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**Protective resources against stress among student nurses: Influences of self-efficacy, emotional intelligence and conflict management styles**

Estelle Michinov<sup>1</sup>, Gaël Robin<sup>2</sup>, Brivael Hémon<sup>1</sup>, Rémi Béranger<sup>3</sup>, Marielle Boissart<sup>4</sup>


- 1- Psychology, Cognition, Behavior and Communication Laboratory (LP3C), Rennes University, Rennes, France
- 2- Medical Training Center (PFPS), Rennes University Hospital, Rennes, France
- 3- Health, Environment and Work Research Institute (IRSET), Rennes University-Rennes University Hospital-INSERM- EHESP, Rennes, France
- 4- Medical Training Center (PFPS), Clinical Investigation Center, Rennes University Hospital-Rennes University-INSERM, Rennes, France


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**Author note**

Estelle Michinov  <https://orcid.org/0000-0001-5872-2450>

Brivael Hémon  <https://orcid.org/0000-0003-0392-1123>

Rémi Béranger  <https://orcid.org/0000-0002-6608-8020>

Marielle Boissart  <https://orcid.org/0000-0002-8080-3721>

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## **Conflict of Interest**

The authors declare that they have no conflict of interest.

**Corresponding author:** Estelle Michinov, Université de Rennes 2, Département de Psychologie, Place du Recteur Henri Le Moal, 35043 Rennes Cedex, France. E-mail: [estelle.michinov@univ-rennes2.fr](mailto:estelle.michinov@univ-rennes2.fr)

## **Credit authorship contribution statement**

Estelle Michinov, Gaël Robin and Marielle Boissart contributed to the study conception and design and data collection. Material preparation and statistical analyses of data were performed by Brivael Hémon and Rémi Béranger. The first draft of the manuscript was written by Estelle Michinov, and all the authors commented on subsequent versions of the manuscript. All the authors read and approved the final manuscript.

## **Data availability**

Data and codebook are available on our OSF webpage:

[https://osf.io/tr9xu/?view\\_only=f6b19c9f1dad420885c70ede04e215d7](https://osf.io/tr9xu/?view_only=f6b19c9f1dad420885c70ede04e215d7)

## **Abstract**

**Aims:** This study aimed to investigate the levels of stress among French student nurses and the influence of different personal resources on their well-being and stress levels.

**Background:** Student nurses have to cope with strong emotional demands, leading them to experience academic stress. Recent studies have highlighted the influence of personal resources such as self-efficacy, conflict management styles and emotional intelligence on the ability to cope with stressful situations. However, the contributions of these different factors have so far been explored separately.

**Design:** A multicenter cross-sectional survey was performed from February to April 2022. The sample consisted of 1021 first-year student nurses from different nursing schools in France (including 890 women and 113 men), aged 18-55 years.

**Methods:** Students completed an online questionnaire containing measures of well-being, Perceived Stress Scale, Occupational Stress, Generalized Self-Efficacy Scale, Emotional Intelligence and Conflict Management Styles.

**Results:** Nearly half (40.4%) of participants reported experiencing symptoms of stress. However, they also reported a satisfactory well-being and high self-efficacy for coping with stressful situations. Multiple regression analyses revealed major contributions of self-efficacy to stress and well-being and additional mediation models showed that these contributions were partially mediated by awareness of one's own and others' emotions.

**Conclusions:** These findings highlight the importance of continuing to work on the construction of appropriate educational activities that are consistent with the technical and, above all, nontechnical skills of student nurses.

**Keywords:** self-efficacy, emotional intelligence, conflict management style, stress, student nurses

## INTRODUCTION

With the introduction of clinical practice and the constraints of the nursing profession, student nurses are liable to experience stress in the course of their studies (Asturias et al., 2021; Bodys-Cupak et al., 2016; Hernández Ortega et al., 2021). They must cope with strong emotional demands, not least because of potential conflicts with patients, families and supervisors. They are also stressed by the fear of lacking knowledge, making errors and failing to correctly perform specific clinical procedures (Beanlands et al., 2019; Hernández Ortega et al., 2021). Stressors in student nurses has been extensively studied (Asturias et al., 2021; Foster et al., 2018; He et al., 2018; Priesack and Alcock, 2015). Results show that their stress levels are higher than those of students in other fields (Bodys-Cupak et al., 2016; Wolf et al., 2015). It is therefore important to address both the stressors and the resources available during training, to promote students' health and avoid dropout from nursing education (Bakker et al., 2020; Soerensen et al., 2023).

