.

CONCLUSION: The findings suggest that even though students from different cohorts work together in the same clinic, they may experience the clinic very differently. This observation provided the basis for changes to the SRPBC to enhance leadership and conflict management skills of the 2nd-year students.

Keywords:

Peer-assisted learning, student-run pro bono clinic, qualitative research

Introduction

Student-run pro bono clinics (SRPBCs) provide opportunities for students to integrate academic learning with discipline-specific clinical skills^[1,2] and support healthcare services in their local communities. SRPBCs foster partnerships for students to lead and implement the delivery of healthcare^[3] and are a common feature of many academic health profession programs because they can address three important domains of health provider education: (1) development of professional behaviors, (2) academic relevancy through

real-life application of learned skills, and (3) personal growth.^[4,5]

In physical therapy (PT) education, student-run clinics and pro-bono clinics are becoming an important component in PT pedagogy, providing an opportunity for students to develop professionally and personally and hone their clinical skills in a context of service learning. In many SRPBCs, patient examinations and interventions are conducted and provided by student physical therapists (SPTs) with supervision and advisement provided at the point-of-care by a licensed physical therapist. Pairing students for peer-to-peer teaching and learning is frequently found in

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Paparella-Pitzel S, Anderson EZ, Rothpletz-Puglia P, Parrott JS. Exploring physical therapy students' experience of peer learning in a student-run clinic. J Edu Health Promot 2021;10:400.

SRPBC with a senior student: junior student model often employed so that SPTs further along in their academic studies can provide guidance for less experienced students. Peer-to-peer teaching and learning can take the form of peer-assisted learning (PAL)^[6] or peer-led learning,^[7] well-documented teaching methods in healthcare training. PAL is defined as “the development of knowledge and skill through active help and support among status equals or matched companions.” Peer-led education provides students a comfortable space in a clinical setting and assists in professional enculturation. With both methods, learning becomes a social endeavor which motivates engagement.

The Community Participatory PT Clinic (CPPTC) clinic provides PT services to members of the urban community where it is located, as well as to university students, faculty, and staff. The educational philosophy of the clinic is consistent with the National Study of Excellence and Innovation in PT education,^[8,9] which emphasizes “learning for practice” and the need to develop PT professionals who fulfill their responsibilities to society through patient-centered care.^[8,9] The CPPTC clinic creates a space where Doctor of Physical Therapy (DPT) students can learn from practice and offer needed PT interventions and health-related services. By providing community members, many of whom have cost barriers to obtaining rehabilitation services, with access to patient-centered PT services, the clinic also promotes a sense of societal responsibility and patient advocacy.

Principles of PAL and peer-led learning are employed in the CPPTC clinic through pairings of 2nd-year students (senior) with 1st-year students (junior). Second-year students take the lead on patient examination and evaluation and encourage 1st-year students to perform tests and measures they have learned in the academic setting. Second-year students also establish the plan of care, which can include patient education, manual therapy, therapeutic exercise, and functional training. Feedback mechanisms are in place for peers as well as among faculty supervisors.^[10] First-year students play a role in all interventions based on their readiness. Both students discuss their observations with the supervising PT to ensure sound clinical reasoning, appropriate care, and referral to other healthcare professionals if warranted.

SRBPCs not only provide important medical and rehabilitation services to frequently under-served populations, but they also offer real-life opportunities for students to learn about the struggles many patients face in accessing healthcare and support services. Several have reported that participation in SRBPC facilitates professional and personal growth;^[4,5] however, little has

been written about the circumstances that may drive or interfere with learning and growth.^[11] This paper reports on the overall perceptions and experiences of students who participated in an SRBPC and on the discovered association and value of peer-to-peer learning across all domains. Suggested strategies for improving the student experience across all year cohorts are offered based on this evaluation.

