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# The role of emotional competencies in predicting medical students' attitudes towards communication skills training

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ABSTRACT

*Objectives:* This study aims to investigate whether stress, depression and emotional competencies can help to predict medical students' attitudes towards communication skills training (CST). Anxiety and negative attitudes towards CST have been shown to be linked. Conversely, emotional competencies (EC) were associated with positive attitudes. Exploring these psycho(patho)logical variables therefore seems to be a promising approach to better understanding, or even modifying, attitudes towards CST.
*Methods:* 179 third year medical students were asked to complete the Communication Skills Attitude Scale (CSAS), the Perceived Stress Scale (PSS), the Montgomery-Asberg Depression Rating Scale Self-assessment (MADRS-S) and the Profile of Emotional Competence (PEC).
*Results:* 168 students completed the entire questionnaire. The stepwise regression model first revealed that, taken together, intrapersonal EC "Utilization" and interpersonal EC "Expression" account for 17% of the variance in positive attitudes. Secondly, taken together, intrapersonal EC "Utilization" and interpersonal EC "Expression" account for 16% of the variance in negative attitudes.
*Conclusion:* The more competent a student is in "Utilization" and "Expression", the more positive attitudes and the less negative attitudes he/she has towards CST. In addition, measuring a large set of bio-psycho-social factors might be a way of capturing more variance in attitudes towards CST.
*Practice implications:* In the study of variables influencing attitudes towards CST, emotional competencies cannot be ignored. The context of the medical consultation encourages the discussion of various emotions felt by the patient. As educationalists, we should prepare the student for this by integrating the notion of EC within the CST.

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## 1. Introduction

### 1.1. Context

Communication skills (CS) are essential to the practice of medicine [1–4]. Developing communication skills training (CST) for medical students has therefore become a priority in medical education in many countries [5,6]. However, CST is not yet systematically provided in all medical schools. Researchers conclude that the number of hours dedicated to this teaching is too small in Belgium compared to other countries [7]. It appears that negative attitudes towards these courses may be responsible for their lack of generalization. Indeed, academic leaders and students still seem to have negative attitudes in this regard [1,8–10]. They consider communication skills (CS) to be an easy and soft science that is not worth studying [8,10].

This study focuses on attitudes towards learning medical CS. The term "attitudes" is used to refer to students' evaluations (positive or negative) of learning medical CS. Students' attitudes influence how the CST will be received [11], the amount of time they will spend learning these skills [12] and how they will use them when dealing with real patients [13].

Given the importance of these attitudes, it is useful to know which variables are likely to influence them. Indeed, a better understanding of the factors predisposing attitudes towards CST could help to influence them and contribute to the development of "best practices" in the teaching of CS. Studies have indicated that these attitudes differ according to gender [9,14,15] and educational

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variables; higher negative attitude scores are associated with a predominantly biomedical background [14,16], clinical experience [17] and previous CST [9,15,18].

This study aims at clarifying links between attitudes and psycho (patho)logical variables. First, Loureiro et al. have identified links between negative attitudes towards CST and anxiety states [15]. The authors call for additional studies on the levels of distress and depression among medical students and their potential effect on their professionalism [19]. They claim that some students may have more difficulty internalizing certain professional skills and may show more resistance to attitude change [19]. Second, studies and reviews have shown that emotional intelligence (EI) is related directly to interpersonal and communication skills and is important in the assessment and training of medical undergraduates [20–24]. Higher EI was reported to contribute positively to the doctor-patient relationship, increased empathy, CS and stress management [25–27]. It is also stated that individual training in EI can have an impact on burnout and stress [27]; one main cause of burnout is emotional load [28,29]. Concerning attitudes specifically, a study showed that high EI students reported more positive attitudes towards CS exercises [22].

In view of these findings we have decided to investigate first whether stress and depression -particularly present in our student population [30]- were involved in predicting attitudes towards CST. Our hypothesis, based on the results of previous studies, is that stressed and/or depressed students may experience reluctance to learn CS and thus more negative attitudes towards it. Second, we investigated whether emotional competence (EC) predicts attitudes towards CST. We will use the terminology of "emotional competence" because we are viewing EI as a set of skills which may be taught and learned [31]. Our hypothesis, again based on previous research findings, is that the presence of EC will contribute to the prediction of positive attitudes towards CST.

