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Physical Therapist and Physical Therapist Assistant Clinical Performance Instruments: Validation Study

Technical Brief

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Table of Contents

List of Tables

Physical Therapist and Physical Therapist Assistant Clinical Performance Instruments: Validation Study

Introduction

The Physical Therapist (PT) and Physical Therapist Assistant (PTA) Clinical Performance Instruments (CPIs) are performance assessments designed to evaluate student performance during their clinical experiences. The CPI is completed by the Clinical Instructor (CI) at midterm and at the end of the clinical experience. Students also complete a self-evaluation using the same tool. During the student's clinical experience, the CI provides opportunities that allow the student to practice specific skills and behaviors that correspond with the student's current level of academic preparation (American Physical Therapy Association, 2018).

The PT CPI was developed in 1997 and revised in 2006. The PTA CPI was developed in 1998 and revised in 2009. Both instruments underwent content and format changes and were adapted from paper-and-pencil administration to online administration. The PT WebCPI was launched in 2008 and the PTA WebCPI was launched in 2010. Since the CPIs were last revised, the American Physical Therapy Association (APTA) has gathered anecdotal evidence from users suggesting that some of the CPI's performance criteria are redundant and lack clarity, leading to inconsistent ratings and results (Sinclair, 2020; Wetherbee et al., 2018).

In 2020, the Human Resources Research Organization (HumRRO) partnered with APTA to conduct the **first phase** of the CPI evaluation research, which included an in-depth review of CPI documentation and research, including materials from the Liaison International CPI Help Center website pertaining to the CPIs (e.g., rater training materials), published research on the CPIs,[1] and APTA's internal documentation gathered from CPI users. Additionally, HumRRO reviewed the PT and PTA CPIs through an account provided by APTA to better understand the functionality of the CPIs. This review resulted in a series of recommendations by Sinclair (2020) to help increase the reliability and validity of the CPIs. The recommendations were classified by priority level: urgent priority, high priority, lower priority, and easier-to-implement, or longer-term recommendations.

This technical brief provides an overview of HumRRO's work to address one urgent-priority recommendation and three high-priority recommendations from Sinclair (2020), which thereby resulted in revised PT and PTA CPIs. Throughout each of the data collection activities described below, APTA and HumRRO worked collaboratively to include a diverse composition of stakeholders who provided insight and expertise to inform revisions to the CPIs. The stakeholders represented individuals in different roles (e.g., Directors of Clinical Education, Clinical Instructors), of varying tenures (i.e., early versus late career), and in a multitude of work settings (e.g., hospital-based outpatient facility, private outpatient office, academic institution), thereby ensuring the revised PT and PTA CPIs are representative of the PTs and PTAs in the field.[2]

Clarifying the Intended Score Uses of the CPIs

During the **second phase** of this research, HumRRO addressed the first urgent priority recommendation identified by Sinclair (2020): *Clarify the intended score uses of the CPIs* (Crawford & Sinclair, 2022a). According to Standard 1.0 in the *Standards for Educational and Psychological Testing* (hereafter *Standards*), "Clear articulation of each intended test score interpretation for a

[1] See Sinclair, 2020 for the full list of published and unpublished research.
[2] While there was a subset of stakeholders who participated in multiple stakeholder workshops, the majority of the stakeholders participated in a single workshop.

specified use should be set forth, and appropriate validity evidence in support of each interpretation should be provided." (AERA, APA, NCME, 2014, p. 11).

HumRRO conducted the second phase of research to determine the intended score uses of the PT and PTA CPIs. In February 2022, we conducted six virtual interviews, each with one stakeholder of the PT and PTA CPIs (interviews were split evenly between users of the PT CPI and users of the PTA CPI). Specifically, we conducted interviews with two Site Coordinators of Clinical Education (SCCEs), three Directors of Clinical Education (DCEs), and one Academic Coordinator of Clinical Education (ACCE). HumRRO facilitators followed an interview protocol that focused on stakeholders' experiences using CIs' evaluations along with students' self-evaluations to inform critical decisions related to students' clinical education programs.

