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Do Emotional-Social Intelligence, Caring, Moral Judgment and Leadership of Physical Therapy Students Predict their Clinical Performance?

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Abstract. Although non-cognitive characteristics are increasingly valued in physical therapists, their contribution to the development of physical therapy students has not been well established. The purpose of this study was to ascertain whether measures of emotional-social intelligence (ESI), caring, moral judgment and leadership predict clinical performance of physical therapy students. Sixty physical therapy students, mean age 21.4 years, from two Masters entry-level programs, volunteered to participate in the study. At the beginning of their professional studies (entry), before and after 2 clinical affiliations, and at the end of their academic programs, the students completed four self-report questionnaires (independent variables): the Caring Ability Inventory (CAI), the Defining Issues Test (DIT-2) for moral judgment, the Self-Assessment Leadership Instrument (SALI), and the Bar-On Emotional Quotient Inventory Short (EQ-i:S) for ESI. For each instrument, higher scores represent higher levels of the construct being measured. The students were evaluated at each clinical affiliation by means of the Clinical Performance Instrument (CPI) (dependent variable). Correlations and regressions were performed to determine the relationship between the independent variables and the scores on the CPI. Results indicated that the EQ-i:S Total at entry was the only independent variable significantly correlated (r=0.25-0.43) with the average CPI scores (total and selected performance criteria) from the first two clinical affiliations. The CPI from the final affiliation could not be used in the analyses because most scores were close to the maximum score of 100 (mean=98.8). In conclusion, ESI was significantly correlated to clinical competence, but the non-cognitive measures of ESI, caring, moral judgment and leadership could not adequately predict the clinical performance of physical therapy students.

Keywords: emotional-social intelligence; caring; moral judgment; leadership; clinical performance

Introduction

Over the course of their studies, physical therapy students in North America are expected to develop competencies in the cognitive, psychomotor and affective domains. Professional knowledge and clinical skills are continuously measured and graded against standards of practice. Attitudinal competencies are often inferred although there is also a need to assess them through observations of the students' actions and interactions (Danielsen & Cawley, 2007). The attitudinal aspects of professionalism are associated with the core values of physical therapy (Ries, 2013). Students are expected to develop as 'caring' and 'ethical' health care professionals with 'leadership' qualities and skills (American Physical Therapy Association, 2004a; American Physical Therapy Association, 2004b; Gersh, 2006; Schafer, Lopopolo, & Luedtke-Hoffmann, 2007). Moreover the American Physical Therapy Association (APTA) has developed continuing education modules in emotional intelligence and ethics, and increasingly encourages students to participate in various leadership programs (American Physical Therapy Association, 2013).

Not only do educators want to instill these core values in their students, but they would like to be able to measure these attributes and determine whether they can predict success in the profession. Academic scores such as grade point average (GPA) and Graduate Record Examination (GRE) have been correlated with clinical performance of occupational and physical therapy students (Balogun, 1988; Howard & Jerosch-Herold, 2000; Tan, Meredith, & McKenna, 2004; Watson, Barnes, & Williamson, 2000). However, other investigators have found no relationship or weak correlations between GPA and clinical performance (Balogun, 1988; Opacic, 2003; Thieman, Weddle, & Moore, 2003). Few non-cognitive variables have been researched. Balogun (1988) reported that an interview accounted for a greater percentage of the variance (34.6%) in clinical performance of physical therapy students than GPA (7.5%). More recently, Opacic (2003) found 'self-efficacy' of physician assistant students, measured at the beginning of their clinical year, to be significantly correlated ($r=0.16$, $p<0.01$) with their second-year clinical performance, while GPA and previous experience were not. Nearly all authors suggested that non-cognitive variables might assist in predicting students' clinical performance.

