



McGill



School of Physical and
Occupational Therapy

ASSESSING CLINICAL PERFORMANCE IN PHYSICAL THERAPY STUDENTS: WHICH COMPETENCIES DIFFERENTIATE AN AVERAGE FROM AN ABOVE-AVERAGE PERFORMANCE?

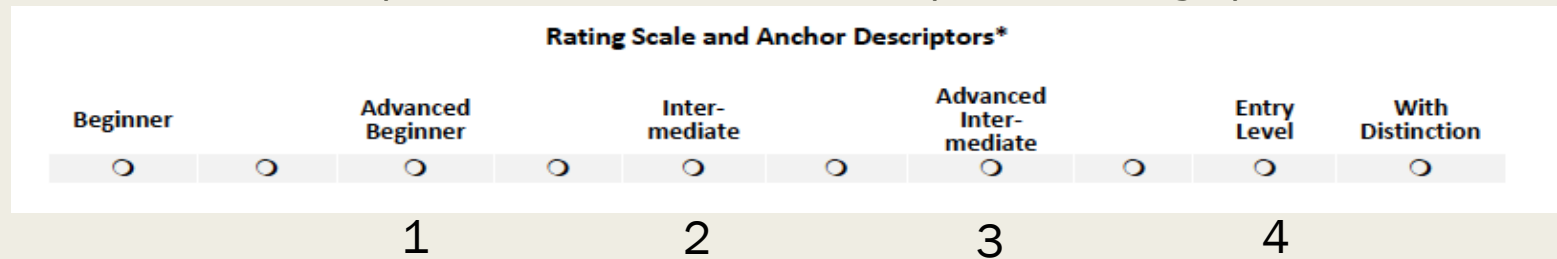
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BACKGROUND

- Unlike most Canadian Physical Therapy programs who assign a Pass/Fail to grade clinical placements, McGill assigns a letter grade to students' performance in each of the 4 clinical placements completed by the student. Assigning a letter grade to performance during clinical placements has an impact on the cumulative Grade Point Average (cGPA). This allows for the students' overall academic standing to reflect both their academic performance as well as their clinical performance in regards to required clinical competencies.
- The tool used to grade clinical performance is called the Canadian Physiotherapy Assessment of Clinical Performance (ACP) (Mori et al.) The ACP is a 21 item competency-based instrument based on the CanMeds framework, used across the continuum of training in physical therapy to track acquisition of competencies from the beginner level to entry to practice.
- The Academic Coordinators of Clinical Education developed criteria to determine the letter grades (A, A-, B+, B-, F) for each of four clinical placements relative to the expected average performance for each clinical placement.



Average expected performance for each clinical placement

Grade	Criteria
A (Exceptional)	Student performing at two levels above the average set for the placement in all competencies (21 items)
A- (Above average)	All 21 items are scored at least at the average for the clinical course AND 11/21 items are scored at least 2 levels above the average for the clinical course.
B+ (Average)	Student is performing at the average level set for the placement in all competencies.
B- (Weak)	11/21 items are scored at least at the average for the clinical course AND no items are more than 2 levels below the average for the clinical course
F (Does not meet expectations)	>11/21 items are scored below the average for the clinical course OR any item is > 2 levels below average for the clinical course.

RATIONALE

Clinical educators seem to be able to identify exceptional students (A), weak students (B-) and students who are not meeting expectations (F). However, there is a large group of students, average (B+) and above average (A-) who are difficult to differentiate.

OBJECTIVE

For a physical therapy student completing a first clinical placement, **to determine the odds** of obtaining an **above average grade (A-)** in relation to the **odds** of obtaining an **average grade (B+)**, where performance is assessed by the competency-based Canadian Physiotherapy Assessment of Clinical Performance (ACP).

METHODS

- **Sample:** 89 students from two cohorts of PT students
- **Data:** Scores on final ACP evaluations for 89 students who obtained grades of A- or B+ during a first clinical placement.

Grades	April- June 2015	April – June 2016
A	17	16
A-	26	16
B+	18	29
B-	9	3
F	0	2
	74 students	66 students

89 students

- **Analysis:** Logistic regression

Binary outcome variable:

A- (reference group) or B+ performance

Predictor variables:

Three variables composed of ratings ranging from 1 (beginner) to 10 (distinction) for each of the 21 items forming the ACP.