Following the virtual interviews, HumRRO facilitated a series of focus group workshops, also in February 2022, with 13 expert users of the PT and PTA CPIs. Stakeholder composition of the focus groups included seven DCEs, three ACCEs, two CIs, and one SCCE. As a group, stakeholders were asked to review each intended CPI use identified from the virtual interviews, offer their thoughts and opinions regarding the frequency and appropriateness of each use, and engage in discussion with other participants to resolve disagreements. We also asked the key stakeholders to consider any additional CPI uses that we might not have identified during the key stakeholder interviews.

Through this process, HumRRO identified four intended uses of the PT and PTA CPIs (Crawford & Sinclair, 2022a). According to the *Standards*, assessments often serve more than one purpose (AERA, APA, NCME, 2014). These purposes can be classified into lower-stakes, formative purposes and higher-stakes, summative purposes. The *stakes* of an assessment refer to the importance of the outcomes. The importance of gathering evidence to support an assessment's high-stakes purpose(s) is greater compared to supporting an assessment's low-stakes purpose(s) because the high-stakes purposes are typically tied to critical student outcomes (AERA, APA, NCME, 2014). Of the four intended uses, there was a single summative use that is considered higher stakes than the other formative uses given that it is tied to a critical student outcome. The four intended uses include:

Formative Uses (Low-Stakes)

- Providing a checkpoint for the student's progress during their clinical experience while helping to identify deficits and areas for growth in the student's performance and/or skills.
- Facilitating the student's self-assessment of their clinical performance.
- Identifying areas of discordance in evaluation and/or expectations between the CI and the student**.**

Summative Use (High-Stakes)

- Guiding the DCE's decision on the student's pass-fail status for their **terminal** clinical experience**.**

Standards 4.1 and 6.10 of the *Standards* establish the need for test developers to identify potential limitations and inappropriate uses of test results to avoid misinterpretation and misuse of test scores by test users (AERA, APA, NCME, 2014). Throughout the stakeholder interviews and focus group workshops, we identified three inappropriate uses of the CPIs (Crawford & Sinclair, 2022a):

Inappropriate Uses

- Determining if a student is ready to sit for the Board exam**.**

- Making comparisons about the relative effectiveness of education programs.
- Using the CPI as the single deciding factor for whether a student should be recommended for removal from the PT/PTA program.

Revisiting Alignment with Essential Elements of Clinical Practice

During the **third phase**, HumRRO addressed the first high-priority recommendation identified by Sinclair (2020): *Revisit Alignment with Essential Elements of Clinical Practice* (Crawford, et al., 2022a). When the PT CPI was developed in 1997, the APTA Board of Directors recommended that CPIs be reviewed every three years to maintain alignment with current APTA documentation and terminology (Roach et al., 2012, p.417). HumRRO found no documentation of such reviews. Thus, HumRRO compiled the most recent professional documentation and guidelines on PT and PTA practice and then re-examined the alignment of the CPIs' content to the most recent practice standards. We also identified any important changes to the profession since the CPIs were last revised over 15 years ago. This was an important step in supporting the validity of the CPIs, as accurate interpretation of indicators of performance on a set of standards relies heavily on the alignment of the assessment to the standards (AERA, APA, & NCME, 2014).

With support from APTA, HumRRO compiled the most recent professional documentation and guidelines against which the content on the existing CPIs was evaluated, including (a) Commission on Accreditation in Physical Therapy Education's (CAPTE's) *Standards and Required Elements for Accreditation of Physical Therapist/Physical Therapist Assistant Education Programs* (CAPTE, 2020a, 2020b), (b) APTA's *Core Competencies of a Physical Therapist Resident* (2020), (c) APTA's *Core Values for the Physical Therapist and Physical Therapist Assistant* (2021), and (d) the findings from a recent practice analysis conducted by HumRRO and the Federation of State Boards of Physical Therapy (FSBPT; Harris et al., 2021) that included an evaluation of ongoing and emerging trends in entry-level PT requirements and changes in the profession that necessitated adjustments to PT licensure examinations. HumRRO developed separate PT and PTA workbooks that included descriptions of the relevant practice standards for stakeholders to use as a reference in the subsequent focus group workshops.