Review of Literature

Emotional-social intelligence (ESI), a relatively new, non-cognitive construct in physical therapy has been investigated for its potential role in students' academic and clinical performance (Lewis, 2010; Lewis, 2011). Bar-On defined ESI as "a multi-factorial array of emotional and social competencies that determine how effectively we relate with ourselves and others and cope with daily demands and pressures." (Bar-On, 2002, p31). Boyce (2001) studied the ESI of master's level physical therapy students using the Multifactor Emotional Intelligence Scale. He reported low correlations between ESI and general cognitive ability (on the Wonderlic Personnel Test), and between ESI and academic success (GPA). Lewis (2010) showed no relationship between ESI measured on the Mayer-Salovey-Caruso Emotional Intelligence Test and success on the Clinical Performance Instrument (CPI) of 56 students enrolled in 4 different physical therapist entry-level education programs (2 at doctoral and 2

at master's levels). It appears from the study description that ESI was measured after the CPI scores were obtained, and therefore could not be evaluated as a predictor of clinical performance. In another study, Lewis (2011) found that the ESI of 87 physical therapy students did not change over the course of their 3-year education programs and had a low correlation with the CPI scores at the end of the first and third years of study. However, Lewis did not provide correlation coefficients between ESI and CPI for the various time periods. Therefore, the potential of ESI as a predictor of future clinical performance could not be determined from this study.

Caring is viewed as a critical component of physical therapy and also as a dynamic, ethical relationship (Resnik & Jensen, 2003; Romanello & Knight-Abowitz, 2000). It includes being client-centered and manifests itself in communication (including listening), organization of infrastructure, and advocacy for clients (Greenfield, Anderson, Cox, & Tanner, 2008; Resnik & Jensen, 2003; Ries, 2003). Greenfield and colleagues (2008) conducted a qualitative study of physical therapists in their first year of clinical practice. The therapists valued caring, but struggled in providing 'caring' services because of difficult clients, stress, fatigue, time constraints and interdisciplinary issues. These investigators (Greenfield et al., 2008) recognized that the attitudes and skills required for caring accrue over time. They recommended that these elements be developed during the physical therapy studies through the integration of simulated patient cases followed by reflection and targeted clinical experiences.

Moral Judgment is the reasoning process used to determine the moral thing to do and the ability to behave in a moral manner (Bebeau, 2002; Rest, Thoma, Narvaez, & Bebeau, 1997; Rest & Narvaez, 1994). Moral judgment has been said to include three levels of functioning: codes of conduct imposed on the individual, ethical concepts serving as guides of behavior of members of a profession, and values broadly held by society (Thoma, 2006). Mature moral reasoning measured on the Defining Issues Test (DIT) has been labeled 'principled' reasoning (Rest et al., 1997) represented initially as a P index and in the DIT-2 as the N2 index. The few studies conducted on the DIT scores of physical therapy practitioners or students have produced inconsistent findings. Swisher (2010) reported lower P scores in practicing therapists compared to other health professional practitioners and students. Dieruf (2004) found no change in the P score of physical therapy students over the course of their educational programs while Larin, Geddes and Eva (2009) and Geddes, Salvatori and Eva (2009) described a significant increase in the N2 scores.

Moral judgment has been found to be predictive of clinical performance in several health care professionals including physical therapists. Sisola (2000) studied 58 physical therapy students in three programs and reported a significant relationship (r=0.28) between the P scores at entry to the programs and scores on the Clinical Competence Scale at the end of their first clinical affiliation.

Leadership has been defined as "the *means* through which the content of practice is professionally applied to the problems facing the physical therapist." (Schafer

et al., 2007, p2). Although the physical therapy literature has described philosophies and skills of leadership, little research has been conducted on the effect of leadership on clinical performance. Gersh proposed Greenleaf's philosophy of 'servant-leadership' as a "unifying matrix for the enhancement of professionalism and the focus of professional behaviors in physical therapy." (Gersh, 2006, p13). Using Delphi method and a national survey, investigators (Lopopolo, Schafer, & Nosse, 2004; Schafer et al., 2007) have identified leadership, administration, management and professionalism skills that practitioners believe entry-level therapists should have. However, no studies have examined the relationship of leadership ability and clinical performance (Lopopolo et al., 2004; Schafer et al., 2007).

There are some associations among the variables of ESI, caring, moral judgment and leadership. In an investigation of physical therapy and nursing students entering their programs, ESI was correlated to two subscales of the Caring Ability Inventory (CAI): Knowing (CAI_K) and Courage (CAI_C) (Wessel et al., 2008). Leadership has been correlated with ESI in the field of administration (Goleman, Boyatzis, & McKee, 2013), and in health science students (including those in physical therapy) (Wessel et al., 2008). In the latter study, no relationship was found between ESI and the N2 score of the DIT-2 (Wessel et al., 2008).