Predictor variables	Number of items	Possible range of scores
1)Expert role	8	8 to 80 continuous
2)Professional role	3	3 to 30 continuous
3) Combination of roles		
Communicator	3	10 to 100 categorical dichotomous
Collaborator	2	
Manager	3	
Advocate	1	
Scholarly Practitioner	1	
	21 rated items	

RESULTS

- Descriptive statistics** for each predictor variable – Figs. 1,2,3 boxplots. Fig 4 – distribution of scores for combination of roles.

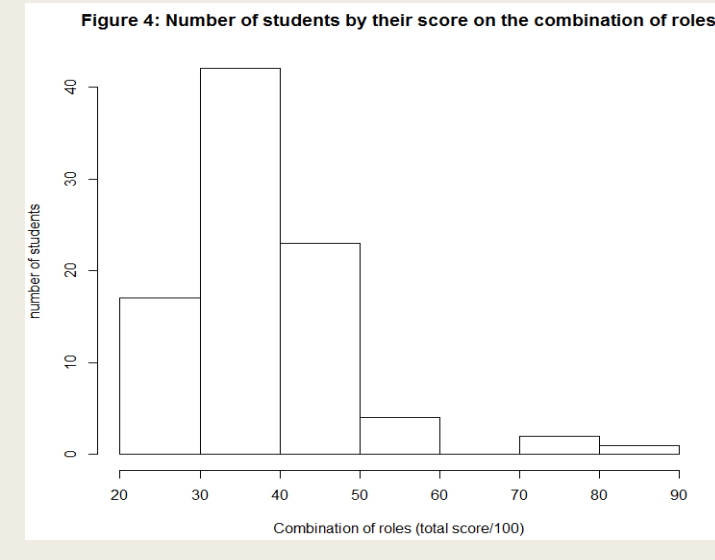
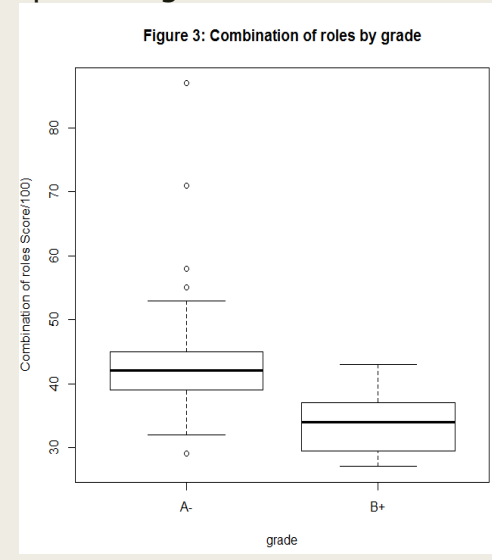
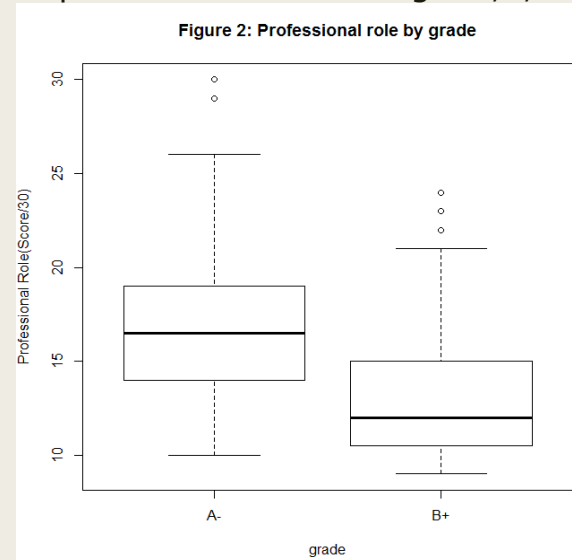
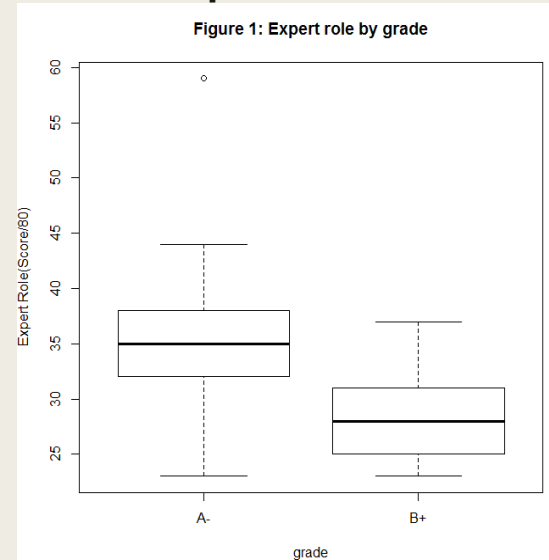