### 1.2. Importance

The overall aim of the study is to better understand the factors that influence CST in order to inform the development of "best practices" in teaching. We agree with the assumption of some authors that considering the attitudes of medical students as a basis for the development of certain interventions may be a key to their success; allowing interventions to be tailored to the specific group of students [32,33]. This educational study aims more specifically to explore one determinant of CST: student attitudes, which are known to impact how educational courses are received [11]. Medical students were investigated in the context of the implementation of a new CST in our University and the results of this study are intended to allow for the adaptation of its content. Indeed, if it turns out that the psycho(patho)logical variables investigated are related to the attitudes of our students, modules aimed at well-being and development of EC could be integrated within it.

### 1.3. Research questions

We aimed to establish whether stress, depression and emotional competencies contribute to the prediction of the attitudes of our students towards CST. To this end, our research questions (QR) were: (QR1) To what extent does a high level of stress positively predict negative attitudes towards CST and negatively predict positive attitudes towards CST?; (QR2) To what extent does a high level of depression positively predict negative attitudes towards CST and negatively predict positive attitudes towards CST?; (QR3) To what extent does a high level of emotional competence positively predict positive attitudes towards CST and negatively predict negative attitudes towards CST?

## 2. Methods

In Belgium, medical schools run a six-year undergraduate program. The first five years are considered preclinical and the sixth year is fully clinical (clerkships).

### 2.1. Participants

Third year students on the third Bachelor of Medicine course at the University of Namur were asked, in September 2018, to fill in questionnaires before their first course in medical psychology, on a voluntary and unpaid basis. At that time, none of the students had benefited from a course targeting CS or attitudes as part of their medical curriculum. These data were all collected before the coronavirus period. The psycho(patho)logical variables of our students were therefore not influenced by this life experience. Before filling out the questionnaires, students were asked to read and accept the informed consent form to participate freely in this study. This study was approved by the local Ethics Committee of "Cliniques Universitaires UCL Mont-Godinne"-reference number: B039201835508- and conducted in accordance with the Declaration of Helsinki.

### 2.2. Instruments

#### 2.2.1. Communication Skills Attitude Scale (CSAS)

We chose to use the CSAS, which is the most widely used and validated tool to measure specifically the attitudes of medical undergraduates towards CST [34–38]. More precisely we have used the French-language version [39]. Like the original version, this scale is made of 26 items. These items have response option on a five-point Likert-type scale ranging from 1 "*strongly disagree*" to 5 "*strongly agree*". All these items are divided to measure two types of attitudes. The first subscale is made of 13 items measuring positive attitudes (PAS) towards learning CS (e.g., "*To be a good doctor, I absolutely must have good CS*"). The second subscale of 13 items measures negative attitudes (NAS) towards learning CS (e.g., "*I don't see the value in learning CS*"). After reversing the scores for items 1 and 22, adding the scores for the 13 items in each subscale gives two scores: the total positive attitude score (PAS) and the total negative attitude score (NAS). The scores range from 13 to 65, with higher scores indicating stronger attitudes. The CSAS has been found to show satisfactory test-retest reliability and internal consistency [14,40].

#### 2.2.2. The Perceived Stress Scale (PSS)

The Perceived Stress Scale 14 items (PSS14) [41] is a self-report questionnaire that assesses the extent to which life situations are perceived as stressful. The PSS14 includes fourteen items, of which seven are considered negative (e.g., "*In the last month, how often have you been upset because of something that happened unexpectedly?*") and seven are considered positive (e.g., "*In the last month, how often have you felt that things were going your way?*"). Each item is rated on a five-point Likert-type scale ranging from 0 "*never*" to 4 "*very often*". The participant assesses the frequency of occurrence of the situation presented in the item over the past month. The total score is obtained by reversing the responses of positive items and then summing all scores. A higher score indicates a higher level of stress. The predictive and discriminating validity of the scale have been demonstrated in several studies that link stress to health consequences [42]. The internal reliability of the scale on a U.S. sample is 0.78 [42].