The physical therapy profession views non-cognitive concepts as extremely important, but few studies have measured these concepts and their ability to predict the clinical competence of students. The purpose of this study was to determine if ESI, caring, moral judgment and leadership of physical therapy students are predictors of their clinical performance.

Participants

Physical therapy students from Ithaca College, Ithaca, New York and McMaster University, Hamilton, Ontario were recruited to participate in the study. Students in the Ithaca program were in the third year of an undergraduate program but in the first year of their 3-year professional studies leading to an entry-level master's degree in physical therapy. The McMaster students had completed an undergraduate degree and were enrolled in the first year of a 2-year (22 months) entry-level master's degree. The students were informed about the study by e-mail or through an announcement in a class session. They were offered a pizza snack or a $5.00 food voucher for their participation. The interested students contacted the research assistant of their respective program.

Methods

Design: The data for this study was taken from a longitudinal investigation of ESI, caring, moral judgment and leadership of physical therapy students as they progress through their professional education program (Larin, Wessel, & Williams, 2009; Larin, Benson, Wessel, Martin, & Ploeg, 2014). In the main study, physical therapy students completed measures of ESI, caring, moral judgment and leadership at **entry** to the program, following their first two clinical placements **(post-clinical)** and at the **end** of their academic program. An additional ESI measure was obtained just prior to their first clinical experience **(pre-clinical)**. Data were obtained from their performance in their first two and

their final clinical affiliations. Figure 1 illustrates the measures and time points of interest in the present study.

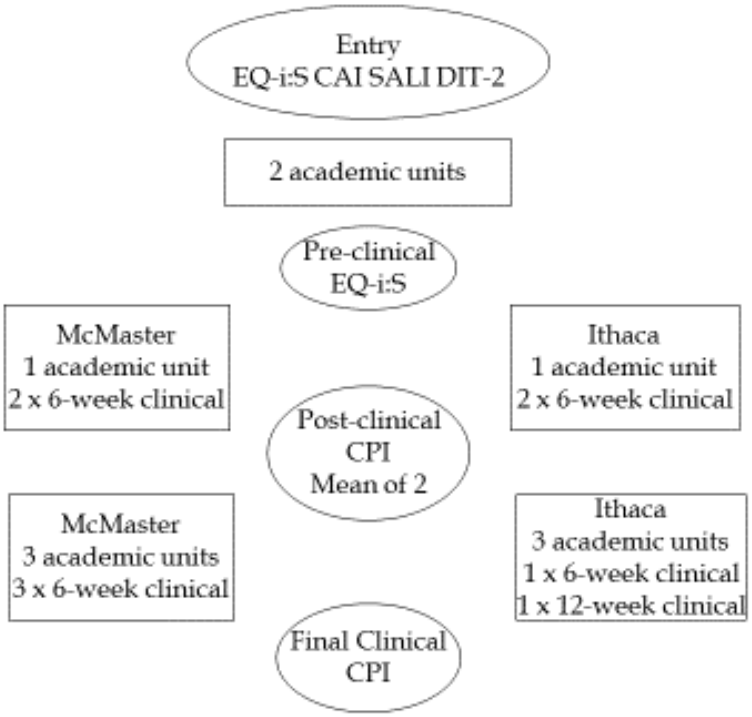

Figure 1: Flow chart showing time points of data collection in the two physical therapist education programs. T1-T4: Time 1 to T4; EQ-i:S: Emotional Quotient Inventory Short; CAI: Caring Ability Inventory; SALI: Self-Assessment Leadership Inventory; DIT-2: Defining Issues Test-2; CPI: Clinical Performance Inventory.

At entry, 60 students (39 from Ithaca College and 21 from McMaster University) volunteered to participate in the study. The groups of students and their characteristics at the beginning of the study are illustrated in Table 1. The project received ethical approval from the ethics review boards of both institutions involved in the study, and all subjects provided written informed consent.

