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RESEARCH REPORT



Development of emotional intelligence and assertiveness in physiotherapy students and effects of clinical placements

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ABSTRACT

Background: Emotional intelligence (EI) and assertiveness are key abilities for physiotherapists. Clinical placements seem to affect students' development of EI and assertiveness, and their construction of the professional role.

Purpose: This study aims to compare the EI of physiotherapy students with students from other health professions and explore the evolution of EI and assertiveness in physiotherapy students throughout their university education, focusing on the influence of clinical practice.

Method: Students (N = 753) completed a self-administered questionnaire to measure emotional intelligence (TMMS 24), assertiveness (CSES), and sociodemographic variables.

Results: EI levels were adequate and very similar across the three disciplines. Regarding assertiveness, physiotherapy students in year 4 obtained significantly higher levels than students in years 1, 2, and 3. Significant correlations ($r_s(207) = 0.35, p < .001$) were found between assertiveness and the number of modules of clinical practice.

Conclusion: This study contributes with further evidence on the improvement of assertiveness in physiotherapy students through their university education and, in particular, with clinical placements. Practical implications highlight the importance of training in EI and assertiveness during university, coupled with clinical placements, in order to prepare for an effective and satisfactory professional life.

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Emotional intelligence; assertiveness; students; physiotherapy; clinical clerkship; education

Introduction

Emotional intelligence (EI) is “the ability to monitor one’s own and others’ feelings and emotions, to discriminate among them and to use this information to guide one’s thinking and actions” (p. 189) (Salovey and Mayer, 1990). EI is a critical skill for health professionals in general, and for physiotherapists in particular, where the ability to communicate with patients and adequately understand one’s own emotions is of paramount importance (Culha and Acaroglu, 2019; Ghajarzadeh and Mohammadifar, 2013). Emotional intelligence has shown positive impacts in patient care, teamwork, stress management, and patient and professional satisfaction (Gordillo, López, Mestas, and Corbi, 2014; Gribble, Ladyshevsky, and Parsons, 2017; Polonio-López et al., 2019; Webb, and Shakespeare, 2000). In this sense, emotional responses to others and to context, as well as compassion and responsiveness to patients’ emotions, may affect clinical decision making (Kozłowski et al., 2017; Langridge, Roberts, and Pope, 2016). Further, physiotherapists’ abilities related to supportive communication, mutual inquiry, negotiation, and

problem solving may enhance patients’ empowerment, persistence, and motivation, thereby increasing adherence to rehabilitation programs or health recommendations (Hamson-Utley, Martin, and Walters, 2008; Lonsdale et al., 2012). Patient-centered physiotherapy requires professionals to have good EI, social skills, and confidence and to show specific knowledge; these characteristics help physiotherapists support and empower patients throughout their course of treatment (Wijma et al., 2017).

EI may be essential to ensure the implementation of the professional role (Stevenson, Ryan, and Masterson, 2011). In this regard, EI abilities such as empathy, honesty, and caring are emerging as professional values in health professions (Aguilar, Stupans, Scutter, and King, 2013). EI dimensions have shown to be predictors of high self-esteem, job satisfaction, and burnout reduction (Lo, Curtis, Keating, and Bearman, 2017; Pérez-Fuentes, Molero, and Gázquez, 2019). In addition, experienced physiotherapists report social adjustment and self-management as necessary abilities for novice physiotherapists (Kanada et al., 2016).

Together with EI, assertiveness is considered a key ability for clinical practice by stakeholders such as allied health professional leads, advanced practitioners, managers, chief nurses, lecturers, and clinical specialists (Burke and Harris, 2000). Assertiveness is typically defined “in terms of the honest and legitimate expression of one’s personal opinions, needs, wants, and feelings without denying or violating the rights of the others” (Alberti and Emmons, 2008). Assertive skills have proved to improve leadership and communicative skills and enable more effective management of increasing demands on district nurses, having a great impact on professional performance, building effective team relationships, and providing sufficient nursing care (Green, 2016; Guo et al., 2018; Nau, Dassen, Halfens, and Needham, 2007; Yoshinaga et al., 2018).