Materials and Methods

Description of the clinic

Study setting

The Rutgers Community Participatory PT Clinic (CPPTC) was a weekly student-run clinic, supervised by 2–3 PT faculty members. Participation in the CPPTC was a requirement for all DPT students in the DPT curriculum. Student schedulers assigned their peers to one or two clinic sessions per semester. The CPPTC utilized a peer-to-peer approach of teaching and learning through both peer-assisted and peer-led activities.

Study design

The number of patients who attended the CPPTC in any given week ranges from eight to twelve, thus leading to variability in the amount of contact time and experiences DPT students have with patients. To fill the gap when the patient census was low, peer-led education modules on standardized outcome measures were developed and introduced during the Spring semester of 2018. The modules were designed to be facilitated by the 2nd-year students, with one student playing the role of a patient, so that 2nd- and 1st-year students can practice, score, and interpret the tool together. Assistance by a PT faculty supervisor was provided when needed. Third-year and 2nd-year students participated in the CPPTC clinic 4–8 times over 2 years. The PAL modules were not available for the 3rd-year students, who had already moved on to their full-time off-site clinical internships when the modules were introduced. Second-year students had the modules available 50% of the time, whereas 1st-year students had the modules available for all sessions and participated in the CPPTC 2–4 times. First-year and 2nd-year students were active in the clinic at the time of the survey. Third-year students were asked to reflect on their previously completed years of experience in the Community Participatory PT Clinic (CPPTC), SRPBC.

Study participants and sampling

This was a 2-year cross-sectional, mixed-method survey study. The sample included students in the 3rd, 2nd, and 1st year of the DPT program. A survey was developed that included 13 questions using a seven-point Likert scale, and a series of additional open-ended questions was designed for students to share their thoughts about

the clinic's academic relevancy and if the experience was beneficial for professional development and personal growth. The questionnaire was distributed to the students via Qualtrics between March and June 2018, with students in separate cohorts receiving the survey at the same time. Surveys were distributed while the students were in class, though students had the option to complete the surveys outside class. The survey was voluntary and was approved by the Rutgers University institutional review board (#Pro20170000889).

Data collection tool and technique

Descriptive statistics were computed for each of the survey items for each domain (professional development, academic relevancy, and personal growth). The 7-point Likert responses were collapsed into three categories: strongly agree or agree, no strong opinion (somewhat agree, neither agree nor disagree, somewhat disagree), and disagree or strongly disagree. Chi-square tests (or exact tests if assumptions were not met) were used to determine associations between question responses and cohort. All statistical analyses were carried out in SPSS 25 (IBM, Armonk, NY, USA).

Write-in responses from the open-ended survey questions were uploaded into NVIVO 12, software (QSR International) for directed content analysis.^[12] Directed content analysis was chosen based on existing research and educational goals for SRPBC and specifically the RU-CPPTC (professional development, academic relevancy, and personal growth). We also coded inductively to discern new categories and themes. The deductive and inductive coding involved generating initial codes by segmenting the data into the *a priori* categories and emergent categories with conceptual labels. Then, comparisons were made among these categories for the identification of patterns and connections among the categories to identify themes. Two researchers independently coded the surveys and then compared the coding. Team meetings were held, and disagreements were discussed until intercoder agreement occurred. The final coding scheme is presented in Table 1.

Results

Surveys were e-mailed to 205 students, with 110 (53.7%) usable surveys returned. Third-year students had the highest level of participation and made up 45.5% of the sample, followed by 23.6% of 2nd-year students and 30.9% of 1st-year students. Female students made up the majority of the respondents ($n = 76$, 69.1%). Response rates for the three cohorts were: 1st year: 52.3%; 2nd year: 40.6%; 3rd year: 79.4%.

Student clinic experience

Overall, benefits of participation in the CPPTC SRPBC

are reported in the Likert and write-in responses across the three domains of professional development, academic relevancy, and personal growth were our *a priori* coding categories. Student responses on the Likert questions are presented in Table 2. Distribution of student write-in responses by domain and category is presented in Figure 1.