In March 2022, HumRRO facilitated a series of focus group workshops to gain an initial understanding of the alignment of the current CPI content to current practice. Seventeen stakeholders participated, including nine DCEs, four ACCEs, two SCCE/CIs, and two CIs. Stakeholders reflected and provided feedback on a variety of topics, including (a) their experiences evaluating PT or PTA students in their clinical experience, (b) the most important skills and behaviors that should be evaluated during a student's clinical experience, (c) performance criteria or essential skills that are not captured by the CPI content, (d) performance criteria that could be considered outdated or redundant, (d) language/terminology that could be considered more current or intuitive, and (e) examples of how the CPI content could be reorganized. Then, HumRRO consolidated the feedback from the stakeholder workshops to develop a "Content Re-examination Survey."

The Content Re-examination Survey was administered to gather input from a larger, representative sample of experts on the relevancy of the existing CPI content to current practice and updated content recommendations that were provided during the focus group workshops. The survey link was distributed by APTA via email to 58,814 CPI users and shared by APTA via the Clinical Education Hub (approximately 344 subscribers), the National Consortium of Clinical Educators email newsletter (425 members), and the Clinical Education Special Interest Group Discussion Forum (approximate number of subscribers/users unknown). Responses were collected between April 19th - May 3rd, 2022, and the final analytic sample consisted of 2,253 PT and/or PTA CPI users.

The findings from the Phase 3 data collection activities indicated that while most stakeholders agree that the previous PT and PTA CPI content was comprehensive and aligned with current practice standards, there was a critical need to restructure, clarify, and consolidate the PT and PTA CPI content (Crawford et al., 2022a). Specifically, stakeholders vocalized their desires for more user-friendly CPIs—namely, simplified language, elimination of redundancies, and a less time-consuming format.

Revising the PT and PTA CPI Performance Criteria and Rating Scales

To address stakeholders' concerns from the third phase, the **fourth phase** of research included two tasks: (a) revising the CPI performance criteria and (b) revising the CPI rating scale.

The first task (revising the performance criteria) included three steps. In Step 1, HumRRO further analyzed the open-ended comments in the Content Re-examination Survey. In total, 464 and 122 open-ended responses were analyzed from the PT and PTA CPI surveys, respectively. Most of the responses pertained to collapsing specific performance criteria, for example, collapsing Examination and Evaluation on both CPIs and collapsing interventions on the PTA CPI. In Step 2, the most common suggestions from Step 1 were presented to 11 stakeholders (ten CIs and one DCE) as part of a content revision activity, which took place in July 2022. In this content revision activity, the stakeholders independently drafted (a) revised performance criteria and descriptions and (b) sample behaviors for each level of performance on the rating scale. Following Step 2, HumRRO compiled the stakeholder input and drafted revised PT and PTA CPI performance criteria and descriptions. In Step 3, the revised CPIs were reviewed by four additional stakeholders (all current CIs) in August 2022. Most of the revisions focused on clarifying the descriptions for performance criteria and splitting previously consolidated performance criteria that stakeholders felt covered distinct concepts (e.g., splitting 'Ethical Practice' into 'Ethical Practice' and 'Legal Practice'). At the conclusion of these three steps, the revised PT and PTA CPIs included 12 and 11 performance criteria, respectively (Crawford et al., 2022b).

