

Assessing Professional Students' Application of the International Classification of Functioning, Health, and Disability Model and Patient-Reported Outcome Measures During Patient Care

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Context: The International Classification of Functioning, Health, and Disability (ICF) model and patient-reported outcome measures (PROMs) are concepts that must be addressed in professional education.

Objective: Describe a class assignment that allows students to integrate the concepts of the ICF model and PROMs into actual patient care.

Background: Adult learners, including professional athletic training students, thrive on learning experiences where they can apply concepts and integrate new knowledge with existing knowledge. In addition, existing research suggests that most athletic trainers are not integrating PROMs into their clinical practice; therefore, students are most likely not seeing the use of PROMs during clinical education. Faculty can facilitate the application of the ICF model and PROMs into patient care with a course-based assignment.

Description: The assignment requires students to use the ICF model as an assessment tool with an actual patient, which helps shape their therapeutic interventions. Students recorded baseline and follow-up PROMs with this patient over a time period of at least 3 weeks while documenting their interventions and the patient's change over time. Students addressed reflection prompts in the assignment by describing their successes and challenges, in addition to describing their future plans for integrating the ICF model and PROMs into their clinical practice.

Clinical Advantage(s): Students described this assignment as beneficial because it helped them treat their patients more holistically. Students self-reported increased knowledge and confidence with using the ICF model and PROMs in their clinical practice. Students described a plan to integrate these concepts into their clinical practice in a limited fashion.

Conclusion(s): Faculty may consider integrating an applied, patient-based assignment such as this to assess students' application of the ICF model and PROMs to an actual patient. This assignment can also be easily condensed or expanded to fit different courses, student background knowledge, and assessment of different curricular content standards.

Key Words: Assessment, accreditation standards, patient-centered care, clinical education

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KEY POINTS

- The concepts of the International Classification of Functioning, Health, and Disability (ICF) model and patient-reported outcome measures (PROMs) can be integrated into professional education with a patient-based assignment.
- Students perceived an assignment that included application of the ICF model and PROMs to an actual patient to be valuable to their learning and patient care.
- Educators can easily modify an assignment like this to meet learners' background knowledge, program assessment plan, and clinical education experiences.

INTRODUCTION

In 2015, the athletic training profession adopted the International Classification of Functioning, Disability, and Health (ICF) disablement model for use in athletic training clinical practice.¹ Subsequently, the ICF model was included in the 2020 Commission on Accreditation of Athletic Training Education (CAATE) standards for professional master's students.² Thus, it has become a requirement for athletic training programs to teach and evaluate students' abilities to perform patient-centered care that includes the use of the ICF model and patient-reported outcome measures (PROMs).

Clinicians have noted challenges integrating PROMs into their patient care. Lam et al³ reported that nearly 80% of athletic trainers (ATs) do not use PROMs in their clinical practice or research. Similarly, Coulombe et al,⁴ in a study examining PROM use by ATs practicing in the secondary school, found that about 85% of ATs do not use PROMs. The researchers⁴ also found that nearly half of participants had not been exposed to PROMs in professional, postprofessional, and continuing education or by informal methods such as learning from a colleague. These findings emphasize the need to include this content in professional education so students have the skills needed to integrate these concepts as professionals.

Adult learning theory suggests that adult students, such as professional athletic training students, learn best when information is applied and integrates their real-life experiences.⁵ Likewise, experiential learning is the foundation of athletic training education, where students have the opportunity to learn hands-on with actual patients as they are learning knowledge in the classroom setting.⁶ With regard to these concepts of effective teaching and learning, the purpose of the educational technique presented in this article was to develop a patient-based class assignment that integrates the ICF model and PROMs. My university did not consider this educational strategy to be research; thus, the institutional review board did not review this activity.

ASSIGNMENT DESCRIPTION AND PURPOSE

This assignment was integrated into a senior-level undergraduate course titled "Research in Athletic Training." The primary focus of the assignment was to have students apply the ICF model and PROMs to an actual patient they were treating during their clinical education experiences. Other CAATE standards were integrated into the assignment to reflect an actual patient-care scenario (Table 1). Students were required to complete the assignment over a minimum 3-week period to assess outcome measures and monitor patient progress over time. The assignment description is displayed in Table 2. Before completing this assignment, students didactically learned about the ICF model and PROMs in this class via lectures, discussions, and case studies.