An overarching theme about the value of peer-to-peer learning was identified within the professional development, academic relevancy, and personal growth categories. Of the $n = 388$ write-in responses provided by the students across a range of questions, 27.8% ($n = 108$) were coded as comments about peer-to-peer learning. Students who provided responses about the value of peer-to-peer learning most often described this in the academic domain (68% of comments), followed by the professional (22%) and personal (10%) domains. We interpreted a write-in response regarding peer-to-peer interaction as a signal of its importance (either positive or negative) to the student and their clinic experience. Nuances arose from the 1st-year students who wrote about the value of peer-to-peer learning as positive, for example, it is a benefit "working with peers to come up with the best program possible." The 2nd-year students also valued peer-to-peer interactions yet indicated less than positive responses and often subtle frustrations with managing the 1st year, for example, "started interrupting me with wrong information" or a 1st year could have "at least practiced vital signs."

The results of the quantitative and qualitative survey data within each *a priori* category are presented below. The qualitative and quantitative data were analyzed separately, and the findings are mixed and integrated to corroborate evidence from both methods of data collection.^[13]

Professional development

Questions in the professional category elicited the highest levels of agreement [63%–94.5%; Table 2] and

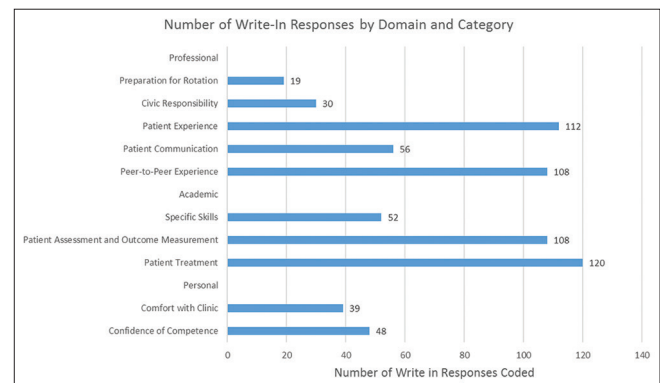


Figure 1: Distribution of student write-in responses by domain and category

Table 1: Categories by domain

Domains (a priori categories)	Description
Professional development	
Preparation for clinical rotation	Comments focused on gaining skills or confidence specifically in preparation for clinical education experiences
Civic responsibility	Comments regarding “giving back to the community” or the ability to help others in need
Patient experience	Comments focusing on the opportunity or experience of working with patients
Patient communication	Comments focusing on rapport and relationship building with patients; patient experience focusing specifically on communicating with patients
Academic relevancy	
Specific skills	Comments mentioning the development or practice of specific clinical skills (e.g., taking vitals, functional assessments)
Evaluation and outcome measurement	Comments focusing on initial evaluation or assessment and measurement of patient outcomes
Patient intervention	Comments focused on planning or implementing exercise interventions, a plan of care, etc.
Personal growth	
Comfort with clinic	Expressions regarding comfort level - confidence, trustworthiness with clinic procedures or interactions
Confidence or competence	Comments regarding student's feelings of competence or confidence within the clinic

also generated the greatest number of responses in the open-ended questions [Figure 1]. The majority of students indicated that professionals should engage in voluntary service, although the proportion who agreed was smaller among the 2nd-year students (57.7% vs. 79.4% and 82.0% for the 1st- and 3rd-year students, respectively). Although half of the questions in the professional domain focused on civic responsibility, the write-in response comments on professional growth related less to civic duty and more to patient experience and patient communication, as well as peer-to-peer communication.

Comments about patient experience were most common [$n = 112$ comments, Figure 1]. When asked what they saw as the biggest benefit to participating in clinic, students frequently responded with comments such as “Working with real patients” or “Actually acting on our skills that we learn in class.” A subcode, patient communication, was created within the larger category of patient experience since there were many student comments that focused specifically on the communication aspect of patient care and their clinical experience. Students highlighted such things as “Improving personal communication skills,” “Talking with patients,” and “Gaining confidence with patient interaction...Breaking out of our ‘shells’” as the biggest benefits to participating in clinic.