Table 1: Characteristics of Subject Groups at Entry to their Programs.

Program	**N**	**Class Size**	**% of Class**	**Male/Female Subjects**	**Age** Mean (SD)
Ithaca Physical Therapy	39	67	58	7/32	20 (2.1)
McMaster Physical Therapy	21	59	36	1/20	24 (4.0)
Total	60	126	47.6	8/52	21

Educational Programs: The concepts of ESI, caring, moral judgment and leadership are covered to some extent in both physical therapy programs. Within the Ithaca College conventional curriculum, the subject of caring was addressed during the discussion of the professional code of ethics and core values in pre-clinical courses. Students delved into the topic further in a course on psychosocial aspects of patient care, in the semester following their second clinical affiliation. A set of professional behaviors was also outlined for the students at the beginning of their program. Knowledge related to leadership was found in two administration courses. At McMaster University, the subjects of caring, moral judgment and leadership were intricate parts of the case scenarios discussed during the problem-based tutorial sessions and were addressed in a series of seminars on professional issues. Professional behaviors were explored by the students in their tutorials and in the professional issues seminars. The ESI topic, however, was not a primary focus of either program.

Instruments: The four independent variables were measured with self-report instruments: the Bar-On Emotional Quotient Inventory Short (EQ-i:S) (Bar-On, 2002), the Caring Ability Inventory (CAI) (Nkongho, 2003), the Self-Assessment Leadership Instrument (SALI) (Smola, 1988), and the Defining Issues Test (DIT-2) (Bebeau & Thoma, 2003). These instruments are described in detail in a previous publication (Larin et al., 2014).

In summary, the EQ-i:S is a measure of emotional and social intelligent behaviors (Bar-On, 2004; Bar-On, 2006). The instrument comprises 51 items in the form of short sentences that the respondents rate from 1 (very seldom or not true of me) to 5 (very often or true of me). Standard scores, based on a mean of 100 and SD of 15, are reported for a total EQ-i:S and 5 subscales: Intrapersonal, Interpersonal, Stress Management, Adaptability, and General Mood. A higher score indicates greater ESI. Standard scores of 85-115 are considered 'effective functioning', greater than 115 'enhanced skills' and less than 85 'area for enrichment'. The CAI is a questionnaire designed to measure the degree of a person's ability to care for others (Nkongho, 2003). It comprises 3 sub-scales: Knowing (understanding of self and others), Courage (ability to cope with the unknown) and Patience (tolerance and persistence). Respondents rate, on a scale of 1 to 7, how much they agree or disagree with 37 statements (14, 13, 10 respectively per subscale) reflecting their thoughts and feelings about other people in general. After reverse scoring of some items, the subscale scores are calculated by summing the items in each subscale. Higher scores indicate a greater degree of caring. The DIT-2 is a measure of moral judgment (Bebeau, 2002). Persons are presented with moral dilemmas. They must rank, on a 5-point Likert scale, the relative importance of a series of 12 statements in determining the appropriate action. The N2 score was used in the present study. Lastly, the SALI is a measure of leadership characteristics (Smola, 1988). Respondents rate, on a 5-point scale (0 to 4), how frequently they behave in the manner described in each of 40 statements for a possible total range of 0 to 160. A higher total score indicates higher self-assessment of leadership characteristics.

The dependent variable was measured using the first version of the APTA CPI (American Physical Therapy Association, 1997) which was available at the time this study was conducted and used by most programs. This tool comprises 24

performance criteria; each criterion is evaluated on a 100-mm visual analog scale representing the span from novice to entry-level to practice. A total score for each clinical affiliation is the mean of all criteria that are scored. Inter-rater reliability of the total score has been reported as good (intraclass correlation coefficient=0.87), and construct validity supported by various correlations (American Physical Therapy Association, 2002). The CPI scores show significant change as students progress through clinical placements, but tend to plateau (with less variance) during the senior placements (Adams, Glavin, Hutchins, Lee, & Zimmermann, 2008; Proctor, Dal Bello-Haas, McQuarrie, Sheppard, & Scudds, 2010).