According to work stress models (Bakker et al., 2004; Hobfoll, 2002; Lazarus and Folkman, 2020), both contextual resources and personal resources can be used to cope with situational or organizational demands. Contextual resources concern aspects related to social supports such as friends, family, colleagues or work organization. Personal resources are aspects of the self that are related to resilience and refer to the personal characteristics (e.g., optimism, resilience, self-efficacy, emotional intelligence, locus of control, sense of coherence) that enable individuals to control and adapt to their work environment. In the healthcare sector, researchers have identified some personal resources related to self-efficacy (SE) and emotion regulation skills, such as conflict management styles (CMSs) and emotional intelligence (EI), that could be developed to reduce stress among student nurses (Bodys-Cupak et al., 2016; Cuartero and Tur, 2021; Shoji et al., 2016; Szczygiel and Mikolajczak, 2018). To our knowledge, the influence of each personal resource on stress has been explored

separately. With the present study, we propose to examine the respective influence of each personal resource on student nurses' stress and well-being.

Self-efficacy (SE) is a concept emerged from Social Cognitive Theory (Bandura, 1989) and is defined as “people’s beliefs about their capabilities to exercise control over events that affect their lives” (Bandura, 1993, p. 118). People with high SE perceive difficult events as opportunities rather than threats and therefore approach threatening situations with confidence. Low SE is associated with anxiety, depressive symptoms, low self-motivation and poor academic performance. By contrast, high SE is associated with positive perceptions about the self that facilitate self-confidence, motivation and academic success (Bandura, 2010). As people with high SE have the perception that they can exercise control over the situations they encounter, they are less likely to experience stress (Nway et al., 2023) or burnout (Shoji et al., 2016). SE is also relevant for students’ health and well-being (Cuartero and Tur, 2021), as well as for clinical communication competency (Zhu et al., 2016). In Bodys-Cupak et al. (2016)’s study, SE had a significant impact on the stress levels of Polish student nurses, as well as on the way they coped with difficult situations (see also Nway et al., 2023). SE is therefore regarded as an important resource for promoting resilience and the ability to maintain function in the face of adversity (Priesack and Alcock, 2015).

Another personal resource related to conflict management styles (CMSs) has also been identified as efficient resource : “interpersonal conflict in healthcare settings leads to workplace adversity for student nurses and new nurses” (Pines et al., 2012, p. 2). Student nurses are not always sufficiently well prepared to deal with interpersonal conflicts. Concerning the effects of different CMSs on stress, research has shown that an appropriate CMS can increase the benefits of constructive conflict and promote harmonious and cooperative work (e.g., Chan et al., 2014; Labrague et al., 2018; Michinov, 2022). CMSs have been described as specific behavioral patterns that individuals prefer to use when dealing with

conflict. Rahim (1983) identified five CMSs: integrating, obliging, dominating, avoiding and compromising. Research shows that student nurses prefer to use integrating and obliging styles to regulate conflicts with supervisors or colleagues, while the integrating style is also preferred by nurse managers (Chan et al., 2014; Labrague et al., 2018; Pines et al., 2012). Student nurses have a lower tendency to use a dominating style when facing supervisors and it is generally the style used least frequently. Tabak and Orit (2007) found that the integrating and dominating styles are associated with low occupational stress levels, whereas the obliging and avoidance styles are linked to higher stress levels. However, some studies have shown that the relationship between CMSs and stress is a complex one and depends on the type of conflict, the status of the other party (i.e., supervisor, colleague, or patient) and personal characteristics such as emotion regulations (e.g., Labrague et al., 2018; Michinov, 2022). When a conflict occurs, the emotional state of the individuals is involved (e.g., frustration, anger, fear) and can play an important role (Jehn, 1997). Thus, the ability to manage interpersonal conflicts could also involve individuals' emotional intelligence (EI).