OUTCOMES

Students completed this assignment in the Fall semester. As a part of the assignment, students had to answer reflection questions related to their experience completing the assignment and future plans for implementing PROMs. Students described several benefits of the assignment, such as helping them consider their patients' function more holistically, obtaining patient-oriented information, and having concrete documentation of their patients' improvement. One student said: "The ICF model and PROMs help me understand my patient's care and improvements because it gives me physical documentation of how she has changed just within a few weeks."

Students also noted some challenges implementing the assignment, including reluctant patients, patients who did not understand some of the questions on the outcome measures, and the time-consuming task of completing PROMs. One student described how her treatment was affected on the days she completed PROMs: "I faced a couple of challenges as far as timing of the treatment on a few days. She had class after practice on some days, so treatment and rehab had to be shorter or changed completely."

Last, students were asked to reflect upon how they actually plan to use PROMs in their future clinical practice. Many described that although they found the use of the ICF model and PROMs valuable, they still did not find them realistic to use with most patients. They described strategies for using these tools in a limited fashion, as one student explained: "In the future I want to continue to use the ICF model with patients in order to capture a more holistic view of their disabilities. This is not realistic to do for every injured athlete. The plan is to do ICF models with patients that have injuries that require long-term treatment." These reflections suggest that although the assignment helped expose students to the value of these tools, students still need practice integrating them into clinical practice.

Table 1. 2020 CAATE Standards Assessed by Assignment

Standard	Content
57	Identify health care delivery strategies that account for health literacy and a variety of social determinants of health
58	Incorporate patient education and self-care programs to engage patients and their families and friends to participate in their care and recovery
60	Use the International Classification of Functioning, Disability, and Health (ICF) as a framework for delivery of patient care and communication about patient care
62	Provide athletic training services in a manner that uses evidence to inform practice
69	Develop a care plan for each patient
73	Select and incorporate interventions that align with the care plan

Abbreviation: CAATE, Commission on Accreditation of Athletic Training Education.

Table 2. Assignment Description

Overview: The purpose of this assignment is to have you apply the ICF model and patient-rated outcomes to an actual patient. Please read the instructions carefully and complete the assignment as you go. Baseline and repeat PROMs should be completed at least 1 week apart; therefore, this assignment should be completed over a time period of at least 3 weeks. I recommend you print a few general and region-specific PROMs and have them ready to go at your clinical site for the next patient who fits the assignment objectives.

Assignment Sections:

- Section I: Baseline (10 points)
 - Patient background & diagnosis (2 points): In about 1 paragraph, describe the patient, their diagnosis, and any other key information you are considering in your care.
 - Completed ICF model (2 points): Using the patient's information, provide each component of the ICF model. You can do this by either (1) neatly filling out the blank ICF model by hand or (2) listing each component of the ICF model in paragraph/bullet form with each component clearly labeled.
 - Two baseline PROMs (2 points): must be multi-item PROMs
 - 1 general/HRQL
 - 1 region-specific
 - Treatment/intervention plan for the upcoming week (4 points): This should be linked to the patient's problems and PROMs so there is a clear reason for the intervention. Address ADLs if they are affected by the injury/condition. Include any take-home instructions, referrals, or recommendations based on what you found from your examination, the ICF model, and PROM scores. Ensure this section is organized and easy to follow, most likely with a combination of text and charts.
- Section II: Reassessment (10 points)
 - Summary of interventions completed (2 points): 1–2 paragraphs, add a table if it helps organize the information. There will likely be some variation between this and section 1(d) because oftentimes our interventions do not go as planned. How many days was the person treated and how did the treatment vary day to day?
 - Two repeat assessment PROMs (2 points): must be same PROMs as baseline
 - 1 general/HRQL
 - 1 region-specific
 - Two final assessment PROMs (2 points): must be same PROMs as baseline
 - 1 general/HRQL
 - 1 region-specific
 - Summary of improvements made, including *subjective and objective* outcome measures (eg, strength, ROM, PROMs, observed function). Include PROM scores and MCID where relevant. Tables/charts/figures are usually the easiest way to present this information. Consider this section an analysis of your interventions, the improvements (or lack thereof) in your patient, and why you think they did or did not improve the way they did. (4 points)
- Section III: Reflection (5 points)—3 to 5 paragraphs
 - Describe your experiences completing PROMs with your patient. Did you face any challenges; if so, what?
 - Describe how the ICF model and PROMs contributed to your understanding of your patient's care and improvement.
 - You'll be starting out as an independent clinician in about a year from now. Describe how you will *realistically* approach capturing patient-oriented values and evidence in your practice and why you have chosen this approach.

