Acta Biomed for Health Professions 2019; Vol. 90, S. 4: 32-43 DOI: 10.23750/abm.v90i4-S.8273

Emotional intelligence, empathy and alexithymia: a cross-sectional survey on emotional competence in a group of nursing students

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Abstract. *Background:* Emotional intelligence (EI) is the ability to recognize and manage one's own and others' emotions, empathy is the ability to understand how others feel, whereas alexithymia represents the difficulty in feeling and verbally expressing emotions. Emotional competences are important requirements for positive outcomes in nursing profession. *The aim of the study:* To analyze EI, empathy and alexithymia in nursing students. *Methods:* We conducted a cross-sectional survey in a sample of 237 students (53 males, 184 females), attending both the 1st and 3rd year of the University Nursing Course in Modena. We administered three Italian validated scales: Schutte Self-Report Emotional Intelligence Test (SSEIT), Jefferson Scale of Empathy - Health Professions Student (JSE-HPS), Toronto Alexithymia Scale (TAS-20). Data were statistically analyzed. *Results:* Statistically significant differences were found between the 1st and 3rd year students at SSEIT (t=-0.6, p=0.52), JSE-HPS (t=-3.2, p=0.0016) and TAS-20 scores (t=-3.54, p=0.0005). Among 3rd year students, females obtained significantly different scores from those of males at SSEIT (t=2.8, p=0.006). All three scales reported a Cronbach's alpha >0.80. SSEIT correlated positively with JSE-HPS (Spearman's rho=0.15, p=0.02) and negatively with TAS-20 (Spearman's rho=-0.18, p=0.006). *Conclusions:* Our study highlighted a good level of emotional skills among students at the beginning of nursing training, further increased by the last year of the course, suggesting that emotional competences can be learned, and confirmed that empathy, but not alexithymia, is a dimension of EI. (www.actabiomedica.it)

Key words: emotional intelligence, empathy, alexithymia, nursing students

Introduction

Emotions and Emotional Intelligence

A scientific model of emotional brain has been hypothesized in recent years. The term "Emotional Intelligence" (EI) was introduced in 1990 by Peter Salovey and John D. Mayer who defined EI as "*ability to monitor the emotions, the feelings of one's own and others, to discriminate between them and use this information to guide our thinking and actions*" (1). The same authors, years later, proposed a new more exhaustive definition: "*Emotional Intelligence implies the ability to accurately perceive, evaluate and express emotions: the ability to generate and/or access to feelings when they facilitate thought; the ability to understand emotions and emotional knowledge; and the ability to manage emotions to promote emotional and intellectual growth*" (2). Before them, in the 1980s, another author, Reuven Bar-On, an Israeli psychologist, had interpreted EI as "a set of faculties, skills

and non-cognitive abilities that influence one's ability to be able to cope with environmental demands and pressures" (3, 4) and had developed an evaluation scale, the "Emotional Quotient Inventory (EQ-I)". Another author, Howard Gardner, had criticized the concept of Intelligence Quotient (IQ) in the 1983 book "*Formae mentis*" and successively hypothesized the multiplicity of intelligences constantly evolving. The author himself observed that the core of interpersonal intelligence includes the "ability to distinguish and respond appropriately to moods, temperament, motivations and wishes of others" (5).

In his fundamental definition of EI, the psychologist Salovey described five EI main areas: 1) self-awareness of emotions, 2) control of emotions, 3) motivation, 4) ability to dominate emotions to achieve a goal, 5) recognition of the others' emotions ("*art of relationships consists in the ability to dominate the emotions of others*") (6).

The theme of EI was again dealt with in 1995 by Daniel Goleman (7) in the book "Emotional Intelligence", in which he defined the term emotion in relation to feelings and thoughts characterized by psychological and biological conditions and distinguished eight fundamental emotions: anger, sadness, fear, joy, love, surprise, disgust and shame. Daniel Goleman took up Gardner's theory of multiple intelligences, according to which the old concepts related to IQ only included a narrow range of linguistic and mathematical skills: "the analysis of IQ explains very little of the diverse fate of individuals with similar talents, instructions and opportunities". In accordance with Goleman, emotional competence is a learned ability, based on emotional intelligence, which represents how much of our emotional potential we managed to turn into real skills ready to be used in the workplace (7). Goleman always described fundamental skills to acquire emotional competence as emotional awareness: recognition of emotions and their effects. Another aspect of emotional competence is motivation, which identifies opportunities and guides behavior towards the goal (8). The most recent model of EI is represented by the so-called "tract of Emotional Intelligence", formulated by Petrides in 2007 (9), which provided a comprehensive operationalization model of emotion-related self-perceptions and dispositions. This can be considered a second-generation model which includes many features of previous models. According to theory, authors formulated a tool (validated in Italian) represented by the Trait Emotional Intelligence Questionnaire TEIQue (9). The EI concept is significant for people's well-being. It's positively related to the degree of personal satisfaction, optimism and quality of social relationships, especially in the workplace (10). Individuals with well-developed emotional skills are also more likely to be satisfied and efficient at work, being able to fuel productivity, while those who fail to exercise some control over their emotional lives fight internal battles that end up sabotaging their ability to work and think clearly (11). The highest EI levels, according to Mayer et al. (2008), correlate with better social relationships in childhood-adolescence and minor social deviance; success in adult interpersonal relationships, characterized by less violence, extroversion, relational adaptation and mediation skills; better family adaptation; better results in academic and work fields, with reduced levels of burn-out and abandonment; greater subjective well-being, self-confidence and lower frequency of depression (12). The ability to perceive, manage and effectively recognize one's own emotions and those of others must be a prerequisite and essential condition for anyone working in healthcare (13). Several studies have positively associated EI with the performance of single professionals and whole teams (14) as well as job satisfaction, represented by feelings of self-fulfilment, happiness and well-being (15). Satisfaction with one's own work normally increases self-esteem and commitment, while reducing the abandonment of work (16). Emotional intelligence is well-conceptualized, measurable and an important requirement for nursing profession and, in accordance with some authors, could therefore be assessed as a selection criterion (17).

Empathy

Empathy is commonly described as the feeling of a person imagining himself in another's situation, "putting himself in the other's shoes". It represents the skill to understand how others feel and what it means, and to communicate these emotions to others. However, empathy is an ambiguous concept and there is no consensus on its definition. Some researchers describe

empathy as a cognitive ability, which consists mainly in understanding others' thoughts, intentions and motivations; others describe this concept as an emotional aspect that involves the capacity of feeling and suffering what another person feels and suffers, sharing emotions. There is a third point of view that evaluates empathy both as an affective and cognitive attribute, describing it in multifactorial terms (18-21). Since the 1980s, cognitive and emotional aspects are coming together in a more holistic vision, in which one of the core ideas is that the empathic person not only understands, but shares and participates in the emotional state of the other. A "general" empathy can be defined as a relational process that involves different dimensions, such as cognitive, behavioral, affective and moral ones (22-24). All 4 dimensions of empathy can work together for patients' benefits (25). In recent decades, the phenomenon of empathy has received much attention in the field of neuroscience, which provided new theoretical models of empathy and substantially influenced its psychological construct. One of the most reliable hypotheses on the origin of empathy involves the theory of *mirror neurons*, located in an area of the human brain that includes the motor area of Broca, which responds selectively to an action observed in others. This does not happen only for motor activities but also for emotions: these neural networks would automatically activate when we see someone experiencing an emotion and they would allow us to experience these emotions as if they were ours (26). In clinical context, the cognitive component of empathy includes the ability of the practitioner to understand the patient's perspective and select counseling and treatment accordingly, while the affective component is commonly understood as empathic concern or understanding, which includes the ability to recognize affection and respond to the patient with appropriate emotion (27). Clinical empathy is a key communicative skill that is part of patient-centred care more focused on the patient rather than on illness (28). Empathy is a central aspect of healthcare and has been associated with positive outcomes not only for the patient (29-31), but also for health worker well-being (32, 33). Empathy is associated with better patient satisfaction and compliance with the recommended treatment (34). Some authors divide empathic competence into empathic skills in the strict sense, such as communication ability, and relation skills based on mutual trust. The ability to verbally and non-verbally communicate is used to control, clarify, support, understand, reconstruct and reflect on the perception of the patient's thoughts and feelings, while the ability to build a long-term trust relationship represents the therapist's interest in the patient's life stories and can only be established through an interactive reciprocal empathic relationship (35). Higher levels of empathy in health care workers have been linked to the improvement of patient care (36), greater patient satisfaction (37) and shorter periods of illness (31,38). Empathy is the foundation for understanding patients' needs, concerns and emotions and it's critical to nursing practice (35). Many researchers highlight that empathy is the most important ingredient in helping relationships (39-42) in order to create a climate of trust, to facilitate positive patient outcomes, to reduce physiological discomfort, to improve self-awareness, etc. (36, 43, 44).

The role of empathy in nursing course and professional practice is debated (45). Western modern health care theory is focused on evidence-based technology, resulting in empathy being largely ignored in scientific activities (46). The emphasis is often on teaching students to be technically competent rather than emotionally capable, fostering general knowledge over interpersonal competence (47).

Alexithymia

Alongside the concepts of EI and empathy the dimension of alexithymia, a phenomenon analyzed by psychoanalysts, is quite remarkable. Alexithymia is the inability to empathize and relate to others. The term alexithymia (from the Greek *a* = lack, lexis = word, *thymos* = emotion), coined by Sifneos (1973) (48) to describe the personality of patients suffering from psychosomatic illness, literally means "emotion without speech" or "lack of words for emotions", indicating the difficulty of verbally expressing emotions, associated with a limited symbolization capacity and a flat, colorless communication style. Other authors defined alexithymia as "a cognitive and an affective deficit in the way that some individuals recognize and communicate emotional states" (49, 50). The alexithymic per-

sonalities manifest a style of thought tending towards passivity, dependence and imitation, with an evident difficulty in verbal expression and recognition of emotions (51). Alexithymia is not a categorical phenomenon, but a dimensional construct or personality trait: some subjects present alexithymic brain functioning areas and/or alexithymic behavior exclusively related to specific contents, emotions and situations. In alexithymic subjects, the difficulty in emotion mentalization emerges clearly, leading them to regulate emotions through impulsive acts or compulsive behavior, showing poor abilities to experience positive emotions such as joy, happiness or love. A functional impairment in the process of cognitive handling of emotions also has important consequences in interpersonal skills. The alexithymics are unable to empathize with others and this inability leads them to social isolation or, in alternative, to develop highly dependent and interchangeable relationships. Taylor et al. (52) developed a tool to evaluate alexithymia, the Toronto Alexithymia Scale with 20 items (TAS-20), that evaluates three dimensions:

1) difficulty in identifying emotions, distinguishing between feelings;
2) difficulty in describing feelings;
3) externally oriented thinking (operative thought).

The reliability and validity of this scale was confirmed in a large sample of the general population (53). This scale allows researchers to investigate alexithymia as a psychological dimension which fits into more modern neurophysiology paradigms and interpersonal relationships regardless of the psychosomatic medicine paradigm, a deficit theory for classical psychosomatic diseases (the "holy seven"). Some studies highlighted that alexithymia was predictor for health anxiety (54) and could be an independent predisposing factor for burnout (55). In accordance with a recent study, alexithymia positively correlated with depression, anxiety, stress, female gender, and negatively with life satisfaction in a sample of University students (56).

Emotional competence in nursing students

Nursing students with high EI index are able to better understand the patient's perspective, and are also more likely to have a high level of empathy (57). A study developed by Sidney University investigated the association between EI, learning strategies (such as helping relationship and development of critical thinking) and their influence on university performance in a sample of nursing students during the first year of Nursing Course. To evaluate EI, the TEIQue was used. The training lasted six months, at the end of which the results demonstrated a statistically significant correlation between EI and development of critical thinking as well as between EI and therapeutic relationships. Results showed that greater emotional intelligence can lead students to pursue their interests more vigorously and EI can be an explanatory factor for better results in academic performance (58). A similar study was conducted in a sample of nurses in the United States, who attended a six-week psycho-education course aimed at developing communicative and empathic skills. The result showed that communication aspects as well as the empathy scale scores significantly increased after the training course (59). A Chinese study examined the association between emotional intelligence and communication skills among nursing students (60). The results of this study showed that EI was positively related to clinical communication skills and that resilience significantly influenced the relationship between these two abilities (60). Moreover, they indicated that the relationships between EI and clinical communication skills differed among participants with different levels of resilience: high resilience was associated with higher EI and good communication skills, low resilience with lower EI index and communication skills (60). Some authors found that social skills and emotional intelligence are indicators positively related to psychological well-being (61). A meta-analysis reviewed 31 articles from a total 395 studies on EI in approximately 65,300 participants: all studies showed that emotional competence, critical thinking skills, abilities and nursing traits are enhanced by EI in nursing course (62). Further studies correlated high EI with nurse mental health (63) and professional satisfaction increase (64). Moreover, high levels of EI also emerged as a significant predictor for nursing leadership and contributed to improving educational and organizational outcomes in health care (65). However, EI is minimally considered in healthcare training programs (66), although it is known that low levels of emotional skills can fre-

quently be associated with ineffective stress management and academic performance failure (67). Studies conducted among nurses and nursing students revealed that EI minimized the negative consequences of stress. Moreover, under stress, nursing students with high EI adopted positive coping strategies and more frequently received support from colleagues, friends and family (68). A study explored the relationship between EI and coping strategies, perceived stress, wellbeing and academic performance in a sample of UK nursing students (69). The results showed a positive correlation between EI and well-being perceived by students as well as a positive correlation between EI and academic performance (69). Data suggested that high levels of EI help nursing students to adopt active and effective coping strategies when dealing with stress, increasing their subjective well-being (69).

Another study assessed EI during the 4-year nursing course in 100 female nursing students, 25 in each of the four years (the researchers opted to evaluate only female subjects, since the sample of male students was too small to be evaluated) (70). Students completed the BarOn Emotional Quotient Inventory Short (EQ-I: S), a 51-item self-report questionnaire that includes scores for a total EQ and five sub-scales. The total score, the interpersonal structure and the stress management sub-scale scores obtained by fourth-year students were statistically significantly higher than first-year student scores, suggesting that emotional skills can develop over the nursing course progression (70). Other studies found that EI was positively correlated with nursing student clinical performance and low level of EI was a predictor for failings in patient care, in particular in reduced empathic compassion and understanding (71,72). Recent research put in evidence that EI is high in nursing students, especially in females if compared with males (73). Another study reports that empathy declined with age and career, but could be protective against burnout, which, in turn, reduced empathy (74).

Purpose

To assess emotional intelligence, empathy and alexithymia in first and third year nursing students, in order to verify the possible development and/or strengthening of emotional skills during the University Course.

Materials and methods

The study design

This was a cross-sectional survey implemented in the Nursing Course of Modena (Modena and Reggio Emilia University). On the same day and time, in classrooms after lessons, three tests focused on emotional competence were administered to 1st and 3rd year nursing students.

The sample

The sample consisted of the 1st and 3rd year nursing students who agreed to participate in this study and completed all 3 scales. In particular, 237 students participated, 130 from the first and 107 from the third year, of which 184 were females and 53 were males.

The selected variables

Only age, sex and high school orientation were collected from students, who anonymously completed the scale questionnaires in about one hour.

The scales

We selected three scales already validated in Italian for easily and rapidly evaluating emotional intelligence, empathy and alexithymia, respectively:

1. Schutte Self-Report Emotional Intelligence Test (SSEIT): a test for emotional intelligence composed of 33 items, developed by Schutte et al. (75) and validated in Italian (76). The items cover three aspects of emotional intelligence, such as assessment and expression, regulation and manipulation of emotions. The mean SSEIT score evaluated in many large samples is about 124, with a standard deviation of about 13. So scores below 111 or above 137 are unusually low or high. Studies of validation found Cronbach's alpha coefficients ranged between 0.73 and 0.92.
2. Toronto Alexithymia Scale (TAS-20) (77): a test composed of 20 Likert scale items with a score ranged between 1 and 5, already validated

in Italian (78). Some items (4, 5, 10, 18) have inverted score, with a range between 20 and 100. The alpha coefficient of Cronbach is equal to 0.81 in the validation studies. The score cut-off is as follows: ≥61 = positive alexithymia, 50-60 = borderline alexithymia, <50 = negative alexithymia. TAS analyzes the difficulty of identifying feelings, verbally describing them and the tendency to minimize emotional experience and focus attention externally.

3. Jefferson Scale of Empathy-Health Professions Student Version (JSE-HPS) was elaborated from the two other versions to make it more appropriate for different health professionals (doctors and all other health professions, medical students, health professions excluding medical students) (79). Cronbach's alpha coefficient is 0.81. This scale analyzes three factors: "Perspective taking", "Compassion care" and "Standing in the patients' shoes". In a recent review (80), the authors highlighted the following cut-offs, different for gender: men with high scores ≥127 and low ≤95, women with high scores ≥129 and low ≤100. The total score ranges from a minimum of 20 to a maximum of 140: higher scores denote higher levels of empathy. The JSE-HPS was validated in Italian (81).

The three scales were administered to students attending the first and third year of the nursing course to assess their psychological dimensions during the nursing training.

Statistical analysis

Descriptive statistics were applied to analyze continuous variables (mean and standard deviations, *t*-tests) and categorical variables (percentages and Chi2). The scales scores were correlated to each other with Spearman test. The correlations between each score of the scales (dependent variable) and the independent variables (age, gender, high school orientation) were also made applying the multiple linear regression model. Cronbach's alpha was also evaluated for the three administered scales.

Results

Our sample consisted of 237 students (53 males and 184 females): 130 attending the first year and 107 the third year of the Nursing Course. As shown in Table 1, we found no statistically significant difference in age between males and females, either in 1st year or in 3rd year nursing students. We found a statistically significant gender difference in the orientation of high schools they attended (Pearson chi2 = 24.43, p = 0.002): males had completed high schools scientifically and/or technically oriented whereas females had attended high schools with pedagogical or linguistic orientation (Table 1).

Table 1. Sample variables

Variables	1st year Students n=130		3rd year Students n=107		Total sample n=237
	Males n=26 (20%)	Females n=104 (80%)	Males n=27 (25%)	Females n=80 (75%)	
Age (m±SD) years	20.54±4.19	19.65±1.87	21.96±1.43	21.92±2.05	20.78±2.49
High School (orientation), n (%)					
Humanistic	1 (0%)	8 (3%)	0 (0%)	5 (2%)	14 (6%)
Scientific	18 (8%)	49 (21%)	18 (8%)	32 (14%)	117 (49%)
Artistic	0 (0%)	3 (1%)	0 (0%)	1 (0%)	4 (2%)
Linguistic	1 (0%)	15 (6%)	1 (0%)	19 (8%)	36 (15%)
Pedagogy	0 (0%)	15 (6%)	0 (0%)	8 (3%)	23 (10%)
Tecnical	6 (3%)	14 (6%)	8 (3%)	15 (6%)	43 (18%)

We found the following differences between the 1st-year and 3rd-year nursing student scale scores (Table 2):

- SSEIT: 1st year students 119.84 ± 11.92 SD, 3rd year students 120.89 ± 13.68 SD (t = -0.6, p = 0.5251, t-test);
- TAS-20: 1st year students 55.15 ± 7.91 SD, 3rd year students 59.20± 9.68 SD (t = -3.54, p = 0.0005, t-test);
- JSE-HPS: 1st year students 82.81 ± 0.86 SD, 3rd year students 86.72 ± 0.84 SD (t = -3.2, p = 0.0016, t-test).

As shown in Table 3, we highlighted a statistically significant gender difference only at SSEIT: the 3rd-year female students (122.99 ± 11.57) obtained higher scores than 3rd year male students (114.7 ± 17.4) (t = 2.8, p = 0.006, t-test).

Each of the three scales reported the Cronbach alpha coefficient greater than 0.8 (Table 4).

Table 4. Cronbach alpha coefficients

Scales	Cronbach alpha coefficient
SSEIT	0.8708
TAS-20	0.8167
JSE-HPS	0.8659

Table 5. SSEIT correlation with the other two scales

Scale	TAS-20	JSE-HPS
SSEIT	Spearman's rho= -0.18 p = 0.006	Spearman's rho= 0.15 p = 0.02

At the correlation Spearman test (Table 5), we highlighted that the SSEIT score:

- positively correlated with the JSE-HPS score (Spearman's rho = 0.15, p = 0.02),
- negatively correlated with the TAS score (Spearman's rho = -0.18, p = 0.006).

Table 2. Scale scores obtained by 1st year and 3rd year nursing Students

Scales	1st year nursing Students	3rd year nursing Students	Statistical Test Probability
SSEIT Score (m±SD)	119.84 ± 11.92	120.89 ± 13.68	t = -0.6, p = 0.5251 t-test
TAS-20 Score (m±SD)	55.15 ± 7.91	59.20± 9.68	t = -3.54, p = 0.0005 t-test
JSE-HPS Score (m±SD)	82.81 ± 0.86	86.72 ± 0.84	t = -3.2, p = 0.0016 t-test

Table 3. Scale scores in 1st and 3rd year nursing students divided by gender

Scales	1st year Students n=130		Statistical Test Probability	3rd year Students n=107		Statistical Test Probability
	Males n=26 (20%)	Females n=104 (80%)		Males n=27 (25%)	Females n=80 (75%)	
SSEIT Score (m±SD)	120.31±11.36	119.72±12.1	NS*	114.7±17.4	122.99±11.57	t=2.8, p=0.006
TAS-20 Score (m±SD)	55.96±8.02	54.95±7.92	NS*	58.7±11.56	50.37±9.04	NS*
JSE-HPS Score (m±SD)	83.23±7.14	82.7±10.47	NS*	85.88±11.15	87±7.78	NS*

NS= Not statistically significant

We did not highlight any statistically significant correlation between the selected variables and the three scale scores at our multiple linear regression model.

Discussion

The analysis of emotional intelligence, empathy and alexithymia in nursing students of the first and third year of the Nursing Course at the University of Modena and Reggio Emilia showed good level of emotional skills already at the first year

In all the students of our sample, we obtained SSEIT scores included in the mean values indicated by the authors of the scale (82). The EI scores shown by our students were higher than those of the students who attended the first year of the University nursing and engineering course in Slovenia, recently evaluated through the SSEIT (73). The average TAS-20 score obtained in our sample of students showed a limit value, significantly increased among third year students. Similarly, at the JSE-HPS our students obtained average values, ranged from 20 to 140 (36), which instead increased in the third year students.

We did not find any correlation between the orientation of high schools previously attended by students and their level of emotional skills, but we observed a significant gender difference in high school diplomas, which could indicate females' greater interest in social and humanist sciences, probably due to an empathic attitude, mirroring a general trend in the choice of high schools in males and females (83). We highlighted another gender difference: females presented statistically significantly higher scores at the scale of EI (SSEIT) than male students at the third year of the Nursing Course. This result is in line with most studies which highlighted that the level of emotional competence is higher in female nursing students (84,85) and increases over the course (86). Moreover, it allows us to hypothesize that female students presented higher capacity for learning emotional competences, since, at the end of course, they demonstrated the acquisition of greater ability to express, control and use their emotions compared to their male colleagues. Nevertheless, the female gender difference concerning the greater propensity for human relationships highlighted in our study, should be further analyzed in order to investigate if it is genetically or culturally determined.

The empathy scale did not show any gender difference among either the 1st or 3rd year students but highlighted a significant increase in the 3rd year student scores, indicating the increased empathic ability acquired by all students by the end of nursing school. The increased score at the empathy scale (JSE-HPS) suggests an improvement in the students' ability to get in touch with the patient, "putting himself/herself in the patient's shoes" to better understand his/her needs and requests (87). Moreover, this result indicates that both male and female students had developed this competence through the nursing teaching focused on empathy as essential attitude for good quality of care, which fostered the acquisition of a greater capacity to "feel" patients and get in touch with their needs (88). In this regard, it should be emphasized that, although there was no specific training for emotional competence in the Nursing Course, students have had the possibility to refine their emotional skills with the sole aid of nursing trainers and teachers. Therefore, we can deduce that the nursing course itself fosters students to develop their emotional and empathic abilities to establish a helping therapeutic relationship with the patient, as observed by other studies (80). We can further notice that contact with the patient's sufferance could contribute to developing and refining emotional and empathetic skills in students. Nevertheless, we have to put in evidence that we obtained statistically significantly higher score at the scale for evaluating alexithymia (TAS-20) in the 3rd year students, indicating the concomitant increase of this dimension at the last year of nursing training. This result could highlight that nursing students without a proper training on the management of emotional care burden had developed a withdrawal from their emotions (a sort of alexithymic style) as an implicit coping strategy. Further studies, which longitudinally assess the emotional competences in larger samples of nursing students, can better highlight this issue.

We can further notice that contact with the patient's sufferance could contribute to developing and refining emotional and empathetic skills in students. In any case, we highlight that our students became more empathic and more competent in emotional capacities as the nursing course progresses, confirming that, as

Goleman claimed and as evidenced by literature (58, 62, 89), these skills can be learned and improved.

Our research also confirms the literature data on the reliability of the three scales that, also in our study, obtained a Cronbach alpha coefficient higher than 0.8 in each of the three scales, suggesting their good reliability and reproducibility in measuring emotional, empathic and alexithymic dimensions, respectively (76). The score obtained by our students at the SSEIT scale positively correlated with the empathy scale (JSE-HPS) score and negatively with alexithymia scale (TAS-20) score. This result overlaps that of other authors (76) and is consistent with the constructs of the three scales. In fact, as our result suggests, empathy, but not alexithymia, is part of EI construct, in accordance with most studies (90-92). On the contrary, our results suggest that alexithymia is a psychological dimension contrary to empathy but, like empathy and EI, can be modulated over the training course. Therefore, alexithymia trait should be detected and controlled during the nursing course since it can reduce emotional competence of students and their capacity to create an appropriate therapeutic relationship with patients.

The nurse-patient relationship is a fundamental aspect of care, which can be modulated by empathic abilities as well as other technical skills in order to recognize the patient's needs and offer therapeutically appropriate response. Therefore, nursing students should be aware of their emotions to become emotionally competent and improve empathic abilities, essential aspects in nursing care and in all other health professions. Despite the importance of emotions in the therapeutic relationship, emotional competence is often underestimated in University Courses, where teaching is aimed at the acquisition of good theoretical and practical knowledge. Students' attention is often focused on memorizing notions useful to pass examinations or to acquire practical skills, but not to more properly manage their emotional competences in the relationship with the patient.

Conclusions

The main limitation is represented by the lack of a longitudinal evaluation of emotional skills in the same sample during the progress of course. Moreover, a comparison between nursing and other medical and non-medical students could be necessary to better evaluate emotional competences in different courses, suggesting limits and possibilities of teachings and trainings.

Another limitation is represented by the reduced number of variables selected for the students; other variables could have allowed us to highlight factors which influence emotional skills. Our study, albeit with the limits mentioned above, permitted us to investigate essential aspects of health professions, inviting us to reflect on the possibility that these can be learned and improved.

Our results suggest the possibility of learning and enhancing emotional and empathic skills in nursing course and suggest that empathy and EI, but not alexithymia, are emotional skills positively related to each other. In particular, we highlighted an increase in emotional capacities in 3rd year students, especially among females. This result emphasizes the possibility of continuous growth of emotional competences over the course. Therefore, we put in evidence the importance of training on emotional competences in nursing course as well as in all health profession schools, in order to specifically foster the development of these attitudes, which represent the first and indispensable step in implementing good clinical practice. In fact, we remind practitioners that awareness of self-emotions permits health professionals to understand in depth the patient's feelings, helping them to establish a respectful therapeutic relationship. Further research is necessary to better evaluate psychological dimensions in therapeutic help relationships in order to implement appropriate and effective training in University Courses.

Acknowledgements

All students who kindly accepted to participate in this research.

Conflict of interest: None to declare

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Received:6 February 2019
Accepted: 5 March 2019
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