Although there was only one question regarding peer communication, peer-to-peer-related comments emerged as a predominant theme ($n = 108$ comments) in the write-in responses. While the majority (63%) of students indicated that the clinic experience helped them develop communication skills with their peers [Table 2], and most of the write-in comments were positive [for example, excerpts in Table 3], analysis of the peer-related comments occasionally (14.8% of peer-related comments)

indicated negative experiences. Significantly, all negative peer-related comments came from the 2nd-year students, indicating frustration with the 1st-year students; for example: “one guy (1st year) got too cocky and started interrupting me with wrong information,” “Sometimes they (1st-year students) would try to correct us too much—they were at times a bit too confident,” or “A few of the 1st years were surprisingly very helpful and contributed great feedback to the patients while others just sat back and did not participate at all.”

Academic relevancy

Under the academic relevancy category, the benefits of practice for examination and intervention skills occurred as an expected benefit of participation in the clinic, with just over 40% of the students agreeing that clinic participation enhanced these key skills. An unexpected and revealing theme linked to the examination and evaluation skill practice was the overlap with the peer-related write-in responses. The largest proportion of comments by students regarding the peer-to-peer relevancy to academic outcomes was concerning patient treatment (49%) and assessment or outcome measurement (34%).

In the academic domain, patient assessment, outcome measurement, and patient treatment comments predominated. Student comments covered many different aspects of patient assessment and treatment, with many commenting on the value of being able to practice these skills as well as comments about what they could have done differently, for example, “Would probably have used standardized tools more to establish a baseline;” “we don’t use enough outcome measures” (both responses from 2nd-year students). Significantly, many of the comments about the academic topics included references of the peer-to-peer aspect of

Table 2: Student experience of the student-run clinic: Professional, academic, and personal questions

	<i>n</i>	Agree or strongly agree (%)	No strong opinion (%)	Disagree or strongly disagree (%)	<i>P</i> of association with cohort
Professional development					
I think professionals should give a portion of their time to community, voluntary, or pro bono service	110	75.5	22.7	1.8	0.035
The education and knowledge that I have gained should be used to serve others	110	94.5	5.5	0.0	0.762
Participation in the SRPBC clinic helped me develop patient communication skills	100	69.0	31.0	0.0	0.331
Participation in the SRPBC clinic helped me develop communication skills with my peers	100	63.0	37.0	0.0	0.170
Academic relevancy					
Participation in the SRPBC clinic enhanced my knowledge of standardized assessment tools	110	26.4	57.3	16.4	<0.001
Participation in the SRPBC clinic helped me develop my basic examination skills	110	40.9	55.5	3.6	0.526
Participation in the SRPBC clinic helped me develop my basic intervention skills	110	43.6	50.0	6.4	0.754
Participation in the SRPBC clinic helped me develop my documentation and goal setting skills	110	32.7	60.0	7.3	0.408
The structured peer-lead modules on outcome tools facilitated my use and application of outcome tools ^a	28	50.0	46.4	3.6	0.007
Participation in the clinic facilitated my use and application of outcome tools ^b	50	26.0	68.0	6.0	NA
The structured peer-lead modules on documentation helped me in my future note writing ^a	27	33.3	59.3	7.4	0.065
Writing a patient note with a junior helped me in my future note writing and documentation ^b	50	34.0	54.0	12.0	NA
Personal growth					
Participation in the clinic helped me develop the skill of utilizing a CI/supervisor to assist in my delivery of patient care	100	31.0	62.0	7.0	0.006
The structure of the clinic helped me identify the roles of staff, other clinicians, and personal	100	34.0	58.0	8.0	0.046
Participation in the clinic was valuable to my education because it provides the opportunity to learn from a 2 nd -year peer-mentor ^c	27	74.1	25.9	0.0	NA
Participation in the clinic was valuable to my education because it provides the opportunity to teach a 1 st -year student ^d	73	42.5	53.4	4.1	0.989