Table 1: Descriptive statistics for continuous variables

Predictor Variable	Mean (SD)	Median	Range
Expert role	31.65 (5.83)	31	23 - 59
Professional role	15.31 (4.89)	15	9-30
Combination of roles	38.67 (9.72)	37	27 - 87

Table 2: Grade by score on “combination of roles” (dichotomous)

Grade	Score on Combination of roles		Totals
	≤ 37 (reference group)	>37	
A- (reference group)	6 students	36	42
B+	39	8	47
Totals	45	44	89

- Results of logistic regression** – Tables 3 and 4. The odds of a student obtaining an A-, given a score of ≤ 37 for the combination of roles, is 0.12. In other words, given the same scores in the expert and professional roles, a student with a combination of roles score > 37 is 32 times as likely to obtain a grade of A- in the first clinical placement compared to a student who obtains a score of ≤ 37 for combination of roles. A student with a low score on the expert role (eg: 24), keeping other variables constant has a 16% probability of obtaining an A-.

Table 3: Coefficients from logistic regression model

	Coefficient	Standard error	p-value
Intercept	8.441	2.795	0.003
Expert role	-0.207	0.087	0.02
Professional role	-0.044	0.078	0.575
Combination of roles	-2.096	0.737	0.004

Table 4: Odds ratios calculated from logistic regression model

	OR	95% CI
Expert role	0.81	0.68 - 0.95
Professional role	0.96	0.82 - 1.1
Combination of roles	0.12	0.03 - 0.496

DISCUSSION

- The main finding is that the odds are low for a student obtaining a grade of A- in a first clinical placement, if their score on a combination of roles including communicator, collaborator, advocate, manager, and scholarly practitioner is below the median.
- Given similar scores for the professional role and the combination of roles, a student with a low score in the expert role has a low probability of obtaining an above-average grade (A-).
- The model fit was determined to be adequate using Aikake Information Criterion (AIC) and Pearson residuals. The issue of collinearity between the expert role and the combination of roles needs further investigation. Adding subsequent cohorts to this sample will reveal whether the model needs adjustment.
- This project used a criterion-based method to assign grades to a student's clinical performance. This means the student's performance is compared to an expected set of criteria applied to a new assessment tool (the ACP) whose track record is not established. As the tool becomes more widely used it might be worthwhile to use a more norm-referenced approach whereby grades are determined by the student's full cohort's performance for a given placement.
- An inevitable factor to contend with when assessing clinical performance is the large variability in how clinical educators interpret competencies and assign their ratings. With approximately 250 clinical educators responsible for training one full cohort of 75 physical therapy students the "hawks" and "doves" might be evenly distributed across the placements. Persistent efforts are made by the program to train clinical educators in order to obtain a certain level of standardization in assessment procedures.

CONCLUSION

- Differentiating a student who performs at an average from an above average level in a first clinical placement may be possible using ratings from the ACP. Being able to make this distinction may be useful for providing feedback to students in order for the student to improve their performance in subsequent clinical placements.
- Future directions include exploring how to incorporate a qualitative analysis of the comments clinical educators include in the ACP to the final grade for each clinical placement.

References:

- Canadian Council of Physiotherapy University Programs (CCPUP), National Association for Clinical Education in Physiotherapy (NACEP), Canadian Physiotherapy Association (CPA) Canadian Alliance of Physiotherapy Regulators (The Alliance), Physiotherapy Education Accreditation Canada (PEAC) (2011). *Entry-to-Practice Physiotherapy Curriculum: A Companion Document Clinical Education Guidelines for Canadian University Programs*
- Mori, B., Norman, KE, Brooks, D., Herold, J., Beaton, DE: (2016) *Canadian Physiotherapy Assessment of Clinical Performance: Face and Content Validity* Physiotherapy Canada, Volume 68, Number 1 pgs. 64-72. DOI:<http://dx.doi.org/10.3138/ptc.2015-35E>
- NPAG GCNP (2009). *Essential Competency Profile for Physiotherapists in Canada*, October 2009. In collaboration with the Accreditation Council for Canadian Physiotherapy Academic Programs, Canadian Alliance of Physiotherapy Regulators, Canadian Physiotherapy Association, and Canadian Universities Physical Therapy Academic Council.