#### 2.2.3. The Profile of Emotional Competence (PEC)

It is a self-reported measure of intrapersonal and interpersonal emotional competence [43]. This questionnaire has nine subscales. Five subscales measure intrapersonal emotional competence: identification (e.g., "*I am aware of my emotions as soon as they arise*"),

**Table 1**
Cronbach's alpha coefficients of the PSS14, MADRS-S, PEC and CSAS-F.

| Cronbach α | Questionnaires and subscales | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PSS-14 | MADRS-S | PEC | | | | | | | | | | CSAS-F | |
| | | | Intrapersonal EC | | | | | Interpersonal EC | | | | | *PAS* | *NAS* |
| | | | Ident. | Com. | Exp. | Reg. | Uti. | Ident. | Com. | Exp. | Reg. | Uti. | | |
| | .85 | .80 | .71 | .73 | .65 | .74 | .73 | .77 | .74 | .73 | .64 | .73 | .77 | .64 |
| Mean | 25.6 | 5.1 | 17.3 | 16.6 | 15.5 | 14.8 | 18.4 | 19.1 | 18.9 | 20 | 20.1 | 15.5 | 50.6 | 29.1 |
| SD | 7.4 | 3.2 | 3.6 | 4.1 | 3.9 | 4.2 | 3.1 | 3 | 3.2 | 3.2 | 3.3 | 3.6 | 5.4 | 4.8 |

Abbreviation: SD – Standard Deviation.

comprehension (e.g., "*I don't always understand why I am stressed*"), expression (e.g., "*If I dislike something, I manage to say so in a calm manner*"), regulation (e.g., "*I can easily manage to calm myself down after a difficult experience*") and utilization of one's emotions (e.g., "*My emotions inform me about changes I should make in my life*"). Five subscales measure interpersonal emotional competence: identification (e.g., "*I can tell whether a person is angry, sad or happy even if they don't talk to me*"), comprehension (e.g., "*Most of the time I understand why people feel the way they do*"), expression (e.g., "*Other people tend to confide in me about personal issues*"), regulation (e.g., "*When I see someone who is stressed or anxious, I can easily calm them down*") and utilization of other people's emotions (e.g., "*I know what to do to motivate people*"). Each subscale consists of five items. In total, this questionnaire includes 50 items. These items have good concurrent and discriminant validity and a Cronbach Alpha reliability ranging from.60 to.83 depending on the subscales.

#### *2.2.4. Montgomery-Asberg Depression Rating Scale Self-assessment (MADRS-S)*

The MADRS-S [44] is the "patient" version of the Depression Scale of Montgomery and Asberg [45]. This scale is a self-reported questionnaire that consists of nine items assessing signs and symptoms of depression. It assesses the severity of symptoms in a variety of areas such as patients' appetite, sleep, physical and mental fatigue. Each item is scored between 0 and 3, with three intermediate levels (0.5, 1.5, 2.5). The total score is calculated by summing the answers of the nine items, giving a result between 0 and 27. Higher scores indicate increased impairment. This questionnaire correlates with the MADRS and Beck's depression inventory. It has good psychometric qualities [46].

### *2.3. Data analysis*

The IBM SPSS Statistics 24 software was used to analyse the data. The variables of interest were computed in a stepwise multiple regression to identify determinants of attitudes.

#### *2.3.1. Stepwise regression model*

Regression models are constructed to explain or predict the variance of a single dependent variable (students' attitudes) with two or more independent variables (stress, depression and emotional competence). First, the assumptions were checked: normality of the distribution of data, linearity (i.e. a linear relationship between dependent variable and independent variables), data free from heteroscedasticity and absence of severe multicollinearity (values of variation inflation factor -VIF- are all less than 2). Second, a suitable method of multiple linear regressions has been chosen. Our goal was to explore a particular combination of independent variables. For work of a more exploratory nature, progressive methods are suitable. The selection of the variables to be included is based on a mathematical criterion. Once the independent variables have been chosen, their inclusion in the model will depend on their mathematical contribution to its improvement. There are three progressive methods: forward, backward and stepwise. We have chosen the stepwise method which is a mix of the forward and backward approaches. Stepwise methods are sometimes used in educational research to evaluate the order of importance of variables and to select useful subsets of variables [66,67]. This algorithm introduces a variable elimination step after each selection step in order to remove from the model any variables that may have become less essential due to the presence of those that are newly introduced. In this way, it is possible to eliminate redundant variables.

## 3. Results

### *3.1. Participants*

Of the 179 students enrolled in the medical psychology course during the 2018–2019 year, 168 students completed the questionnaire (93.9% participation). This sample consists of 49 men (29.2%) and 119 women (70.8%) with a mean age of 20.25 years (*SD* = 1.05).