^aAsked only of 1st- and 2nd-year cohorts, ^bAsked only of 3rd-year cohort ^cAsked only of 1st-year cohort ^dAsked only of 2nd- and 3rd-year cohort. CI=Clinical instructor, SRPBC=Student run pro bono clinic, NA=Not applicable

patient treatment;" "first visit, I was host and got to build a rapport with the patients in the front which was nice. Second visit, I was inside and it was fun to watch patients working hard and getting better through movement as well as working with peers to come up with the best program possible." "(The biggest benefit to participating in clinic was the) experience of working with peers to come up with the best plan of care for the patient" (both 1st-year students). Two questions within the academic domain differed significantly by cohort. In terms of knowledge of standardized assessment tools, 41.2% of 1st-year students agreed that participation in the clinic helped this ability while only 3.8% and 28.0% of 2nd-year and 3rd-year students, respectively, agreed [$P < 0.001$, Table 2]. Indeed, among 2nd-year students, 42.3% of the respondents disagreed that their experience in clinic

enhanced their knowledge of standardized assessment tools. The question about whether the peer-led modules enhanced understanding of how to apply outcome tools was asked of only 1st- and 2nd-year students. While 68.4% of 1st-year students agreed, the majority, 77.8% of the 2nd-year students had no strong opinion ($P = 0.007$).

Examples of student write-in responses for the two subcategories of academic relevancy (evaluation and outcome measurement, intervention) are presented in Table 3.

Personal growth

Within the personal growth category, the overall proportions regarding the benefit of the clinic for developing the skill of utilizing a clinical instructor

Table 3: Write-in responses for subthemes specific to academic relevancy categories

Evaluation, assessment/outcome measurement peer-to-peer responses	Treatment and intervention peer-to-peer responses
"Their (senior peer) assessment skills surprised me in the beginning. They were good:" 1 st year in response to: Did the treating students do anything that surprised you?	"They (senior peer) seemed to keep the treatment based around the patient and it seemed like the right move" 1 st year in response to: Would you have done anything different from what the treating students did?
"Learning from my peers and seeing the great qualities they bring to clinical reasoning and patient interactions:" 2 nd year in response to: What do you see as the biggest benefit of participating in the clinic?	"There were some instances in which a student did something and I had no idea what it was for or why until they explained it to me" 1 st year in response to: Did you understand what the treating students did?
"Working with the 2 nd year helped when I was a 1 st year, but sometimes I felt I was of no use because the student PTs to patient ratio:" 3 rd year in response to: In looking back on your examinations in the CPPTC, were there things you would have done differently? What worked well?	"First visit, I was host and got to build a rapport with the patients in the front which was nice. Second visit, I was inside, and it was fun to watch patients working hard and getting better through movement as well as working with peers to come up with the best program possible" 1 st year in response to: Compare/contrast how you felt on your second visit versus your first visit to the clinic
"Working in pairs of 2 students per 1 patient helped me learn better:" 3 rd year in response to: In looking back on your examinations in the CPPTC, were there things you would have done differently? What worked well?	"Experience of working with peers to come up with the best plan of care for the patient" 1 st year in response to: What do you see as the biggest benefit to participating in the clinic?
"Working with another student worked well:" 3 rd year in response to: In looking back on your examinations in the CPPTC, were there things you would have done differently? What worked well?	"1 st year I felt useless and was never asked to do anything, 2 nd year I tried to incorporate the first to teach them and treat with me so they could have a better experience" 2 nd year in response to: Compare/contrast how you felt on your second visit your first visit to the clinic
"Working with another student was beneficial because you can bounce ideas off of each other which was helpful:" 3 rd year in response to: In looking back on your examinations in the CPPTC, were there things you would have done differently? What worked well?	"I feel like I worked collaboratively to develop interventions" 3 rd -year student in response to: In looking back on interventions in the CPPTC, were you able to independently develop an intervention after your examination? Please explain why or why not
	"I liked being able to co-treat to gain experience" 3 rd -year student in response to: In looking back on your examinations in the CPPTC, were there things you would have done differently? What worked well?
	"When I worked with a 2 nd -year student, it flowed better versus me treating by myself because we made sure to be comprehensive" response by 2 nd year in response to: Regarding your examination, were there things you would have done differently? What worked well?