Salovey and Mayer (1990) first introduced the concept of EI and conceptualized it in four dimensions: (1) appraisal of emotion in oneself, (2) appraisal and recognition of emotion in others, (3) regulation of emotion in oneself and (4) use of emotion to facilitate performance. Goleman (1995) conceptualized EI based on four categories (i.e., self-awareness, self-management, social awareness and relationship management), postulating that individuals with higher EI can select effective conflict resolution strategies to manage stressful conditions. Several studies have shown that higher EI scores are associated with less burnout and higher job satisfaction in high-risk sectors with emotional demands (Görgens-Ekermans and Brand, 2012; Michinov, 2022; Szczygiel and Mikolajczak, 2018). Higher EI has been found to be significantly associated with less perceived stress, anxiety and depressive symptoms (Carvalho et al., 2018; Foster et al., 2018; Zhang et al., 2016) and

greater well-being (Dugué et al., 2021; Ruiz-Aranda et al., 2014). Dugué et al. (2021) showed that EI has many benefits for student nurses and training programs aimed at developing EI have proved to be effective in nursing education. Although individuals with higher EI scores can handle conflicts by selecting suitable CMSs, there has been little research on the relationships between EI and CMSs and their impact in student nurses' stress levels (Chan et al., 2014; Morrison, 2008).

### **Objective of the present study**

Previous studies have demonstrated the influence of personal resources related to SE, EI and CMSs on stress and well-being. To the best of our knowledge, however, the influence of each resource has been explored separately in most relevant studies among student nurses. The present exploratory study aimed to fill this research gap by investigating the interrelations between CMSs, EI, stress and well-being in a sample of student nurses. Using a correlational design, it addressed three research questions: What role do CMSs play in reducing student nurses' stress levels? Does a high level of EI help to reduce student nurses' stress levels? What are the respective effects of CMSs and EI on student nurses' stress and wellbeing?

## **METHODS**

### **Design and Procedure**

A cross-sectional design was used, with convenience sampling. To recruit participants, the body that represents French colleges of nursing and healthcare (CEFIEC) sent an online questionnaire to the directors of the 350 nursing schools in France, which between them have approximately 30 000 first-year students. Nursing training in France lasts 3 years, with clinical placements taking place every semester from the second semester of the first year onwards.



Student nurses received an e-mail from their tutor inviting them to complete an online questionnaire entitled “Study of student nurses’ psychosocial skills”. The inclusion criteria were: (1) aged 18 years or over, (2) student nurse enrolled at a nursing school in France and (3) agreement to take part in this survey on a voluntary basis. The exclusion criterion was students absent owing to illness or other reasons.

Participants completed the questionnaire within 15 minutes. In total, 2135 questionnaires were collected. Some responses have been excluded because of missing answers to more than 50% of questions. This is due to the format of the non-mandatory answers in the questionnaire. The data were collected between February and April 2022.

### Measures

The questionnaire was in French and comprised brief scales designed to be administered in large online surveys and known to have good validity and reliability across different samples. These scales measured perceived stress, occupational stress, SE, CMSs and EI. The scales were used with the approval of the original authors. Participants were also asked to provide sociodemographic data (i.e., gender, age, year of study, size of nursing school, number and type of internships completed).

**Well-being.** A single item was used to measure participants’ current emotional state: “How do you feel right now?” They responded on a 10-point scale with emojis as anchors. High scores indicated high well-being.

**Perceived stress.** The 10-item Perceived Stress Scale (PSS-10) was used to measure the degree to which participants considered current events in their lives to be stressful (Cohen et al., 1983; Lesage et al., 2012). Participants indicated how often, during the previous month, they had felt or thought a certain way (e.g., “In the last month, how often have you felt nervous and stressed?”) on a 5-point Likert scale ranging from 0 (*Never*) to 4 (*Very often*). A

confirmatory factor analysis yielded generally satisfactory fit indices for a one-factor structure,  $\chi^2(35) = 399$ ,  $p < .001$ , TLI = 0.82, CFI = 0.86, SRMR = 0.05, RMSEA = .10. The 95% CI was 0.09-0.11. Internal reliability was good (Cronbach's alpha = .82). High scores indicated high perceived stress.

**Occupational stress.** Occupational stress was measured with a single item (Elo et al., 2003): “Stress refers to situations in which individuals feel tense, restless, nervous or anxious or are unable to sleep at night because their mind is troubled all the time. Are you currently feeling this kind of stress?” Respondents indicated their response on a 5-point Likert scale ranging from 1 (*Not at all*) to 5 (*Very much*). This item has been proven to be a valid measure of occupational stress by the National Institute for Health Research in France (Langevin et al., 2012). High scores indicated high stress.