In 2000, Gard, A L, and Lundvik Gyllensten (2000) called for a stronger emphasis on emotional intelligence as an ability highly needed in treatment situations in physiotherapy, recognizing that emotions were a topic not frequently studied within physiotherapy. Since then, research on EI with health students has increased considerably, especially with nursing and medical students (Bidyadhar Ojeh et al., 2019; Hurley et al., 2019; Singer-Chang et al., 2020). Further, recent EI research has started including physiotherapy students in samples of health students (Carvalho, Guerrero, and Chambel, 2018). For instance, Ruiz-Aranda, Extremera, and Pineda-Galán (2014) reported positive effects of EI on life satisfaction and happiness in health students in Spain (including physiotherapy, nursing, occupational therapy, and chiropody students), while Carvalho, Guerrero, and Chambel (2018) reported positive effects of EI on wellbeing (burnout and life satisfaction) in health students (including medicine, psychology, and physiotherapy students).

Noteworthy is an interesting longitudinal study on the impact of clinical placements on EI of therapy students (including physiotherapy, speech therapy, and occupational therapy students) (Gribble, Ladyshevsky, and Parsons, 2019). These authors found a significant improvement in total EI and some specific skills over a 16-month period in which practical placements took place. However, they also reported large numbers of students (approx. 20%) who experienced decreases in these skills. Clinical practice seems to have an inconsistent impact on the development of interprofessional and interpersonal skills and the improvement of students’ EI abilities. Some results show a decline in certain EI abilities or assertiveness during clinical placements (Gribble, Ladyshevsky, and Parsons, 2017). In

contrast, other results point toward an increase in emotional attention, emotion regulation, optimism, and self-confidence in occupational therapy, speech therapy, and physiotherapy students (Gribble, Ladyshevsky, and Parsons, 2019; Polonio-López et al., 2019).

Overall, existing research has mainly relied on students from different health professions, and a specific focus on EI in physiotherapy students is still lacking. Therefore, our first aim is to explore the EI and assertiveness of physiotherapy students in comparison with other health students (i.e., nursing and psychology). Our second objective is to explore how EI and assertiveness in physiotherapy students develop throughout the four-year university degree, along with clinical placements.

The study context

The context of this study is a Spanish public university and, more specifically, students in the health sciences (physiotherapy, nursing, and psychology). In this and other Spanish universities, the increasing focus on EI led to a review of health science study programs to facilitate learning of EI abilities (Carvalho, Guerrero, and Chambel, 2018). Competences related to social skills, EI, and assertiveness had been taught throughout the physiotherapy, nursing, and psychology undergraduate programs, but with no specific subject focused on EI contents.

EI modules and content were introduced in the curriculums in the format of 4-hour workshops on EI in order to help students gain confidence and respond to demands previous students had expressed to university tutors in their clinical placement reports. These workshops focused on situations specifically related to the physiotherapy field context, and applied different learning strategies such as EI self/peer-assessment, reflection activities, and modeling of EI behaviors (Foster et al., 2015; González Cabanach, Souto-Gestal, Fernández Cervantes, 2018; Johnson, 2015; Bas-Sarmiento, Fernández-Gutiérrez, Baena-Baños, and Romero-Sánchez, 2017). Nursing and physiotherapy students receive two 4-hour workshops on EI and social skills in year 3. Psychology students receive no EI-specific workshop, although they do receive practical training in social skills and assertiveness in year 1 and 2 in their degree, which is estimated to consist of 4 hours. Regarding fieldwork (see Table 1), psychology students start it in year 4; nursing students have three clinical placements (one in year 2, one in year 3, and one in year 4); while physiotherapy students have three clinical placements (one in year 3, and two in year 4).

Table 1. Academic and sociodemographic characteristics of students divided by health profession.

Physio		Psychology		Nursing		Physiotherapy	
		n=137	CP	n=361	CP	(n=213)	CP
Course	1 st year	35	-	101	-	60	
	2 nd year	-	-		1 st (240 h)	47	
	3 rd year	102	-	260	2 nd (270h)	38	1 st (450 h)
	4 th year		200 h		3 rd (360 h)	68	2 nd (540 h) 3 rd (360 h)
Sex	Males	42		74		90	
	Females	93		286		123-	
	Missing	2		1			
Age in years Mean (SD)		20.58 (6.39)		24.43 (7.52)		23.20 (5.34)	

Notes: CP (clinical placements); h (hours)

Methods

Participants

Students of physiotherapy, nursing, and psychology were recruited from the University of the Balearic Islands (UIB), Spain, through verbal information and an invitation to participate by their lecturers. The three undergraduate programs were selected as they are all included in the field of health disciplines and helping professions. Physiotherapy students in years 1 to 4 were recruited to observe differences of EI and assertiveness across different years of university education. Further, psychology and nursing students were recruited in years 1 and 3. Participants signed informed consent forms to participate in the study and the study protocol was approved by the UIB Ethics committee.