Abbreviations: ADL, activities of daily living; HRQL, health-related quality of life; ICF, International Classification of Functioning, Health, and Disability model; MCID, minimal clinically important difference; PROMs, patient-reported outcome measures; ROM, range of motion.

Table 3. Quantitative Student Responses

Item	Mean \pm SD	
	Before Assignment	After Assignment
Knowledge of PROMs ^a	1.89 \pm 0.93	3.67 \pm 0.5
Confidence using PROMs ^b	2.33 \pm 1.12	4.00 \pm 0.00
Knowledge of ICF model ^a	2.22 \pm 0.67	3.44 \pm 0.73
Confidence using ICF model ^b	2.11 \pm 0.78	3.33 \pm 0.71

Abbreviations: ICF, International Classification of Functioning, Health, and Disability model; PROMs, patient-reported outcome measures.

^a Measured on a Likert scale from 1 (*not at all knowledgeable*) to 4 (*extremely knowledgeable*).

^b Measured on a Likert scale from 1 (*not at all confident*) to 4 (*extremely confident*).

After completion of the course, students completed a questionnaire about this assignment. The purpose of the questionnaire was to get both qualitative and quantitative feedback on students' perceptions of the assignment, including their perceived knowledge and confidence using the ICF model and PROMs before and after completing the assignment. All 9 students who completed the assignment completed the questionnaire. Quantitative responses are shown in Table 3. Additionally, students were asked 1 open-ended question: "Did you find this assignment useful to your development as a clinician? Please describe." All 9 students responded positively to this question, and a sample of responses are displayed in Table 4.

CLINICAL ADVANTAGES

Given that previous research has reported that 80% to 85% of ATs are not using PROMs in their clinical practice, students are not likely to observe the use of these tools during clinical education.^{3,4} Thus, faculty may need to facilitate the application of the ICF model and PROMs with the use of patient-based assignments such as this. In turn, students find applied assignments valuable to their learning, as noted in existing literature^{5,6} and these students' open-ended responses. This assignment allowed students to directly engage in patient-centered care and apply the concepts of the ICF model and PROMs—concepts that are now required to be taught in professional athletic training programs.² Faculty may consider using an assignment such as this to help meet CAATE standards related to these topics.

The final portion of this assignment included a set of questions requiring students to reflect upon their experiences completing the assignment and future plans for implementing the ICF model and PROMs in their clinical practice. Reflection is an important component of learning, particularly in clinical settings⁷; it allows students to integrate a new experience into their past knowledge and experiences and facilitates clinical reasoning.⁷ Students in this course had to discuss experiences and challenges in completing this assignment, forcing them to reflect upon their actions and also sharing valuable information with the instructor about what students are seeing clinically. In addition, asking students to think ahead to how they might use this information in their own practice facilitates their transition to practice. Faculty are

Table 4. Open-Ended Student Responses

Responses to the question: Did you find this assignment useful to your development as a clinician? Please describe.

- "Yes, these models helped track progress in a concrete way. It made it easier to see how my patient's experiences were changing."
- "Yes! I found that it pushed me in my clinical site. It allowed me to work closely with a patient and gain trust. This gave me insight as to how the Graduate Assistant Athletic Trainers interact with all of their patients [on a] daily basis. I had an amazing patient, so I really enjoyed this assignment."
- "I did find it useful because it allowed me to actually practice and use what we learned about. It also opened more practical conversation with my patient because I was able to get specific ideas of what was going on for him."
- "Yes, I found the assignment useful for my future development in my own clinical practice. I think that seeing the feedback over time helped me modify my treatment in ways I wouldn't have if I used scales that are usually used in our setting."
- "Yes, this assignment helped me realize how to treat the patient as a whole and not just the injury itself, but also factors in their life that the injury might effect."

encouraged to integrate reflection into assignments such as this that include integration of challenging or new concepts into clinical practice.