**Self-efficacy.** The 10-item Generalized Self-Efficacy Scale (Dumont et al., 2000; Schwarzer and Jerusalem, 1995) was used to assess optimistic self-beliefs about being able to cope with a variety of difficult demands in life (e.g., “I can always manage to solve difficult problems if I try hard enough”). Each item is rated on a 4-point Likert scale ranging from 1 (*Not at all true*) to 4 (*Totally true*). A confirmatory factor analysis yielded generally satisfactory fit indices for a one-factor structure,  $\chi^2(35) = 233$ ,  $p < .001$ , TLI = 0.90, CFI = 0.93, SRMR = 0.04, RMSEA = .07. The 95% CI was 0.06-0.08. Internal reliability was good (Cronbach's alpha = .83). High scores indicated high SE.

**Conflict management styles.** The Rahim Organizational Conflict Inventory-II (Michinov, 2022; Rahim, 1983) was used to assess CMSs. This scale comprises 15 items that probe five different styles: *integrating* (collaborating: high concern for both self and others), *obliging* (accommodating: low concern for self and high concern for others), *compromising* (moderate concern for both self and others), *dominating* (competing: high concern for self and low concern for others) and *avoiding* (low concern for both self and others). Items include “I

collaborate with my colleagues to come up with decisions acceptable to us” (integrating), “I try to find a middle course to resolve an impasse” (compromising), “I usually make concessions to my colleagues” (obliging), “I use my authority to make a decision in my favor” (dominating) and “I try to stay away from disagreements with my colleagues” (avoiding). Each item is evaluated on a 5-point Likert scale ranging from 1 (*Rarely*) to 5 (*Always*). For the purpose of the present study, participants were asked to indicate how they handle disagreements with their colleagues during internships. A confirmatory factor analysis yielded generally satisfactory fit indices for a one-factor structure,  $\chi^2(340) = 1700$ ,  $p < .001$ , TLI = 0.85, CFI = 0.86, SRMR = 0.07, RMSEA = .06. The 95% CI was 0.06-0.07. Internal reliability of each dimension was good: .83 for integrating style, .78 for compromising style, .78 for obliging style, for .79 dominating style and .79 for avoiding style. High score on a dimension indicates a high tendency to adopt this conflict management style.

***Emotional intelligence.*** The French version of the Work Group Emotional Intelligence Profile short version (Jordan and Lawrence, 2009; Michinov and Michinov, 2022 for French validation) was administered to participants. This scale has 16 items divided into four dimensions, each comprising four items: (1) awareness of one’s own emotions (i.e., ability to discuss and disclose one’s emotions); (2) management of one’s own emotions (i.e., ability to control one’s emotional responses); (3) awareness of others’ emotions (i.e., ability to recognize others’ feelings and to read faces and body language); and (4) management of others’ emotions (i.e., ability to positively influence others’ emotional states). Each item is rated on a 7-point Likert scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). A confirmatory factor analysis yielded generally satisfactory fit indices for a one-factor structure,  $\chi^2(98) = 326$ ,  $p < .001$ , TLI = 0.97, CFI = 0.97, SRMR = 0.03, RMSEA = .05. The 95% CI was 0.04-0.05. Cronbach’s alphas were good for each dimension: .93 for awareness

of one's own emotions, .71 for management of one's own emotions, .89 for awareness of others' emotions and .86 for management of others' emotions. High scores indicated high EI.

### **Ethical considerations**

This study was conducted in accordance with the Declaration of Helsinki. It was approved by the ethics committee of a university (#2021-003). Student nurses each provided their informed consent for the study. The online survey software LimeSurvey was used. LimeSurvey makes it possible to ensure that respondents do not answer the questionnaire more than once. Questionnaires were anonymized and access to the database was restricted to researchers involved in the study.

### **Data analysis**

Statistical analyses were conducted with Jamovi version 2.3 (The jamovi Project, 2022). Descriptive statistics were computed, including means, standard deviations, maximum and minimum values, skewness and kurtosis. Pearson correlation analyses were used to explore associations between the key variables studied. Statistical significance was set at  $p < 0.05$ . To examine the relative contributions of personal resources (SE, IE, CMSs) to well-being, perceived stress and occupational stress, multiple linear regression analyses were conducted. All assumptions for these regressions were met (Hair et al., 2010). Finally, to test the interrelations between the key variables, we used the PROCESS macro for moderation and mediation models, following Hayes (2018)'s guidelines. Hayes demonstrated that results obtained with PROCESS are similar to the data yielded by structural equation modelling. The PROCESS macro makes it possible to estimate a mediation effect. This method has two main advantages over the more traditional moderation analyses: it is nonparametric and uses bootstrapping to calculate confidence intervals. When interpreting the results, if the confidence interval does not include zero, this indicates a statistically significant effect.