*Text in brackets indicate clarifications by transcriber. CPPTC=Community participatory physical therapy clinic, PT=Physical therapy

belief statistically significant differences between cohorts ($P = 0.006$). While 55.6% of the 1st-year students agreed that the clinic helped them in this respect, only 18% of the 3rd-year students (who completed the survey during their final clinical education rotations) agreed. Similarly, while the majority (55.6%) of the 1st-year students agreed that participation in the clinic helped them identify the roles of various clinic staff, only 26% of the 2nd- and 3rd-year students agreed.

This difference between 1st-year students and more advanced students was also reflected in the differences in the questions about learning from or teaching peers. Nearly three-quarters (74.1%) of the 1st-year students agreed that the clinic experience was valuable because it enabled them to learn from a 2nd-year student. While several 1st-year students expressed some discomfort or nervousness the first time they were in the clinic, their experience with the 2nd-year students sometimes helped increase their confidence in later visits. As one 1st-year student put it, "the second visit was more interesting – the 2nd-year student allowed me to be more hands-on with the patient." However, the 2nd-year students responded with less enthusiasm under personal growth regarding the opportunity to teach a 1st year (only 42.5% agreement).

Discussion

The purpose of this study was to describe the student perceptions and experiences of the Community Participatory PT Clinic (CPPTC an SRPBC, in terms of professional development, academic relevancy, and personal growth. The quantitative results of our survey revealed many of the benefits across the three domains that we expected to see based on the literature. However, analysis of the free responses revealed a more nuanced story. While there was high agreement regarding the value of the clinic with respect to being able to give back to the community (professional development domain), the write-in comments focused much more strongly on the value of "hands-on" experience with the patients and the impact of the peer-to-peer relationships across domains, particularly within the academic domain. The value of the CPPTC for the 1st-year students was strongly evident across domains; however, appraisals of the experiences were different for 2nd-year students (now in a position of teaching) and 3rd-year students (looking back in hindsight after their clinical rotations).

Before the start of this study, observations of the clinic revealed an underutilization of standardized patient outcome measures. Faculty supervisors hypothesized

that creation of peer-led modules on specific outcome tools could facilitate use and communication between students and faculty about patient outcomes. Peer-led modules were added to the CPPT curriculum to provide learning experiences when the patient census was low. This placed the 2nd-year students in a position of having additional authority and teaching responsibilities with the 1st-year students. Interestingly, when asked about their experiences in the student-run clinic, students did not specifically comment on the modules, but they did frequently comment on peer-to-peer teaching and learning.

Differences between reported impressions of the 1st- and 2nd-year students identified above may lie in the different expectations and assumptions regarding the roles of the two groups during peer teaching and learning experiences. First-year students largely practice clinical skills such as taking and recording vital signs and performing basic examinations under the direction of 2nd-year students. Interventions and patient education are most often rendered by the 2nd-year students unless the 1st-year student is confident and requests an opportunity to engage more independently with a patient. Although the 2nd-year students are expected to engage with and teach 1st-year students about examination, clinical reasoning, developing, and executing a plan of care, they had not received formal instruction in how best to do that. The only training 2nd-year students received had come from working with a physical therapist clinical instructor during a first-time clinical experience a few months earlier. Expectations for overseeing patient examination and treatment in addition to instructing the 1st-year students in the learning modules without adequate training may have influenced the 2nd-year students' responses to the Likert and write-in response questions.

Student comments seem to bear this out and help to shed light on the significant differences between cohort responses to the two statements where there were statistically significant differences between cohorts: "Participation in the CPPTC enhanced my knowledge of standardized assessment tools" and "The structured peer-lead modules on outcome tools facilitated my use and application of outcome tools" [Table 1, Academic Domain section above]. The 2nd-year comments suggest that the 2nd-year frustration may have gone beyond the fact that the 2nd-year students simply had more experience with the assessment/outcome tools (hence, had less to learn) but may have been (at least to some degree) a function of their unpreparedness to lead or instruct the 1st-year students. In short, lack of training in leadership and conflict management may have decreased the learning for the 2nd-year students that occurs via teaching others.

The results of this study supported the body of research that documents the benefits of participating in an SRPBC and adds to it by presenting data that highlight the different challenges and roles students can play. For example, Black *et al.*^[14] assessed student perspectives about participating in an SRPBC and also noted similar growth and development in areas specific to patient communication, altruism, and authentic practice with clinical skills. Gilles *et al.*^[2] also observed the impact participation in an SRPBC could have on the professional, personal, and academic student development and the potential benefit during their clinical rotations. Indeed, when the clinical performance instrument was used to assess professional behavior and patient management, students who were required to participate in an SRPBC early in the PT curriculum were rated higher than students who were not required to participate.

Previous research reports that peer interactions in clinic-based settings have benefits, although the reflections are typically from the perspective of students *receiving* feedback, not *giving* feedback. For instance, students have reported that feedback from their peers is more beneficial than feedback from their clinical instructors^[2,15] and peer learning increases confidence and support in performing psychomotor skills.^[16,17] However, few studies utilized the same senior-junior peer student teaching model. Most focused on a model of peer reception of preceptor or clinical instructor feedback in a pro bono clinic. Our study advances our understanding of the dynamics of peer-to-peer relationships and provides a perspective on how aspects of student teaching/training may affect peer learning.

The ultimate aim of this evaluation was to identify areas for enhancing the student experience in the SRPBC. Use of a Likert-scale to examine the domains of professional development, academic relevancy, and personal growth affected by an SRPBC resulted in findings similar to previous studies.^[17-20] However, use of a free-response questionnaire revealed the potentially underestimated hazards of peer-to-peer learning, including difficulty with establishing expectations and communicating constructively, so as to avoid interpersonal conflicts. Our analysis support earlier findings that professional development, academic relevancy, and personal growth are achieved by participating in an SRPBC. However, our findings suggest that using a senior-junior, peer-assisted model in an SRPBC may require the development of specific skills related to teaching, leadership, and conflict management in addition to clinical skills (e.g. assessment and treatment).

Limitation and recommendation

The strength and novelty of this study lie largely in the mixed-method design. We were able to gain insight from

student write-in responses to make sense of patterns we saw in the quantitative results and thus overcome the limitations of the Likert survey. While response bias cannot be ruled out (as some students may have responded with what they think the faculty wants to hear rather than share their true feelings), the fact that students were willing to share negative perspectives suggests that this was not a serious issue.

The study is limited by the fact that it is limited to a single clinic. It is unclear whether or to what extent the experiences of students in other differently structured SRPBCs may be similar to those reported here. Whether similar student experiences (learning vs. teaching) exist in other settings or programs warrants further study. If so, further exploration of methods of ameliorating these challenges may be an important line of future research.

Conclusion

The results of this study suggest that students value peer-to-peer learning during the outcome tool modules and patient care delivery. For students engaged in a student-run clinic, this study confirms the benefits for professional and personal growth. In addition, specific academic relevancy is reported by students in areas of basic intervention, communication, and interview skill.

Clinical relevance

This study adds to the body of evidence that student-run clinics enhance professional, personal, and clinical skill development. Perceptions of the value of student-run clinics can be enhanced through facilitating peer-to-peer opportunities. The results of this study will inform the development of procedures to help rising 2nd-year students in their transition from junior to senior. In addition, the findings will aid in developing strategies for communication and timely feedback within the clinic.