Analysis: Previous analyses of our data indicated minimal difference between the scores of the two groups of students (Larin et al., 2009). Therefore, analyses were performed using the total cohort of students. Pearson or Spearman's coefficients were used to examine the correlation of all the variables. If correlations with the CPI were at least 0.2, the variable would be included in a regression equation to predict clinical performance. Regression equations were originally planned as follows:

1) independent variables: EQ-i:S, CAI, SALI, DIT-2 at entry; dependent variable: mean of CPI 1 and 2
2) repeat with dependent variable CPI final
3) independent variable EQ-i:S pre-clinical; dependent variable: mean of CPI 1 and 2
4) repeat with dependent variable CPI final
5) independent variables: EQ-i:S, CAI, SALI, DIT-2 after first 2 clinical experiences; dependent variable: CPI final.

Results

A total of 59/60 students (Ithaca 38, McMaster 21) completed the study from entry to the end of their first two clinical placements. Two additional students dropped out of the Ithaca program before the final clinical placement. The clinical placement of another student was delayed. The means and SD of the variables at all time-points are listed in Table 2 and the correlations in Table 3.

Some analyses were omitted or changed due to the nature of the data and the results of the correlations. The variance of the final CPI scores was small among the students, and therefore, correlations and regressions involving this variable (intended analyses #2, #4, #5) were not performed. Because predictor variables had weak or no correlation with the total score of the CPI, individual performance criteria of the CPI were considered for analyses. It was thought that questions relating to the students' manner of behavior in clinical interactions (rather than technical skills or knowledge) might be better predicted from the non-cognitive variables. The chosen performance criteria concerned professional behavior (#3), ethical practice (#4), appropriate communication (#6), and respect for individual differences (#8). The scores for each criterion were the average of CPI 1 and 2. Only EQ-i:S Total was significantly correlated with these variables (r=0.43, 0.35, 0.35 and 0.38, respectively). No regression analyses were performed because only one independent variable, EQ:i-S Total at entry, was significantly correlated with CPI scores.

Table 2: Scores of emotional social intelligence, leadership, caring, moral judgment and clinical performance.

	Entry to Program n=59		Before Clinical n=59		Average of Placements 1 and 2 n=59		Final Clinical Placement n=56	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
CPI					81.7	10.7	98.8	2.5
EQ-i:S Total	102.6	10.6	100.6	11.9			105.0	12.6
SALI	102.9	16.1						
CAI_K	78.6	5.4						
CAI_C	67.9	8.5						
CAI_P	61.9	4.7						
DIT-2 N2	45.1	12.8						

CPI: Clinical Performance Instrument
EQ-i:S: Bar-On Emotional Quotient Inventory Short
SALI: Self-Assessment Leadership Inventory
CAI_K: Caring Ability Inventory Knowledge subscale
CAI_C: Caring Ability Inventory Courage subscale
CAI_P: Caring Ability Inventory Patience subscale
DIT-2 N2: N2 score from the Defining Issues Test

Table 3: Correlation of scores of emotional social intelligence (ESI), caring, moral judgment and leadership at entry to the physical therapist education program and (ESI) immediately before first clinical placement with average of scores of first two clinical placements (CPI 1 and 2).

	Average of CPI 1 and 2 n=59	EQ-i:S Total (entry)	SALI	CAI_K	CAI_C	CAI_P
EQ-i:S Total (entry)	.25*					
EQ-i:S Total (pre-clinical)	.14	.78				
SALI	-.05	.35*				
CAI_K	.05	.50*	.36*			
CAI_C	.06	.63*	.36*	.39*		
CAI_P	-.07	-.03	.07	-.02	-.16	
DIT-2 N2	-.04	-.01	-.02	-.02	.21	-.03

CPI: Clinical Performance Instrument
EQ-i:S: Bar-On Emotional Quotient Inventory Short
SALI: Self-Assessment Leadership Inventory
CAI_K: Caring Ability Inventory Knowledge subscale
CAI_C: Caring Ability Inventory Courage subscale
CAI_P: Caring Ability Inventory Patience subscale
DIT-2 N2: N2 score from the Defining Issues Test
*correlations significant at $p<0.05$

Discussion

This study was the first longitudinal examination of the ability of a group of non-cognitive variables (ESI, caring, moral judgment and leadership) to predict the clinical performance of physical therapy students. The variables were not found to be strong predictors. Only one independent variable, EQ:i-S Total at entry, was significantly correlated with the CPI scores (total and selected performance criteria) from the first two clinical affiliations. However, these correlations were weak.