A sensitivity power analysis was conducted using G\*Power (Faul et al., 2007). The final sample for analyses consisted of 1021 participants. The sample size provided 95% power to detect effects of at least Cohen's  $f^2 = .11$  for the correlation analyses and .02 for the linear multiple regression analyses.

## RESULTS

### Demographic characteristics

Participants were 1021 students in their first year of a nursing degree course (890 women, 113 men, 7 = unspecified, 11 = not indicated). Ages ranged from 18 to 55 years ( $M = 24$ ,  $SD = 8.13$ ). Students attended both large ( $> 100$  students; 63%) and small ( $< 100$  students; 37%) nursing schools in France. Most of the students (93%) had already completed an internship in a healthcare service (median = 2) and half (51%) were in an internship when they completed the questionnaire.

### Descriptive statistics

Descriptive statistics are set out in Table 1. Concerning well-being, the mean level of current mood was 6.60 points out of a possible 10 ( $SD = 2.02$ ). Students who provided the lowest ratings ( $< 5$ ) constituted 13.4% of the sample and those who provided the highest ratings (8-10) represented 36.2% of the sample. Half (50.4%) of the students provided mood ratings between 5 and 7.

Concerning perceived stress, the overall mean PSS-10 score was 20.47 ( $SD = 6.36$ ). This score was like other studies with nursing students. For example, Bodys-Cupak et al. (2016) found a mean PSS-10 score of 20.79 ( $SD = 5.50$ ) for first-year student nurses in Poland, while He et al. (2018) reported even higher stress levels ( $M = 27.91$ ,  $SD = 7.30$ ) among Australian student nurses. The mean level of occupational stress was 3.12 ( $SD = 1.27$ ), with 40.4% of students reporting that they had experienced many physical symptoms over the

previous few days (rated 4 or 5) and 33.6% reporting that they had felt few or no symptoms of stress over the previous few days (rated 1 or 2).

Concerning the resources for coping with stress, students had high SE, with a mean rating of 3.11 out of a possible 4 points ( $SD = 0.47$ ). For CMSs, the highest mean value was for the integrating style ( $M = 4.13$ ), indicating that this was the style most frequently used by our student nurses. The lowest mean score was for dominating style ( $M = 2.39$ ), indicating that this was the style least frequently used. For EI, the highest mean scores were for management of one's own (5.88) and others' (5.29) emotions and the lowest mean scores were for awareness of one's own (4.07) and others' (4.82) emotions.

### **Intercorrelations between variables**

Table 2 reports the correlations between the study variables. All significant correlations were small ( $\leq 0.29$ ) or moderate (0.30-0.49) in size, according to Cohen's criteria (Cohen and Cohen, 2003). The highest correlations ( $\geq 0.50$ ) were between the construct subscales. Moreover, correlations indicated that the student nurses' age was related to key variables and needed to be controlled for in further regression analyses.

### **Contributing factors of well-being and stress**

Multiple linear regressions were calculated to examine the effects of SE, CMSs, EI and age on student nurses' stress and well-being (Table 3).

Results indicated that the variables explained 10% of the variance in the well-being measure ( $R^{2adj} = .10$ ), with major contributions from SE ( $\beta = 0.25$ ; 95% CI [0.18, 0.32]), awareness of one's own emotions ( $\beta = 0.18$ ; 95% CI [0.11, 0.25]) and awareness of others' emotions ( $\beta = -0.11$ ; 95% CI [-0.18, -0.36]). Age was negatively correlated with well-being ( $\beta = -0.08$ ; 95% CI [-0.14, -0.02]). The variables explained 30% of the variance in the perceived stress measure ( $R^{2adj} = .30$ ), with major contributions from SE ( $\beta = -0.49$ ; 95% CI [-0.55, -

0.43]), awareness of one's own emotions ( $\beta = -0.19$ ; 95% CI [-0.25, -0.12]), awareness of others' emotions ( $\beta = 0.15$ ; 95% CI [0.09, 0.21]), management of one's own emotions ( $\beta = -0.07$ ; 95% CI [-0.13, -0.004]) and obliging CMS ( $\beta = 0.07$ ; 95% CI [0.01, 0.13]). Age was not related to perceived stress. The variables also explained 8% of the variance in the occupational stress measure ( $R^{2\text{adj}} = .08$ ), with major contributions from SE ( $\beta = -0.25$ ; 95% CI [-0.32, -0.18]), awareness of one's own emotions ( $\beta = -0.13$ ; 95% CI [-0.20, -0.06]), awareness of others' emotions ( $\beta = 0.17$ ; 95% CI [0.10, 0.24]) and obliging CMSs ( $\beta = 0.09$ ; 95% CI [0.02, 0.16]). Age was not related to occupational stress.