Instruments

Participants completed a set of written questionnaires on perceived EI abilities and assertiveness, and socio-demographic and educational data (e.g., number of clinical placements done). The EI questionnaire was completed by students of the three degrees (physiotherapy, nursing and psychology), whereas the assertiveness questionnaire was completed by physiotherapy students only.

Trait meta-mood scale 24

The Trait Meta Mood Scale-24 (TMMS-24) was developed as a measure of individual differences in the ability to reflect upon and manage one's emotions (Salovey et al., 1995). This self-report questionnaire provides an index on perceived emotional intelligence and three dimensions of EI: 1) Emotional Attention (EA), defined as the ability to perceive and express feelings appropriately; 2) Emotional

Clarity (EC), which corresponds to the understanding of emotional states; and 3) Emotional Repair (ER), which refers to the ability to regulate emotional states correctly, by terminating negative mood states and prolonging positive ones.

The Trait Meta-Mood Scale 24 (Salovey et al., 1995) was used in its Spanish version by Fernández-Berrocal, Extremera-Pacheco, and Ramos (2004). It is composed of 24 items, with a 5-point Likert-type response scale with anchors of 1 (*strongly disagree*) and 5 (*strongly agree*). The responses are aggregated for each dimension (attention, clarity, and repair), and may be compared to normative categories (low, normal, and high) for the Spanish adult population (Fernández-Berrocal, Extremera-Pacheco, and Ramos, 2004).

Previous validations in Spanish (Fernández-Berrocal, Extremera-Pacheco, and Ramos, 2004) showed high reliability (Cronbach's alphas were 0.90 for attention, 0.90 for clarity, and 0.86 for repair) and confirmed the three-factor structure, with good predictive validity. Similar results of reliability and structural validity were obtained in a sample of nursing students in Chile (Espinoza-Venegas, Sanhueza-Alvarado, Ramírez-Elizondo, and Sáez-Carrillo, 2015). The scale is easy to administer, and is the most widely used EI scale in psychological and educational research in both Spain and Latin America (Extremera, and Fernández-Berrocal 2006).

College self expression scale

The College Self Expression Scale (CSES) (Galassi, Delo, Galassi, and Bastien, 1974) was used in its Spanish version (Caballo, 1988). This version has been demonstrated to be valid and reliable (Cronbach alpha of 0.89 and test-retest reliability coefficient of 0.87) (Caballo, 1988). This self-report questionnaire evaluates assertiveness through 50 items, scored with a five-point Likert scale, measuring the quality of the relationships across six factors (I. Expressing annoyance, anger, displeasure;

II. Speaking in class; III. Standing up for consumer rights; IV. Facing problems with parents; V. Expressing positive feelings to opposite sex; VI. Standing up for rights with roommates). The response scale consists of a five-point Likert scale from 0 (*Almost Always or Always*) to 4 (*Never or Rarely*).

Data analysis

First, one-way ANOVAs were conducted to compare EI profiles among undergraduate programs (physiotherapy versus nursing versus psychology), and EI and assertiveness scores among the four year groups in physiotherapy students (year 1 versus year 2 versus year 3 versus year 4). ANOVA results were adjusted by using Bonferroni corrections for post-hoc comparisons (Armstrong, 2014). Second, t-tests were used for comparing year-related differences in EI (year 1 versus year 3), and sex-related differences in EI and assertiveness. Third, in order to analyze the relationship between the number of modules of clinical practice and EI and assertiveness, Spearman correlations were performed (Akoglu, 2018). Significant levels were set at $p < .05$ for all tests.

Results

Seven hundred and fifty-three students of physiotherapy, nursing, and psychology (536 females, and 117 males; mean age = 23.30, SD = 6.86) participated in this study. Table 1 displays the academic and sociodemographic characteristics of the participants. At the time of this study, 13 physiotherapy students in year 4 had completed one period of clinical practice, and 54 students in year 4 had completed two periods of clinical practice. Nursing students in year 3 had completed two periods of clinical practice. Psychology students had completed no periods of clinical practice.