STRATEGIES FOR IMPLEMENTATION

This assignment provides a framework for faculty to use in a variety of courses and with different levels of students. Depending on the athletic training program's curricular structure, an assignment like this could be taught in a research, evidence-based practice, therapeutic interventions, topics, or a capstone-type course. This assignment is flexible in terms of the level of students and their knowledge. For example, I have previously integrated an assignment similar to this in a final-semester, professional master's program, evidence-based practice course. The students recorded patient care over a longer period of time (6–8 weeks), integrated research evidence into the project report, and included *International Classification of Disease, Tenth Revision*, codes and reimbursable amounts for their services. In contrast, this assignment can also be abbreviated for students with less knowledge in a certain content area. Strategies for expanding and condensing this assignment are located in Table 5.

As faculty are considering integrating an assignment such as this into their course(s), they should consider the students' background knowledge (eg, have they learned evidence searching or coding yet?), course objectives, program assessment plan, and CAATE standards they are attempting to address. Faculty should also ensure that the available clinical education opportunities match the assignment objectives. For example, asking students to report on patient outcomes measured over 6 to 8 weeks may be challenging in some settings and clinical experiences, depending on the nature of

Table 5. Strategies for Expanding and Condensing Assignment

Strategies for Condensing	Strategies for Expanding
Have students complete the ICF model with an actual patient, which fits into nearly any course	Require students to integrate research evidence into their justification of interventions (Standard 62)
Have students record PROMs with a patient 1–2 times and reflect upon their experiences	Have students write and answer a PICO question on an actual patient in addition to the other assignment components
Shorten the amount of time students need to record patient data	Have students document procedural codes, including ICF codes (Standards 64, 89)
Remove the component that students are required to report and justify therapeutic interventions, especially if they have not had these courses yet	Require students to document the value of services provided with billing estimates (Standard 89)
Have students use a single-item and multi-item PROM and compare their experiences using each	Evaluate students' documentation of initial, progress, discharge, and communication notes related to this patient case. (Standards 59, 64)
	Lengthen the amount of time students are required to report patient data
	Have students document their interactions with other health care professionals while caring for this patient (Standard 61)
	Integrate a quality-improvement component of this assignment (Standard 63)
	Expand the evaluation and diagnosis component of the assignment, where students must describe and justify evaluation process and diagnosis (Standard 71)

Abbreviations: ICF, International Classification of Functioning, Health, and Disability model; PICO, patient/problem, intervention, comparison, outcome; PROMs, patient-reported outcome measures.

the patient population and length of time spent at the clinical site.

Last, faculty can consider different formats for having students report their assignment. In the assignment described in this article, students produced a report that was graded by the instructor. However, I have previously had students develop a paper graded by the instructor and a poster presentation that was presented to preceptors and other students in the program. Given that few clinicians are using PROMs in their clinical practice, preceptors may find value in seeing how students have used these tools with patients to produce measurable outcomes related to patient function, reimbursement, and clinical outcomes.^{3,4} If faculty consider dissemination of an assignment such as this to individuals beyond the classroom environment, they should ensure they are obtaining necessary approvals (eg, institutional review board approval, patient case study release form).

CONCLUSIONS

Athletic training programs must integrate concepts of patient-centered care, the ICF model, and patient-oriented outcome measures into their professional athletic training programs per the 2020 CAATE standards.² Faculty may consider approaching this content with a patient-based assignment that allows students to apply these concepts to actual patient care. Students perceived this assignment positively, and they self-reported increased knowledge of and confidence with using the ICF model and PROMs in their clinical practice. An assignment such as this can easily be expanded, condensed, and adapted on the basis of students' knowledge and the

course objectives. After completing this assignment, students will likely need additional practice integrating the ICF model and PROMs into their clinical practice.

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