Overall, multiple regression analyses revealed major contributions of SE and some components of EI (i.e., awareness of one's own and others' emotions) to stress and well-being. To explore the interrelations between these variables thoroughly, alternative models of mediation or moderation effects were tested, using the PROCESS macro.

Concerning the well-being measure, results of mediation analysis revealed direct effects of SE ( $\beta = 0.23$ , 95% CI [0.68, 1.29],  $p < .001$ ), awareness of one's own emotions ( $\beta = 0.17$ , 95% CI [0.11, 0.29],  $p < .001$ ) and awareness of others' emotions ( $\beta = -0.11$ , 95% CI [-0.28, -0.07],  $p < .001$ ). Moreover, awareness of one's own emotions had a significant indirect effect ( $\beta = 0.04$ , 95% CI [0.11, 0.29],  $p < .001$ ), as did awareness of others' emotions ( $\beta = -0.04$ , 95% CI [-0.29, -0.06],  $p < .003$ ). Detailed results appear in Table S1 in supplementary material.

Concerning the perceived stress measure, results revealed direct effects of SE ( $\beta = -0.50$ , 95% CI [-7.62, -6.02],  $p < .001$ ), awareness of one's own emotions ( $\beta = -0.18$ , 95% CI [-0.93, -0.46],  $p < .001$ ) and awareness of others' emotions ( $\beta = 0.15$ , 95% CI [0.45, 1.05],  $p < .001$ ). The indirect effects of awareness of one's own emotions ( $\beta = -0.05$ , 95% CI [-0.96, -

0.41],  $p < .001$ ) and awareness of others' emotions ( $\beta = 0.05$ , 95% CI [0.43, 1.06],  $p < .001$ ) were also significant. Detailed results appear in Table S2 in supplementary material.

Concerning the occupational stress measure, results revealed significant direct effects of SE ( $\beta = -0.26$ , 95% CI [-0.90, -0.54],  $p < .001$ ), awareness of one's own emotions ( $\beta = -0.12$ , 95% CI [-0.14, -0.04],  $p < .001$ ) and awareness of others' emotions ( $\beta = 0.17$ , 95% CI [0.11, 0.24],  $p < .001$ ). The indirect effects of awareness of one's own emotions ( $\beta = -0.03$ , 95% CI [-0.15, -0.04],  $p < .001$ ) and awareness of others' emotions ( $\beta = 0.06$ , 95% CI [0.10, 0.24],  $p < .001$ ) were also significant. Detailed results appear in Table S3 in supplementary material.

Overall, these results showed that the effects of SE on levels of stress and well-being were partially mediated by awareness of one's own and others' emotions. Alternative models of mediation or moderation effects were tested, but the results were not significant.

## DISCUSSION

This study aimed to investigate the levels of stress among French student nurses and the influence of personal resources related to SE, EI and CMs on their well-being and stress levels.

First, results confirmed that the stress levels of our French first-year student nurses, are significantly higher than standardized scores of the general population in the same age bracket (Cohen, 1983). However, these scores are similar to those of nursing students in other countries (e.g., Bodys-Cupak et al., 2016; He et al. 2018). The physical manifestations of stress (i.e., feeling tense, restless, nervous, anxious or unable to sleep) were relatively severe, as 40.4% of French student nurses reported experiencing many symptoms. However, most respondents reported a good emotional state. Stress was therefore related to specific situations and students had the resources needed to cope with stressful situations.



Concerning personal resources, our result revealed that student nurses had high SE levels and a high proportion of them had high general SE, compared with previously studied populations (Bodys-Cupak et al., 2016; Priesack and Alcock, 2015). This result is important, as it reveals that our respondents had the personal resources needed to cope with stressful situations. A high level of SE is generally associated with active coping, better performance in learning and lower stress levels (Bodys-Cupak et al., 2016). Concerning EI, our results revealed that the highest levels were for awareness of one's own and others' emotions. It is difficult to compare EI scores with those of other studies, as different tools were used to measure EI. However, these data do not confirm what is observed in other populations using the same scale, regarding the major contribution of the management of one's own or others' emotions (Michinov, 2022; Michinov and Michinov, 2022). Students who are just starting their degree course have not yet had many opportunities to manage emotions with colleagues, patients and families. Concerning CMSs, results confirmed that integrating was the style most frequently employed by student nurses, while dominating was the least frequently used, as observed in other studies among both student nurses (Chan et al., 2014) and experienced nurses (Labrague et al., 2018). Integrating could be regarded as the most appropriate style, as it involves high levels of concern for both self and others. Dominating, by contrast, which consists in satisfying one's own needs to the detriment of others, is often the least commonly used style (Johansen and Cadmus, 2016; Michinov, 2022). This preferential choice of cooperative modes of conflict resolution can be explained by the salience of cooperative values in the healthcare sector.