Comparison of EI Profiles among Students of Physiotherapy, Nursing, and Psychology

Average means obtained for the three EI dimensions of the TMMS-24 in the three degrees reflected the normative data (Fernández-Berrocal, Extremera-Pacheco, and Ramos, 2004; Rodríguez-López et al., 2019 (Table 2). Mean comparisons through ANOVA brought to light significant differences in the main factor undergraduate program ($F(2,701) = 3.152, p = .043$), with emotional repair revealing higher scores in physiotherapy students ($M = 28.11, SD = 5.26$) than in psychology students ($M = 26.53, SD = 5.76$) ($p = .04$). T-tests uncovered significant differences in emotional clarity, with higher scores for students in year 3 ($M = 27.09, SD = 5.59$) than in year 1 ($M = 25.64, SD = 5.66$). Regarding gender differences in EI, results showed female nursing students scored significantly higher than male nursing students in emotional attention ($t(356) = -2.289, p = .023$). Our results also found a weak yet significant positive correlation between modules of clinical practice and the three dimensions of EI (attention, clarity, and repair) for nursing students ($r_s(359) = .12, p < .05$).

Development of EI and assertiveness in physiotherapy students

No significant year-related or clinical practice-related mean differences were found in the EI dimensions (Table 3). Assertiveness, measured by the CSES questionnaire for physiotherapy students (Table 3), displayed lower values for both male students ($M = 106.96, SD = 16.03$) and female students ($M = 108.87, SD = 16.88$) than those obtained across Spanish university students in the study by Caballo et al. (2014). Significant year-related differences ($F(3,204) = 14.78, p < .001$) revealed that students in the 4th year (after clinical practice) reported higher scores in assertiveness than students in the previous years (all $p < .01$). Significant positive correlations were observed

Table 2. Emotion intelligence profiles based on scores on the Trail Meta-Mood Scale 24 by health profession and sex.

Physio		Psychology	Nursing	Physiotherapy	Normative
Emotional attention	Males	24.64 (5.55)	25.0 (6.15)*	24.79 (5.31)	Low < 22; Normal 22-32; High > 33
	Range	(12-36)	(11-37)	(11-39)	Low < 25; Normal 25 -35; High > 36
	Females	26.50 (6.37)	26.72(5.60)*	25.47 (5.73)	
	Range	(10-40)	(12-40)	(11-37)	
Emotional clarity	Males	27.93 (5.40)	27.64 (5.68)	26.72 (5.67)	Low < 26; Normal 26-35; High > 35
	Range	(16-39)	(12-39)	(12-40)	Low < 24; Normal 24 -34; High > 35
	Females	26.30 (5.14)	26.52 (6.06)	26.57 (6.27)	
	Range	(16-40)	(13-40)	(15-40)	
Emotional repair	Males	27.38 (4.81)*	28.56 (6.13)	28.78 (5.10)*	Low < 23; Normal 24 - 35; High > 35
	Range	(17-38)	(16-39)	(16-40)	Low < 24; Normal 24 - 34; High > 34
	Females	26.12 (6.14)*	27.54 (6.54)	27.63 (5.33)*	
	Range	(13-39)	(12-40)	(14-40)	

Note: Means (standard deviation). * $p < 0.05$. Bold numbers show the groups with significant differences.

Table 3. Assertiveness and Emotional Intelligence in physiotherapy students by academic year

	Assertiveness	Emotional attention	Emotional clarity	Emotional repair
<i>Normative:</i>	126.46 (21.48)			
1st year (n=60)	105.58 (13.00)	24.67 (5.54)	25.37 (6.11)	27.02 (5.13)
2nd year (n=47)	98.96 (15.21)	24.66 (5.25)	27.95 (5.35)	28.93 (5.41)
3rd year (n=33)	106.63 (12.95)	25.39 (5.15)	27.52 (6.28)	28.94 (3.68)
4th year (n=68)	117.26 (17.45)*	25.91 (5.98)	26.41 (6.10)	28.10 (5.81)

Note: Clinical practice started in the 3rd year. Data expressed in means (standard deviations); * $p < .001$. Bold numbers show the groups with significant differences.

Assertiveness normative Values: For male students ($M = 131$, $SD = 19.61$) and female students ($M = 127.63$, $SD = 21.27$) for university students (Caballo 2014)

between the number of modules of clinical practice and assertiveness ($r_s(207) = 0.35$, $p < .001$). No significant differences were found related to sex.

Discussion

Adequate development of EI skills and assertiveness in students during their university education is relevant to prepare them for professional life and practice. Besides the positive correlation of EI with work performance evidenced in meta-analytical research (van Rooy and Viswesvaran, 2004), the emotionally intelligent worker is more likely to succeed in work life, benefitting not only individual workers, but also their teams, and relationships with patients. Meanwhile, assertiveness is one of the most important skills for health professionals in the workplace, especially to reduce interpersonal stress and burnout, build effective team relationships, provide sufficient care, improve job satisfaction, and increase patient safety (González Cabanach, Souto-Gestal, Fernández Cervantes, and Fernández Cervantes, 2018; Omura, Maguire, Levett-Jones, and Stone, 2017; Yoshinaga et al., 2018). Positive outcomes in physiotherapist-patient interactions have been attributed to assertiveness, negotiation, and critical reflection; skills which help create a collaborative framework with patients (Thomson, 2008).