### *3.2. Cronbach Alpha reliability and descriptive data*

The internal consistency of the subscales was confirmed using Cronbach's coefficients (see Table 1). The Cronbach Alpha reliability obtained for the different subscales were all above .64 and thus considered as acceptable [47,48], ranging from .64 to .85. Table 1 also presents descriptive data for all variables considered in the study: perceived-stress, depression, EC and attitudes towards CST.

### *3.3. Correlations*

Pearson and Spearman (on the PSS14 and MADRS-S scores because they did not follow a normal distribution) correlations were performed (see Table 2). Stress and depression scores did not show a significant correlation with attitudes. These variables were therefore not included in the following analyses (i.e. regression). Several subscales of the PEC showed significant correlations with attitudes and have therefore been included in the following analyses.

#### *3.3.1. PAS and emotional competence*

Within intrapersonal emotional competence, only one subscale was significantly (and positively) correlated with positive attitudes: the utilization of one's emotions. This competency refers to the ability to use one's emotions. The "identification" (i.e. ability to identify other's emotions), "understanding" (i.e. ability to understand other's emotions) and "expression" (i.e. ability to listen to others' emotions) subscales of interpersonal emotional competence showed significant positive correlations with PAS.

**Table 2**
Correlations between the subscales of PSS14, MADRS-S, PEC and PAS and NAS.

| CSAS-F | PSS14 | MADRS-S | PEC | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Intrapersonal EC | | | | | Interpersonal EC | | | | |
| | | | Ident. | Com. | Exp. | Reg. | Uti. | Ident. | Com. | Exp. | Reg. | Uti. |
| **PAS** | .09 | .002 | .09 | .00 | .08 | −0.03 | .36** | .20** | .25** | .28** | .12 | −0.09 |
| **NAS** | .02 | .02 | −0.17* | −.07 | −0.13 | .03 | −0.31** | −.20** | −.26** | −.30** | −.16* | −.06 |

* Correlation is significant at the 0.05 level,
** Correlation is significant at the 0.01 level.

*3.3.2. NAS and emotional competence*

The subscales "identification" and "utilization" of one's emotions were significantly and negatively correlated with negative attitudes. The subscales "identification", "understanding", "expression" and "regulation" of others' emotions were also significantly and negatively correlated with NAS.

*3.4. Stepwise multiple regression*

*3.4.1. Diagnosis of observations*

An extreme variable was observed in the second regression ("results for predicting NAS"). Extreme values can influence the model and thus the fit of the data; they alter the *b* coefficients and are poorly predicted by the model. They are therefore associated with a significant residual value. A standardized residual value of 3.43 led us to redo the analysis by excluding this very high score for negative attitudes. This allowed a better adjustment of the data and the regression on negative attitudes was therefore continued for 167 students.

*3.4.2. Results for predicting PAS*

All variables that showed significant correlations with PAS were computed in a multiple linear regression to identify stronger indicators of positive attitudes. This regression yielded significant conclusions, with values for adjusted $R^2$ ranging from. 12 to .16, as shown in Table 3.

- Intrapersonal EC - Utilization
  The results presented in Table 3 indicate that the independent variable "utilization of one's own emotions" introduced in this model is positively and significantly involved in predicting the PAS of medical students ($\beta = 0.36$, $p < .0001$). This means that as the utilization of one's own emotions score increases, so does the PAS.
- Interpersonal EC - Expression
  The addition of "interpersonal EC - Expression" subscale appeared to account for significantly more variance in PAS (from Adj $R^2$ = .12 to .16). This variation of .04 ($\Delta R^2$) appears to be significant. Indeed, the value of *F* is calculated from the variation of $R^2$ between steps. The $p < .005$ indicates that this second step contributes significantly towards an improved explanation of the variability of positive attitudes.

To conclude, the value of $R^2$ is .17 (R = 0.41) for Model 2. This means that 17% of the changes in positive attitudes occur because of the combination of two independent variables: "utilization of one's own emotions" and "interpersonal EC- Expression". When comparing the different models, Model 2 fits the data better than Model 1. Indeed, the higher the value or $R^2$ and adjusted $R^2$ (Adj $R^2$ Model 1 = 0.12; Adj $R^2$ Model 2 = 0.16), the better the model fits the data.