Finally, the most important finding concerns the respective contributions of SE, CMSs and EI on stress and well-being. Results revealed that SE supported students' well-being and reduced their stress, and these effects were partially mediated by awareness of one's own and others' emotions. The notable contribution of SE to the reduction of stress has already been

demonstrated in other studies (Bodys-Cupak et al., 2016; Priesack and Alcock, 2015; Zhao et al., 2015; Zhu et al., 2016). Thus, student nurses with higher SE reported lower levels of stress because they were able to select task-oriented and emotional support-seeking coping strategies to regulate their emotions. In the present study, the mediational models provide further explanation showing that the effect of SE on students' stress or well-being is explained by their ability to identify one's own or others' emotions. It's because they are more effective at recognizing their own and others' emotions that they find effective strategies for coping with stress. In the present study, the effect of SE on the reduction of stress was not explained by a better management of one's own or others' emotions. Several explanations can be provided to understand this result. As mentioned above, the most plausible explanation is that students who are at the beginning of their training have not yet had many opportunities to manage emotions with colleagues, patients, or families. We would expect the management of emotions to acquire greater influence after more experience in the healthcare system. The non-influence of the management of one's own and others' emotions could also be explained by items in the WEIP-S, which concern the management and awareness of the emotions of the participants' workgroup colleagues during their clinical practices, not those of users, victims, or patients (Michinov and Michinov, 2022). Future research should consider adapting the emotional intelligence items to the clinical practice of student nurses. CMS was also found to have no significant effect on either students' stress or well-being, except for the obliging style, which was slightly negatively related to stress. The use of questionnaires could have led to a social desirability bias, particularly for items regarding CMSs. These results support previous studies revealing the complexity of the relationship between CMS and occupational stress (Johansen and Cadmus, 2016a; Labrague et al., 2018a). The effect of CMSs may be influenced by other factors such as the nature of the conflict (i.e., task or relationship

conflict), contextual or individual characteristics associated with the regulation of emotions (Michinov, 2022).

### **Limitations**

The present study had several limitations. First, despite the high number of participants, fewer than expected questionnaires were completed, possibly leading to a selection bias. Online surveys always have lower return rates than paper surveys (Holtom et al., 2022). In addition, we do not know whether all the nursing schools sent the questionnaire to their students. Second, we cannot exclude the possibility of a measurement bias, owing to the use of self-report measures of stress, well-being and personal resources. The student nurses may have responded in ways they considered to be socially desirable rather than reflecting their actual situation. Lastly, we used a cross-sectional approach that prevented us from identifying causal relationships between the factors. Future research should adopt a longitudinal approach to examine the causes and effects of the constructs over time.

### **CONCLUSION**

This study makes a new empirical contribution to the examination of the interrelations between SE, CMSS, EI, stress and well-being in student nurses. Considered simultaneously, the effects of SE and EI are the most important in the model. SE supported students' well-being and reduced their stress, and this effect was explained by awareness of one's own or others' emotions. This study also has practical implications for training programs in nursing schools. As SE was the most influential contributor to students' stress and well-being, nurse educators should develop programs to increase students' SE. These could include training exercises, simulation and role playing to understand and deal with emotions in teams. Such training exercises related to SE and awareness of one's own emotions might make students better prepared to deal with emotional demands (Karabacak et al., 2019; Ruiz-Fernández et

al., 2022). This study shows the importance of continuing to work on the design of appropriate educational activities that enhance the technical and above all nontechnical, skills of future healthcare professionals.

Journal Pre-proof

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## **Conflict of interest**

The authors declare that they have no conflict of interest.