For the second task, we revised the PT and PTA CPI rating scales. This was the second high-priority recommendation identified by Sinclair (2020). As Sinclair (2020) noted, a 2003 study found that raters were only able to discriminate between six levels of performance (Straub & Campbell, 2003), yet the rating scales for the CPIs contained 21 performance levels (i.e., intervals). Thus, HumRRO revised the rating scales to have six levels. Then, in late August 2022, HumRRO facilitated focus group workshops to brainstorm sample behaviors for each performance level and for each newly drafted performance criteria. Nine stakeholders (three CIs, three DCEs, two ACCEs, and one SCCE) were provided the CPIs' current list of sample behaviors for each performance criterion as a reference while drafting their own sample behaviors. HumRRO consolidated all the sample behaviors recorded in the stakeholders' individual workbooks and used that information to develop sample behaviors for each performance criterion.[3] Given the overlap in many of the stakeholders' sample behaviors for neighboring performance levels (e.g., Beginning Performance and Advanced Beginner Performance), we created "performance levels spans" such that each set of sample behaviors spans across two neighboring performance levels. We also included percentage ranges for level of supervision and caseload for each performance level span to help guide raters in their evaluations. These percentages were adapted from the previous versions of PT and PTA CPIs. Finally, the revised PT and PTA rating instructions and rating scales were reviewed by four stakeholders (three CIs and one DCE) who were familiar with both CPIs (i.e., PT and PTA). Each revised rating scale includes four important pieces of information to help ensure that CIs are accurately evaluating students during their clinical placements:

- A description of the performance criterion,

[3] This resulted in what is called a Behaviorally Anchored Rating Scale or "BARS."

- Statements or “anchors” that describe the six performance levels (Beginning Performance, Advanced Beginner Performance, Intermediate Performance, Advanced Intermediate Performance, Entry-Level Performance, and Beyond Entry-Level Performance),
- Percentage ranges for the student’s level of required clinical supervision and caseload (except for the ‘Professionalism’ domain where these benchmarks are less applicable), and
- Sample behaviors that further clarify the performance level spans.

Revising the PT and PTA CPI Scoring Model

The **fifth and final phase** addressed the third high-priority recommendation identified by Sinclair (2020): *Revisit the Scoring Model* (Crawford & Sinclair, 2022b). In October 2022, HumRRO facilitated focus group workshops to gather feedback on the preliminary passing standard and scoring model.[4] Stakeholders included eight DCEs, six ACCEs, five CIs, and one Assistant DCE. The large majority of the PTA stakeholders had 15 years or more experience and the majority of the PT stakeholders had five or more years of experience, with no one in either stakeholder group having fewer than two years of experience in their current role. Per the *Standards*:

> *The process must be such that well-qualified participants can apply their knowledge and experience to reach meaningful and relevant judgments that accurately reflect their understandings and intentions. A sufficiently large and representative group of participants should be involved to provide reasonable assurance that the expert ratings across judges are sufficiently reliable and that the results of the judgements would not vary greatly if the process were replicated. (AERA, APA, & NCME, 2014; p. 101).*

Notable revisions resulting from their feedback included revising the PT and PTA rating scales to better delineate the sample behaviors for the Advanced Intermediate Performance and Entry-Level Performance levels and reframing the percentage caseload and supervision descriptions for the Entry-Level and Beyond Entry-Level Performance span in terms of what students are *capable* of doing. Given these changes, a second group of PT and PTA stakeholders (three DCEs, two ACCEs, and one CI) reviewed and provided feedback on the revisions. The only remaining suggestion was to include a checkbox at the end of each CPI where CIs can indicate if there are any safety concerns during the student’s terminal clinical experience (i.e., for the sake of documentation and potential legal purposes). This checkbox would be followed by a narrative feedback box where CIs can describe their safety concerns.

Stakeholders agreed that the CPIs should continue to use a non-compensatory scoring model such that a student is required to earn a score of Entry-Level Performance (i.e., a ‘5’) or greater on each performance criterion to pass their terminal clinical experience. As one stakeholder mentioned, these performance criteria should be viewed as core competencies. Stakeholders also preferred the non-compensatory scoring model, as opposed to a compensatory scoring or hybrid model where students can “make-up” for poor performance on one criterion by having high performance on another criterion, because they believe it will help provide consistency in CIs’ ratings. Specifically, they felt a hybrid scoring model could introduce too much flexibility and inconsistency into the evaluation

[4] We refer to this as a “preliminary passing standard” given that the revised CPIs have not been released for operational use. We recommend that the preliminary passing standard be revisited after the instruments have been used operationally and data (i.e., ratings on the CPIs) is available to investigate the impact of the preliminary passing standard.

process because the specific performance criteria requiring a rating of Entry-Level Performance or greater could vary across clinical settings.

The PTA stakeholders also stated that the three intervention-related performance criteria under the 'Technical/Procedural' domain should include a 'Not Applicable' indicator on the PTA CPI because PTA students may or may not have the opportunity to perform certain types of interventions depending on the clinical setting in which they practiced (e.g., pediatrics). As a result, CIs may indicate 'Not Applicable' on one or more of the PTA interventions performance criteria; however, 'Not Applicable' ratings must be accompanied by a brief written rationale. An overview of the final scoring model and the passing standard is provided in Table 1.

Table 1. Preliminary Passing Standard and Scoring Model for the PT and PTA CPI

Performance Criteria	Description
PT CPI	Entry-Level Performance or greater on *all* performance criteria
PTA CPI	Entry-Level Performance or greater on *all applicable* performance criteria; Not Applicable ratings must be accompanied by a written rational Potential non-applicable performance criteria are limited to: • Interventions: Therapeutic Exercise and Techniques • Interventions: Mechanical and Electrotherapeutic Modalities • Interventions: Functional Training and Application of Devices and Equipment

Finally, we asked stakeholders to describe the pros and cons of requiring raters to provide narrative feedback on performance criteria *only* when the student's performance on the criterion falls below a specific, agreed-upon level. Nearly all stakeholders agreed that narrative feedback should remain a requirement for each performance criterion regardless of the student's performance on that specific criterion. Stakeholders felt that the students benefit greatly from the written descriptions of their strengths and weaknesses. Thus, removing or reducing this requirement could lead to less useful feedback for students.

The final revised CPIs can be found in Appendices A and B for PT and PTA, respectively.

Summary

Throughout the previous phases of research, HumRRO and APTA partnered to streamline the PT and PTA CPI content and rating scales and, as a result, continued to build support for the validity and reliability of each CPI. During Phase 1, we gained a deeper understanding of the areas in which to improve the CPIs, resulting in the recommendations that drove each subsequent phase of research (Sinclair, 2020). During Phase 2, we clarified the intended score uses of the CPIs and identified the single summative use of the CPIs: *Guiding the Directors of Clinical Education's (DCE's) decision on the student's pass-fail status for their terminal clinical experience* (Crawford & Sinclair, 2022a). Phase 3 provided an opportunity to re-examine the alignment of the current CPI content to the most recent practice standards and identify any important changes to the profession since the CPIs were last revised over 15 years ago (Crawford, et al., 2022a). Phase 4 resulted in two significant updates to the CPIs: (a) restructured, clarified, and consolidated performance criteria for the PT and PTA CPIs, reducing the PT CPI from 18 to 12 performance criteria and the PTA CPI from 14 to 11 performance criteria and (b) a new rating scale that includes six anchor points and sample behaviors for each performance span of each performance criterion (Crawford, et al., 2022b). Finally, during the fifth

phase, we worked with PT and PTA stakeholders to set a preliminary passing standard and scoring model for each CPI (Crawford & Sinclair, 2022b).

Each of the previous phases of research and any additional research conducted on the revised instruments helps build support for the validity and reliability of the CPIs for their high-stakes, summative use (i.e., *Guiding the DCE's decision on the student's pass-fail status for their terminal clinical experience*). After the instruments have been used operationally and data is available, HumRRO and APTA will be able to investigate the impact of the preliminary passing standard and, over time, collect additional evidence to support the reliability of the revised PT and PTA CPIs.

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