Similarly to Lewis (2010; 2011) we found little change in ESI over the course of the physical therapist education programs and a low correlation between ESI and the total CPI score. Although the correlation between ESI and CPI was significant at the $p<0.05$ level, ESI accounted for less than 7% of the variance in CPI. Our study included additional non-cognitive variables (caring, moral judgment and leadership), but these variables failed to predict clinical performance. In spite of differences in the ESI measurement tool and the timing of the measurements, our study and Lewis' study had similar results.

Some properties of the CPI contributed to the results obtained in the present study. As indicated in the Results section, we were unable to use the final CPI scores because of low variance. Even the average score of the first two clinical placements was high (81.7 out of a possible 100), suggesting that the clinical educators used only a small range of the scales. The 1997 version of the CPI (American Physical Therapy Association, 1997) was the most recognized and

utilized clinical assessment tool at the time of this study. Roach et al. (2012) summarized several problems that could account for the low variance in scores. These include: a lower completion rate for certain performance criteria and difficulty discriminating performance on the visual analog scale. In addition, clinical therapists likely evaluated students against the expected performance for the clinical level of the student rather than against expected performance at entry to the profession.

The latest version of the CPI has attempted to address these issues (American Physical Therapy Association, 2008). This version could not be used in the present study because it was introduced after the completion of data collection. Changes to the CPI included combining criteria, modifying wording, providing additional examples of behavior for rating, and placing more anchors along the visual analogue scale. Perhaps higher correlations will be found between predictor variables and the revised CPI.

The outcomes of this study reinforce the point that ESI, caring, moral judgment and leadership remain attributes that are not well understood, are difficult to measure, and have yet to be found predictive of clinical performance. The delivery method of the two physical therapist educational programs (problem-based and conventional) did not differentiate students' outcomes. The ideal approach to maximize the desired non-cognitive attributes has yet to be established. Would students in entry-level doctoral programs produce different results from students in entry-level master's programs? Rigorous research of non-cognitive attributes of physical therapy students remains scarce, although educators continue to underline the value of these variables. Current measures of these characteristics do not detect significant changes nor predict clinical performance. Development of more sensitive tools should be considered. Investigators also need to pursue the scholarship of teaching, and study the impact of psychosocial courses on clinical practice.

The clinical educators' role in determining the level of performance of physical therapy students remains invaluable. While the profession has offered training in the use of the CPI, only a small percentage of therapists have participated. Clinical educators need training to ensure a standardized, valid and reliable method of clinical evaluation. More low-cost training and use of media such as webinars should be considered.

Limitations

The selection process of physical therapist education programs might contribute to the high scores (and low variance) obtained on the CPI and the independent variables. The programs may attract students that already have well-developed non-cognitive and cognitive skills. Furthermore, all participants were volunteers who may have had a special interest in the concepts evaluated in this study. One additional factor was the self-report nature of the tools used for the independent variables. Use of performance measures of these variables might have resulted in different outcomes. However, Lewis (2011) had similar correlations between ESI and CPI using an ability-based ESI measure.

It is possible that the measures of caring, moral judgment and leadership changed from entry to pre-clinical as a result of the physical therapist education programs. If so, students with low scores at entry may have improved prior to their first two clinical affiliations, thus minimizing any potential correlation with CPI. These constructs were not measured immediately prior to the first two clinical affiliations. However, as reported previously (Larin et al., 2011; Larin et al., 2014), there were no substantial changes in these variables later in the programs.

Conclusion

The present study examined the combined effect of four non-cognitive variables as potential predictors of clinical performance of physical therapy students. ESI was significantly correlated to clinical competence, but the non-cognitive measures of ESI, caring, moral judgment and leadership could not adequately predict the clinical performance of physical therapy students. Further studies are needed to deepen our knowledge of non-cognitive variables that forecast the ability of the physical therapist to provide high quality patient care.

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