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Effect of the Collaborative Model on Communication and Clinical Reasoning in DPT Students' Clinical Experiences

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Abstract

Introduction. The collaborative clinical experiences pair one physical therapist (PT) clinical instructor (CI) with one or more student(s) (Wolff-Burke et al, 2022). The collaborative model has been widely accepted among nursing and other healthcare professions. Benefits of the collaborative model include improved communication and clinical reasoning, enhanced teamwork, and reduced anxiety among students. Additionally, the collaborative model facilitates peer-to-peer learning and leadership. Despite the benefits, PT education has been slow to embrace this model. This study's purpose was to determine if the collaborative model is effective in helping students obtain the required performance ratings required by the university during their clinical experiences. Subjects included student placement records were reviewed to determine inclusion and exclusion based on participation in a collaborative experience between Spring 2022 and Spring 2023.

Methods. Clinical Performance Inventory (CPI) data was obtained and analyzed in communication and clinical reasoning. The professionalism and academic tracking systems were also reviewed to obtain student history related to communication and clinical reasoning (CR). Demographic information on gender and age was also included for comparison.

Results. Every student passed their clinical experience. Students scored higher than the expected threshold for their respective clinical experiences, with 76.3% over performing on communication and 85.5% on clinical reasoning. Female students scored higher than male students on communication and CR for the Integrated Clinical Experience (ICE). Students referred to the professionalism tracking system scored 3% lower on communication and 2% lower on CR compared to those who were not referred to the professional tracking system.

Discussion. The collaborative model appears to be an effective supervision model for clinical experiences. It may provide an effective way for students to develop their communication and clinical reasoning skills. Future studies should be designed to compare students' performance and perceptions between those in traditional and collaborative models.

Keywords: collaborative model, clinical education, clinical performance, and physical therapy students

Introduction

Physical therapists (PTs) are often hesitant to serve as clinical instructors (CIs) for Doctor of Physical Therapy (DPT) students due a variety of reasons: productivity demands of the job, increased administrative burden, increased stress, and declining reimbursement rates (Myers et al., 2019). With the decline in the number of PTs stepping into the role of CIs, using the collaborative model for clinical education offers a viable alternative. Rindfleisch et al. (2009) explained the traditional model of clinical education as one student being supervised by one CI, and the collaborative model being comprised of more than one student to one CI. The collaborative model of clinical education provides several benefits to the students, CIs, and academic institutions. The collaborative model promotes peer-to-peer learning, CI satisfaction, in addition to being cost effective and improving productivity (Myers et al., 2019). The collaborative model has been proven to improve the clinical competency, self-confidence, and critical thinking of students (Rindfleisch et al., 2009). The challenges of the collaborative model are minimal compared to the benefits. Challenges include increased paperwork and planning time, differences in students' personalities, learning styles, and competence levels (Rindfleisch et al., 2009). Alternatively, the positives of the collaborative of the collaborative model can offset anxiety that is found to be more experienced in greater frequency in today's students. Combined with the rising cost of living, the collaborative model provides the financial relief of sharing housing expenses and providing an emotional support system (Meeks et al., 2023).

Background and Purpose

Physical Therapy (PT) education is composed of a didactic and clinical education component. The clinical education experience occurs within the clinical environment to allow students the opportunity to practice their clinical skills under the supervision of a licensed PT. The traditional format of clinical education entails one PT student to one PT clinical instructor. Collaborative clinical experiences pair one PT CI with more than one PT student (Wolff-Burke et al., 2022). The collaborative model of clinical education has been widely accepted among nursing and other healthcare professions. Concerns related to the collaborative model include personality mismatches, teaching and learning styles, and organizational preparedness by both the CI and students (Markowski et al., 2021). Benefits of the collaborative model of education include improved communication and clinical reasoning, enhanced teamwork, and reduced anxiety among students. In addition, the collaborative model facilitates peer-to-peer learning and leadership. Despite the benefits, PT education has been slow to embrace this model. The purpose of this retrospective qualitative study was to determine if the collaborative model is effective in helping students obtain the required performance ratings required by the university during their clinical experiences.

Hypothesis

Students participating in the collaborative model (e.g., 1 clinical instructor to multiple students) will successfully meet expected performance ratings for communication and clinical reasoning as measured by CPI 2.0.

Methods

Research Design

This study was reviewed by the IRB and met the criteria of an exempt study. Data gathered by the investigators was stored in the university computers and de-identified. Student names were replaced with numbers to maximize their privacy. The data will be kept for three years after the study's completion before it is destroyed.

Participants

The population for the study included DPT students from the University of St. Augustine for Health Sciences Miami campus who completed the collaborative model during one or more of their clinical experiences, which are ICE, terminal clinical experience I (TCE I) and terminal clinical experience II (TCE II) between spring 2022 and spring 2023. Student placement and performance information was obtained from clinical education records. The inclusion criteria for the study consisted of students who participated in the collaborative model during their clinical experiences, and whose length of 2:1 supervision was greater than 25% of their clinical experience length. Records of students who did not participate in a collaborative model were excluded from the study. Initially, 86 student records with collaborative model were identified, but only 55 were included in the study secondary to lack of sufficient exposure to the collaborative model, defined as less than 25% of their clinical experience length. Student data were collected retrospectively, with no active participation of students in the study.

The available 55 records were subdivided into three categories based on which clinical experience (i.e., ICE, TCE I, and TCE II) they were completing when the collaborative model took place. Sex was also a variable considered during data assessment. The ICE group comprised of 30 students, 13 males and 17 females. For the TCE I group, there was a total of 16 students with 14 males and two females. There were nine TCE II students, with seven males and two females. Student ages ranged from 23 to 37. The flow process of the inclusion criteria and group establishments are depicted in Figure 1.

Descriptive Information and Data Analysis

The university utilized the American of Physical Therapy Association's Clinical Performance Inventory 2.0 (CPI 2.0) to assess all student performance while on their clinical experiences. This CPI 2.0 has been previously validated (Adams et al., 2008)

as it has been utilized by several other PT programs in the nation. Items four and seven of the CPI 2.0 were reviewed as they represented communication and clinical reasoning respectively. The DPT program has specific standards that students must meet to be considered successful in their clinical experiences. Students completing their ICE are required to achieve the ranking of intermediate (score of 4) on communication and clinical reasoning; students completing TCE I are required to achieve entry-level (score of 8) on communication and advanced intermediate (score of 6) on clinical reasoning. Students

completing their TCE II are expected to achieve entry-level, or a score of 8 status for both communication and clinical reasoning. The school utilizes a tracking system to document academic and professional behaviors while enrolled in the DPT program. The professionalism tracking system was also reviewed to obtain student history related to communication and clinical reasoning, since studies have indicated that communication plays a significant role in student success during their clinical experiences (McCallum et al., 2016). Student demographic information was also reviewed.

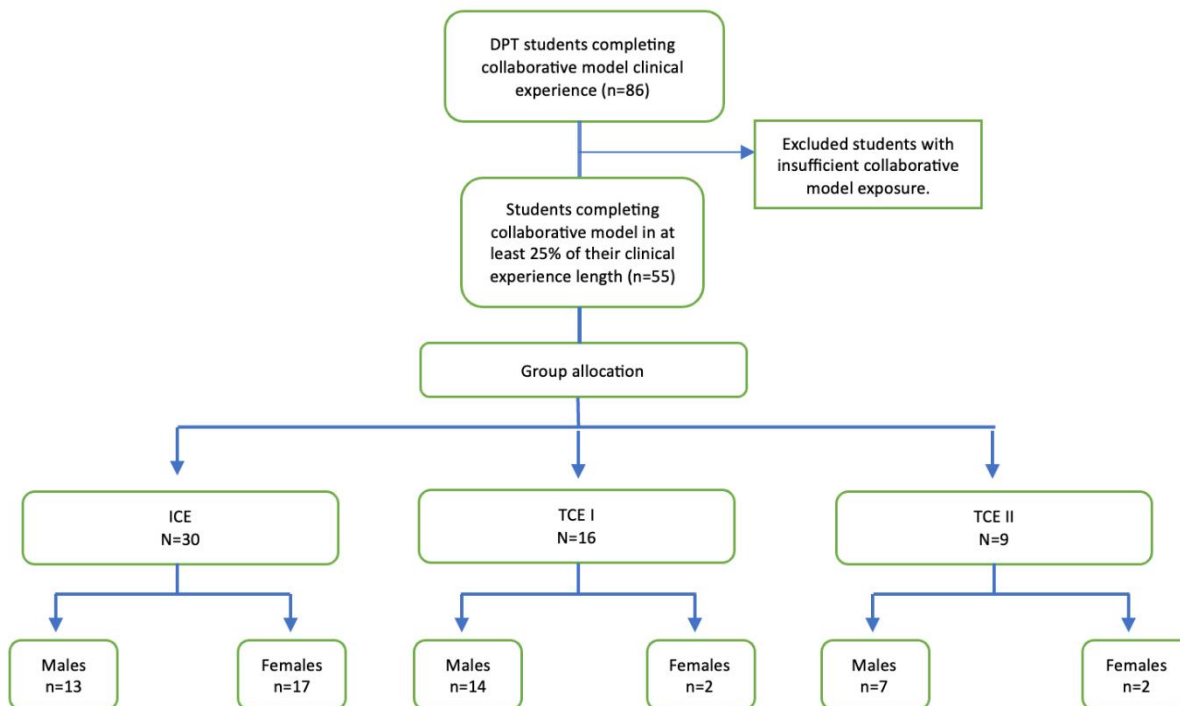


Figure 1. Participant Flow Diagram

Note. Flow diagram of the process of student record selection and group allocation based on clinical experience completed with collaborative model, with demographic information per group.

Results

Every student successfully passed their clinical experience during the period of this observation. Over 76.3% of students scored higher than the expected threshold for their respective clinical experience for communication. Over 85.5% of students scored higher than expected thresholds for their respective clinical experiences for CR. Female students scored higher than male students on communication and CR for those in ICE rotation. Data were not drawn with regards to gender on the TCE I and TCE II rotations because male students constituted over 85% of the student population. There was no observable factor in looking at CPI performance and age. Students who were referred to the professionalism tracking system scored 3% lower on communication and 2% lower on clinical reasoning compared to

those who were not referred to the professional tracking system. For TCE I and TCE II rotations, the number of students referred to the professional tracking system was too small to report on.

At the end of the clinical experiences, the students who participated in collaborative model succeeded at reaching the established criteria on CPI 2.0 items communication and clinical reasoning. The required CPI threshold to pass ICE is 4 or higher, for TCE I on communication is 8 or higher and for CR is 6 or higher. For TCE II the CPI requirement is 8 or higher for both criteria. In the CPI criterion on CR, two ICE students got a rating below Intermediate (5); and one ICE student who was rated 4, or below intermediate, for communication.

For ICE students, the mean score for communication was 7.5, the median was 7.0 and the mode was 8.0 (Figure 2). For ICE students' clinical reasoning scores, the mean was 6.67, median 7.0 and the mode was 5.0. For TCE I students, under the criterion of CR scores, the mean 8.56, median 9.0, the modes were 8.0 and

9.0 (Figure 3). Under CR, the mean score was 8.25, the median was 8.5 and the mode was 8.0. For TCE II students, the mean for communication was 8.78, the median was 9.0 and the mode was 8.0. For CR, the mean was 8.44, the median was 7.0 and the mode was 8.0 (Figure 4).

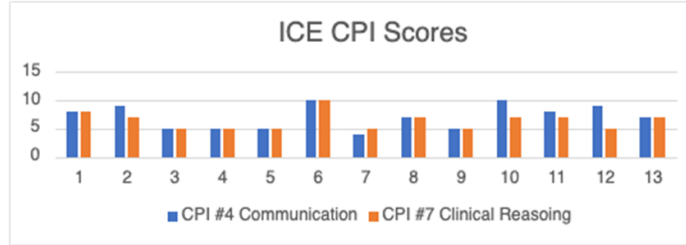


Figure 2. ICE CPI Scores for CPI 2.0 Criteria #4 Communication and #7 Clinical Reasoning

Note. ICE CPI scores for CPI 2.0 criteria #4 Communication and #7 Clinical Reasoning.

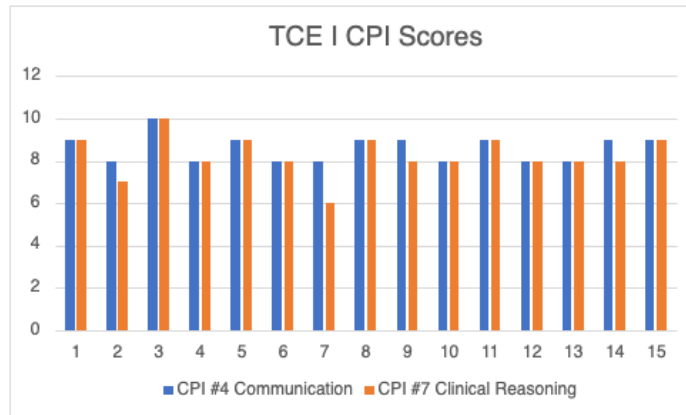


Figure 3. CE I CPI Scores for CPI 2.0 Criteria #4 Communication and #7 Clinical Reasoning

Note. TCE I CPI scores for CPI 2.0 criteria #4 Communication and #7 Clinical Reasoning

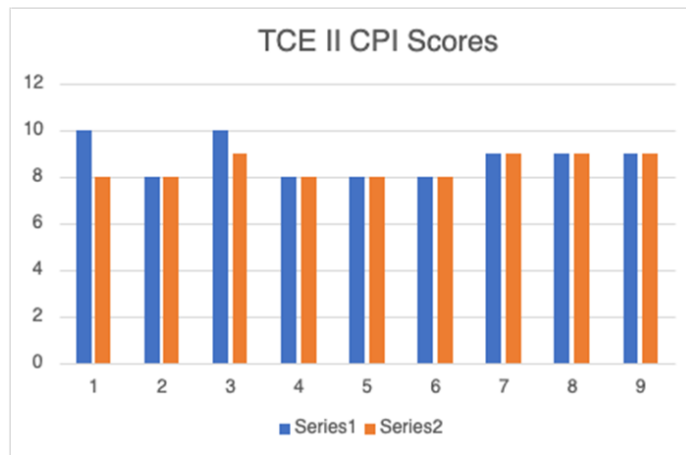


Figure 4. TCE II CPI Scores for CPI 2.0 Criteria #4 Communication and #7 Clinical Reasoning

Note. TCE II CPI scores for CPI 2.0 criteria #4 Communication and #7 Clinical Reasoning

When reviewing level of performance based on participant age, no association was found when assessing outcomes for ICE, TCE I, and TCE II. Regarding gender, the average score for communication for (13) male ICE students was 7.07; the (17) female students' average score was 7.88. For CR, average score for the male students was 6.38, while the female students average was 6.88. For TCE I, under communication criterion, there were 14 male students, and their score for the communication criterion average rating was 8.71, while for females (2) the average was 8.0. For CR, the male students averaged 8.28 and the female students averaged 8.0. For TCE II communication, male were 7 totals with average of 8.86, while the 2 female students averaged 8.5. Under CR criterion, the male students averaged 8.43, and the female students averaged 8.5. The number of females comparing to males in TCE II did not allow this study to compare and analyze the results based on gender, as the number of female students was too low compared to male students.

Most of the collaborative model was practiced in the combination of home health and outpatient combination of clinical experience. Based on settings, the average scores for the four subacute setting participants, namely, skilled nursing facility (SNF) and Long-term acute care (LTAC) for communication was 8.5 and for CR 8.25. Among the 16 home health (HH) setting participants, the average score for communication was 8.5 and for CR, the average was 8.19. For the 25 outpatient setting participants, the average score for Communication was 7.52, and for Clinical Reasoning the average score was 6.6, mostly ICE students. For the Combo setting participants, which incorporated HH and Outpatient settings, of the 10 participants, their average Communication score was 8.3, and for Clinical Reasoning, their average score was 7.9.

Regarding the amount of time spent in collaborative model, students in ICE spent 2/3 of their clinical experience (4 weeks) in collaborative model. For the TCE I students who spent less than 50% (i.e., 6 weeks or less) in the 2:1 model had an average score in the Communication criterion of 8.67, and those greater time in the collaborative model scored on average 8.5. For Clinical Reasoning, students who spent less than 50% in the 2:1 model had an average score of 8.5; for those who spent greater than 50% in the collaborative model averaged 8.1. Regarding the Professional tracking reports, indicating a student performance problem, 12 students in the ICE rotation were noted to have received them. Students who were not reported as having professional issues were rated at 7.56 in Communication, where the students with professional issues were rated a 7.33, demonstrating a reduced rating. The average score of Clinical Reasoning for students with professional tracking was 6.58 and for those without report was 6.72. For TCE I and II, five out of 25 TCE students had Professional Tracking issues, the average Communication score of these 5 students was 9.0, and the students who were not reported under professional tracking; the Communication score averaged

8.55. For ICE, in Communication, all but one student, 96.7%, scored higher than the expected threshold. For clinical reasoning, all but two students scored higher than the established threshold. For Communication among TCE I students, 27% of the students scored higher than the expected threshold. For Clinical Reasoning, all students except for one scored higher than the minimum threshold. For TCE II, in Communication, 55.6% scored above the minimum threshold, and for Clinical Reasoning, 44.4% scored above the expected threshold.

Discussion

This study suggests that the collaborative model of clinical education appears to provide an effective format to facilitate the process of helping students achieved the desired clinical performance thresholds associated with each clinical experience in physical therapy education. The collaborative model offers a viable option to help curb some of the challenges related to clinical experiences. From the academic side, one of these challenges is the availability of clinical instructors to supervise students. Clinical experiences in which there are multiple students placed with each other may reduce financial burden by considering shared housing options. Being assigned to a clinical site with a classmate has the added benefit of offering companionship and camaraderie for students.

Looking at the results, overall, the students in the collaborative model all met the requirements and successfully passed their clinical experiences, whether in ICE, TCE I or TCE II. There were two students who scored slightly lower than average which was attributed to student behavior pattern observed even during these students' academic studies as verified in the university's professional tracking reports. One limitation of this study is that the data was gathered in only one campus of a larger university of five campuses which can limit the ability to generalize the results to a larger population. Other limitations were not considering the number of years of the CIs' clinical experience, credentials, and/or experience with the CPI tool. Additionally, the time in which students spent as part of the collaborative model varied greatly, which could have influenced CPI score. An observation was not made on time spent as part of the collaborative model and final CPI performance. For the ICE student performance, the professional tracking might be predictive of student's shortcomings in communication. The students who scored lower than average for communication all had a history of being reported to the university's professional tracking system.

The implication of this study is that using the collaborative model of clinical education may be an effective way to help students achieve the desired thresholds of clinical performance, as established by the university. Comparative studies should be completed in the future to determine if the collaborative model (1:2) of clinical supervision is superior or equally comparable to the standard one to one (1:1) supervisory model utilized by most clinical education partners.

Conclusion

Based on this study conducted, the collaborative model of clinical education indicates that it can be an effective way to deliver clinical experiences. Students surpassed the respective clinical experience thresholds on the CPI 2.0 criteria for communication and clinical reasoning. The benefit of the collaborative model on communication made the greatest impact on the first, integrated clinical experience as opposed to the terminal clinical experiences. For clinical reasoning, all clinical experiences were equally successful.

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