*3.4.3. Results for predicting NAS*

Regarding the prediction of negative student attitudes, the results in Table 4 indicate that two significant models emerge from the analysis. The explanatory power of model 2 is 16% ($R^2$ = .16). According to the *F* statistic, the model is globally significant at the 0.0001 threshold.

- Intrapersonal EC - Utilization
  The results presented in Table 4 indicate that the independent variable "intrapersonal EC – Utilization" introduced in this model contributes negatively and significantly to the prediction of NAS ($\beta = -0.33$, $p < .0001$). This suggests that as the score for the utilization of one's own emotions increases, the negative attitudes score decreases.
- Interpersonal EC - Expression
  The addition of "interpersonal EC - Expression" subscale appeared to explain significantly more variance of NAS (from $R^2$ = .11 to .16). This variation of .05 ($\Delta R^2$) appears to be significant ($p$ = .001). This indicates that the interpersonal EC- Expression accounted for an additional 5% of the variance in negative attitudes.

**Table 3**
Stepwise multiple regression analysis of predictors of PAS.

| Variable | PAS | |
|---|---|---|
| | Model 1<br>β | Model 2<br>β |
| Step 1: Intrapersonal EC - Uti. | .36 | .31 |
| Step 2: Interpersonal EC - Expr. | | .21 |
| *F* | 24.17*** | 16.56*** |
| F change | 24.17*** | 7.95** |
| $R^2$ | .13 | .17 |
| $\Delta R^2$ | .13 | .04 |
| Adj $R^2$ | .12 | .16 |

*** $p < .0001$;
** $p = .005$

**Table 4**
Stepwise multiple regression analysis of predictors of NAS.

| Variable | NAS | |
|---|---|---|
| | Model 1<br>β | Model 2<br>β |
| Step 1: Intrapersonal EC - Uti. | -0.33 | -0.27 |
| Step 2: Interpersonal EC - Expr. | | -0.25 |
| *F* | 19.51*** | 16.07*** |
| F change | 19.51*** | 11.39** |
| $R^2$ | .11 | .16 |
| $\Delta R^2$ | .11 | .05 |
| Adj$R^2$ | .10 | .15 |

*** $p \leq .0001$;
** $p < .001$

## 4. Discussion and conclusion

### 4.1. Discussion

Our result indicate that 17% of the variance in positive attitudes is accounted for by the use of one's own emotions and interpersonal CE "expression". Utilization and Expression were significantly positively associated with positive attitudes. This result is consistent with that of Kim et al. who showed that the best predictors of patient-physician interaction (PPI) were perception and expression of emotion, with an explained variance of 17%. They concluded that those two emotional competencies are a key influence of the PPI [20]. Second, taken together, the intrapersonal EC "Utilization" and the interpersonal EC "Expression" explain 16% of the variance in negative attitudes. Thus, the greater a student's competence in "Utilization" and "Expression", the more positive attitudes and the less negative attitudes he/she has towards CST. The fact that the subscales "Utilization" and "Expression" positively predict students' positive attitudes and negatively predict students' negative attitudes is not surprising since these two subscales are known to be highly correlated [39]. Regarding the links between emotional competence and NAS, these results are consistent with those found by Bombeke et al. who found a negative correlation between empathy scores and negative attitudes towards CST [9]; although the variables studied are not exactly the same (i.e. though empathy is linked to interpersonal EC, it does not encompass the broader skill of interpersonal EC).

Statements in the PEC provide some insights for interpreting our results. Some items (to reverse) included in the subscale "interpersonal EC- Expression" are: "*I feel uncomfortable if people tell me about their problems, so I try to avoid it*". This EC "Expression" can therefore be defined as the ability to listen and face the emotions of others. Although one of the physician's main tasks is to allow the patient to express his/her emotions during the consultation [49], Adams et al. [50], identified that the physician focuses on the patient's expression of emotions in only 1/3 of cases, and in the presence of repeated emotions, the physician avoids addressing them in 1/4 of cases, by using strategies such as giving information, asking questions or changing the subject. Thus, it is common for physicians to use the emotional regulation strategy of "avoidance". One of the reasons that can lead a physician to avoid situations in which emotions are expressed and discussed is related to the false belief that these situations require a mastery of the art of psychotherapy [51]. Of course, a medical consultation is not a psychological consultation and the physician is not expected to become a psychotherapist. Emotions can, however, be taken into account in consultations by using strategies such as respect, listening, support and empathy [51]. Our study indicates that the less competent a student feels at listening to the emotions of others, the more he/she devalues learning medical CS. Therefore, integrating some information on emotional competence within a CST seems promising; certain topics in CST, such as breaking bad news, intrinsically provide opportunities to discuss EC with medical students. Emphasizing the importance of empathetic qualities, such as empathetic communication style, generally improves EC [25]. In light of what was explained above, it would seem to be useful to allow students to experience the benefits of using the emotional regulation strategy of acceptance rather than avoidance (mainly due to the faster natural recovery of mood [52]) during CST. To this end, mindfulness training, for example, can be useful since mindfulness encourages acceptance of one's emotions [53]. As will be developed in the next paragraph, mindfulness training also offer benefits for the EC "Utilization".