In this context, our study aim was to explore the profile of EI and assertiveness in physiotherapy students. Our results revealed that physiotherapy students had normal and similar levels of perceived EI scores compared to students in other health disciplines (i.e., nursing and psychology). The only significant difference found was a higher level of emotional repair in physiotherapy students compared to psychology students. EI levels seem to be higher in healthcare students compared to non-healthcare students (Holmes, Driscoll, Murphy, and Starr, 2019; Štiglic et al., 2018). However, it is reasonable that EI profiles are similar among healthcare students, given that they share the vocational caring associated with health professions (Traynor, and Buus, 2016). EI

helps to integrate the professional role and promote understanding of professional competence or professionalism (Culha and Acaroglu, 2019; Kalén et al., 2015; Murphy, Whitehouse, and Parsa, 2020). The introduction of EI in the curriculum of these health professionals is advisable for them to acquire awareness of their own emotional states and as preventive resources of stress and burnout, as well as for the acquisition of self-confidence (Alberti and Emmons, 2008).

A second aim was to explore how EI and assertiveness develop across the four years of the physiotherapy program, and the potential influence of clinical placements. Our results revealed no significant differences in EI levels among students in the four years of the physiotherapy program. Regarding assertiveness, however, physiotherapy students in year 4 obtained significantly higher levels than students in years 1, 2, and 3. The number of clinical practice modules was also significantly and positively correlated with assertiveness. These results show that physiotherapy students' assertiveness increased with the number of modules of clinical practice they undertook. These results are in line with previous research, which determined that EI develops as students progress through their university education (Gribble, 2019), and in parallel with the adoption of professional values (Aguilar, Stupans, Scutter, and King, 2013). Positive correlations have been reported in other studies with physiotherapy students (Gribble, Ladyshewsky, and Parsons, 2017; Larin et al., 2011). Potential reasons for increased assertiveness may be related to good clinical supervision or to improved conflict management acquired through students' interaction with their supervisors, patients, and clinical placement staff (Gribble, Ladyshewsky, and Parsons, 2017; Omura, Maguire, Levett-Jones, and Stone, 2017). In the first years of their studies, students may use avoidance or adaptation strategies to deal with conflicts (Mackintosh, 2006). However, assertive strategies may increase once assertive communication

skills are learnt so that they are able to interact effectively with patients, families, and other health professionals (Deltsidou, 2009).

In this context, a multidimensional intervention should be considered to ensure the development of EI and assertiveness in physiotherapy students. First, teaching assertive skills before clinical practice could provide students with confidence, communication skills, and stress coping strategies with direct application during their clinical placement (Davalos-Batallas, Vargas-Martínez, Bonilla-Sierra, Leon-Larios, Lomas-Campos, Vaca-Gallegos, and de Diego-Cordero, 2020; Hanson et al., 2020; Nau, Dassen, Halfens, and Needham, 2007; Slaughter-Smith, Helms, and Burris, 2012). Teaching assertiveness helps preserve emotional and mental well-being, especially in stressful conditions such as those experienced by students and health professionals. Second, students should apply assertiveness skills during their fieldwork, and tutors should supervise and coach assertive behaviors to make sure students are able to further develop these skills. The combination of workshops on EI and assertiveness and positive and supervised clinical placements seems fruitful in order to develop assertive professionals.

Limitations

The questionnaires used in the study are self-report, thus our results are based on perceived EI and not strictly on EI ability. However, perceived EI and assertiveness guide students in assessing their abilities and social competence to identify areas for improvement which may be developed through training. Second, our data are cross-sectional, wherefore longitudinal studies to monitor the development of EI and assertiveness throughout the 4-year program would be worth future research.

Conclusion

Previous research has highlighted the relevance of developing EI and assertiveness during university education to prepare for an effective and satisfactory professional life. Perceived EI was found to be similar in students of the three health professions (i.e., physiotherapy, nursing, and psychology), and seemed to develop in a similar way over the years. Assertiveness was higher in physiotherapy students in year 4 compared to students in years 1–3, coinciding with clinical placements. Training in EI and assertiveness at university coupled with clinical placements seem to have a positive influence on assertiveness in physiotherapy students, an essential skill for professional practice.

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No potential conflict of interest was reported by the author(s).

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