Acknowledgments

The authors thank Stephanie Mikitish, PhD-Assessment Librarian, for providing support in the initial NVIVO-12 data processing and to our participating faculty, students, and patients of the community clinic.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- George L, Bemenderfer S, Cappel M, Gonclaves, K, Hornstein, M, Savage, C, Altenburger, P, Bellew, J, and Loghman, T. A model for providing free patient care and integrating student learning and professional development in an interprofessional student-led clinic. *J Phys Ther Educ* 2017;31:54-66.
- Gilles J, Bishop M, McGehee W, Lulofs-MacPherson K, Dunleavy K. Impact on clinical performance of required participation in a student-run pro bono clinic. *J Phys Ther Educ* 2019;33:209-14.
- Stephens L, Bouvier N, Thomas D, Meah Y. Voluntary participation in a medical student-organized clinic for uninsured patients significantly augments the formal curriculum in teaching underrepresented core competencies. *J Student Run Clin* 2015;1:1-9. Available from: <https://studentrunfreeclinics.org/journalsrc.org/index.php/jsrc/article/view/5>. [Last accessed on 2021 May 22].
- Lattanzi JB, Campbell SL, Dole RL, Palombaro KM. Students mentoring students in a service-learning clinical supervision experience: An educational case report. *Phys Ther* 2011;91:1513-24.
- Stickler L, Grapczynski C, Ritch J. Student perceptions of outcomes from participation in physical therapy pro bono clinics: A qualitative study. *J Allied Health* 2013;42:46.
- Bennett D, O'Flynn S, Kelly M. Peer assisted learning in the clinical setting: An activity systems analysis. *Adv Health Sci Educ Theory Pract* 2015;20:595-610.
- Walpola RL, McLachlan AJ, Chen TF. A scoping review of peer-led education in patient safety training. *Am J Pharm Educ* 2018;82:6110-23.
- Jensen GM, Nordstrom T, Mostrom E, Hack LM, Gwyer J. National study of excellence and innovation in physical therapist education: Part 1 – Design, method, and results. *Phys Ther* 2017;97:857-74.
- Crandell CE, Wiegand MR, Brosky J, Joseph A. Examining the role of service-learning on development of professionalism in doctor of physical therapy students: A case report. *J Allied Health* 2013;42:e25.
- Ander DS, Wallenstein J, Abramson JL, Click L, Shayne P. Reporter-Interpreter-Manager-Educator (RIME) descriptive ratings as an evaluation tool in an emergency medicine clerkship. *J Emerg Med* 2012;43:720-7.
- Torre DM, Daley BJ, Sebastian JL, Elnicki DM. Overview of current learning theories for medical educators. *Am J Med* 2006;119:903-7.
- Hsieh HF, Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005;15:1277-88.
- Greene JC, Caracelli VJ, Graham WF. Toward a conceptual framework for mixed-method evaluation designs. *Educ Eval Policy Anal* 1989;11:255-74.
- Black JD, Palombaro KM, Dole RL. Student experiences in creating and launching a student-led physical therapy pro bono clinic: A qualitative investigation. *Phys Ther* 2013;93:637-48.
- Carey MC, Kent B, Latour JM. The role of peer-assisted learning in enhancing the learning of undergraduate nursing students in clinical practice: A qualitative systematic review protocol. *JBIR Database Systematic Rev Implement Rep* 2016;14:117-23.
- Ahmad IM, Mohamed HE. The effect of peer learning vs. traditional learning on knowledge and clinical performance of critical care nursing students. *J Educ Pract* 2018;9:136-43.
- Passmore A, Persic C, Countryman D, Rankine L, Henderson M, Hu T, et al. Student and preceptor experiences at an inter-professional student-run clinic: A physical therapy perspective. *Physiother Can* 2016;68:391-7.
- Crandell CE, Black JD, Dole RL, Palombaro KM. The prevalence and characteristics of physical therapy pro bono services involving doctor of physical therapy students. *Internet J Allied Health Sci Pract* 2020;18:1-9.
- Gigerenzer G, Gaissmaier W. Heuristic decision making. *Annu Rev Psychol* 2011;62:451-82.
- Stickler K, Sabus C, Gustafson H, Kueser M, Lavaveshkul B, Denney L. Pro-bono service through student-run clinics: How does physical therapy measure up? *J Allied Health* 2016;45:207.