Concerning the use of one's own emotions, some items of the PEC measuring this competence are *"I use my feelings to improve my choices in life"; "I try to learn from difficult situations or emotions"*. Thus, the more students consider their emotions to be useful and functional, the more they value learning medical CS. This result is interesting because it concerns an *intra*personal EC. There is more literature on how to deal with patients' emotions in consultation than on physicians' emotions in consultation. Concerning the emotions of the physician, studies have shown that over the years of medical education, empathy tends to decrease [54–56], with emotional overload often cited as a cause of this decline [57]. The prevalence of burnout among medical students is also of particular concern [58]. Again, it seems that EC training could be a useful approach for medical students in order to prevent burnout. A systematic review of educational research on "other-directed" emotional competencies revealed effective teaching methods (e.g., self-reflection, mindfulness, stress management [59,60]) with positive outcomes such as more supportive and empathetic behaviours. A recent systematic review indicated that Mindfulness Based Stress Reduction was effective at improving and maintaining the level of empathy [61] and improving burnout, depression, anxiety and stress [62]. It has the potential to prevent compassion fatigue and burnout in that the doctor who is self-aware is more likely to engage in self-care activities and to manage stress better. Additionally, mindfulness practices can improve physician-patient therapeutic relationships [63,64], specifically enabling practitioners to listen more attentively and develop more effective communication practices [64]. Some researchers have concluded that educationalists should therefore consider incorporating education that is designed to foster such self-awareness into undergraduate and postgraduate CST curricula [25,65]. EC may therefore also provide a theoretical framework for the study of individual differences in CS [24].

Finally, our results suggest that attitudes are not related to responses to a depression or stress questionnaire. A previous study indicated links between anxiety and attitudes [15]. It may be more appropriate to continue to study the links between attitudes towards CST and anxiety, including performance anxiety, rather than the more general concept of stress.

### 4.2. Study limitations

The first limitation concerns the self-reported nature of the questionnaire. It is questionable to what extent students wanted to present themselves as having more positive attitudes towards CST and being more emotionally competent and less stressed and depressed than they really are. In order to minimize this social desirability bias, students were informed that their responses will be analyzed anonymously and after the end of their medical psychology course. Secondly, studied relationships are all correlational and so no clear conclusions of causality can be drawn. Our design does not allow testing of the bi-directionality of variables that could be conceived as both antecedents and consequences of attitudes. A longitudinal study would appear to be useful to examine whether the implementation of training in emotional competencies can be beneficial for the development of positive attitudes towards CST.

### 4.3. Conclusion

In the study of variables influencing attitudes towards CST, EC cannot be ignored. The fact that our models explain 1/6 of the total variance in attitudes suggests that other variables could explain more variance. Measurement of a large set of bio-psycho-social factors might be one way of capturing more variance among attitudes towards CST.

### 4.4. Practice Implications

The context of the medical consultation encourages the discussion of various emotions felt by the patient. As educationalists, we should prepare the student for this by integrating the concept of EC

within the CST. This would avoid the student developing negative attitudes towards learning medical CS because he/she does not feel sufficiently equipped to deal with the emotions he/she is confronted with during this learning process. Moreover, in the absence of this, emotional avoidance or, conversely, emotional contagion could occur, predisposing the student to a loss of empathy in the first case or to compassion fatigue in the second.

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## CRediT authorship contribution statement

**Hélène Givron:** Data acquisition, Formal analysis, Investigation, Writing - original draft. **Martin Desseilles:** Conceptualization, Methodology, Supervision, Writing - review & editing.

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