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**Table 1.** Descriptive statistics ( $N = 1021$ )

Variable	<i>M</i>	<i>SD</i>	Median	Min-Max	Cronbach's $\alpha$
Wellbeing	6.60	2.02	7	1–10	–
Perceived stress (PSS-10)	20.47	6.36	20	1–40	.82



(CMS)		*	**										
7.	.13*	-	-.05	.39*	.70*	.14*	-						
Compromisi	**	.19*		**	**	**							
ng (CMS)		**											
8.	.06	-	-	.23*	.13*	-.05	.21*	-					
Dominating		.08*	.06*	**	**		**						
(CMS)		*											
9. Avoiding	-.02	.09*	.07*	-	-.05	.44*	.02	-	-				
(CMS)		*		.08*		**		.08*					
				*									
10.	.23*	-	-	.26*	.40*	.03	.31*	.12*	-	-			
Awareness	**	.28*	.14*	**	**		**	**	.16*				
of one's		**	**						**				
own													
emotions													
(EI)													
11.	.11*	-	-.03	.24*	.41*	.17*	.35*	-	.13*	.18*	-		
Managemen	**	.17*		**	**	**	**	.13*	**	**			
t of one's		**						**					
own													
emotions													
(EI)													
12.	.04	-	.06	.35*	.28*	.04	.32*	.21*	-.01	.25*	.17*	-	
Awareness		.07*		**	**		**	**		**	**		
of others'													
emotions													
(EI)													
13.	.17*	-	-.06	.39*	.47*	.00	.45*	.21*	-	.45*	.25*	.48*	-
Managemen	**	.21*		**	**		**	**	.14*	**	**	**	
t of others'		**						**					



emotions

(EI)

14. Age	.01	-	-	.25*	.13*	-	.14*	.08*	-	.22*	.00	.22*	.18*	-
		.18*	.08*	**	**	.12*	**		.16*	**		**	**	
		**			**			**		**			**	

Note.  $N = 1021$ . \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Table 3.** Multiple regression analyses showing the influence of internal resources on wellbeing, perceived stress and occupational stress

	$\beta$	95% Confidence Interval	
		Lower	Upper
<b>Dependent : Wellbeing</b>			
Self-efficacy	<b>.248</b>	<b>.179</b>	<b>.317</b>
Integrating	-.013	-.101	.075
Obliging	.020	-.047	.086
Compromising	-.005	-.092	.081
Dominating	-.001	-.064	.062
Avoiding	.017	-.051	.084
Awareness of own emotions	<b>.182</b>	<b>.113</b>	<b>.251</b>
Management of own emotions	.021	-.048	.089
Awareness of others' emotions	<b>-.105</b>	<b>-.175</b>	<b>-.036</b>
Management of others' emotions	.061	-.017	.139
Age	<b>-.077</b>	<b>-.140</b>	<b>-.015</b>
<b>Dependent : Perceived Stress</b>			
Self-efficacy	<b>-.489</b>	<b>-.550</b>	<b>-.428</b>
Integrating	.073	-.005	.150
Obliging	<b>.069</b>	<b>.010</b>	<b>.128</b>
Compromising	-.025	-.101	.052
Dominating	.024	-.032	.080
Avoiding	-.001	-.061	.058
Awareness of own emotions	<b>-.186</b>	<b>-.247</b>	<b>-.124</b>
Management of own emotions	<b>-.065</b>	<b>-.125</b>	<b>-.004</b>
Awareness of others' emotions	<b>.152</b>	<b>.091</b>	<b>.214</b>
Management of others' emotions	-.007	-.077	.062

Age	-.052	-.107	.003
<b>Dependent : Occupational stress</b>			
Self-efficacy	<b>-.249</b>	<b>-.319</b>	<b>-.179</b>
Integrating	.033	-.056	.122
Obliging	<b>.089</b>	<b>.021</b>	<b>.156</b>
Compromising	.005	-.082	.093
Dominating	-.025	-.088	.039
Avoiding	-.004	-.072	.064
Awareness of own emotions	<b>-.129</b>	<b>-.198</b>	<b>-.059</b>
Management of own emotions	-.014	-.083	.055
Awareness of others' emotions	<b>.169</b>	<b>.099</b>	<b>.239</b>
Management of others' emotions	.014	-.065	.093
Age	-.017	-.080	.046

### Credit authorship contribution statement

Estelle Michinov, Gaël Robin and Marielle Boissart contributed to the study conception and design and data collection. Material preparation and statistical analyses of data were performed by Brivael Hémon and Rémi Béranger. The first draft of the manuscript was written by Estelle Michinov, and all the authors commented on subsequent versions of the manuscript. All the authors read and approved the final manuscript.

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: