Longitudinal study predicting burnout in Spanish nurses: The role of neuroticism and emotional coping

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A R T I C L E   I N F O

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Burnout
Emotional coping
Neuroticism
Nursing
Personality

A B S T R A C T

The aim of the present study was to investigate whether nursing students’ neuroticism trait and coping styles can predict nurses’ professional burnout. A three-wave longitudinal study with a time lag of 6 years was conducted, following nursing students from three Spanish universities until they joined the health labor market. The sample consisted of 249 students in the first year of their nursing studies (T1), 199 at the end of their studies (T2), and 70 registered nurses three years after graduation (T3). Predictor variables were neuroticism, emotional and behavioural coping. Criterion variables were the three components of burnout (emotional exhaustion, depersonalization, and personal accomplishment). To examine the model fit between the predictor and criterion variables, we conducted structural equation modelling. Three years after graduation, 23% of the nurses reported high levels of burnout emotional exhaustion, and 11.4% reported high levels of burnout depersonalization. Structural equation modelling shows a direct effect of neuroticism and emotional coping on burnout-emotional exhaustion and -depersonalization. We suggest that training programs (e.g. mindfulness) aimed to increase nurses’ emotional regulation should be implemented in both universities and healthcare institutions, in order to prevent and deal successfully with future situations of burnout.

1. Introduction

The European Foundation for the Improvement of Living and Working Conditions has shown that job burnout can be considered, along with anxiety, depression, cardiovascular diseases, and musculoskeletal problems, a serious risk for the individual health and well-being, according to the International Labour Organization (2016).

Research on registered nurses has shown that they can suffer severely from stress (Lim, Bogossian, & Ahern, 2010) and professional burnout (Grau-Alberola, Gil-Monte, García-Juesas, & Figueiredo-Ferraz, 2010). In fact, almost one in every five newly qualified nurses reported extremely high burnout levels at some point during their first three years after graduation (Rudman & Gustavson, 2011).

Longitudinal research has focused on the negative effects of burnout on nurses’ mental health (Diestel & Schmith, 2010; Grau-Alberola et al., 2010; Gustavson, Hallsten, & Rudman, 2010; Reknes et al., 2014; Rudman & Gustavson, 2011; Shikai, Shono, & Kitamura, 2009). Understanding the detrimental outcomes of nursing-associated burnout processes is important for enhancing nurses’ wellbeing, but it is also essential to identify predictors in order to develop interventions to modify individual variables that can play a significant role in burnout. Nevertheless, little is known about the predictors of these burnout processes.

Although the neuroticism trait and emotional coping have been correlated in Spanish nursing students (Fornés-Vives, García-Banda, Frias-Navarro, Hermoso-Rodríguez, & Santos-Abauza, 2012), to our knowledge, only two longitudinal studies have been published about the influence of personality traits on burnout in nurses (Burisch, 2002; Hudek-Knežević, Kalezic, & Krapić, 2011). The first study examined the contribution of the Big Five personality model to burnout in nursing students (from the beginning to the end of their studies), and it identified neuroticism as a strong predictor of emotional exhaustion and depersonalization (Burisch, 2002). In the second study, agreeableness was a predictor of reduced personal accomplishment in registered

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nurses with more than two and a half years of professional experience (Hudek-Knežević et al., 2011).

Graduation is a very significant event for nurses, but the transition to professional work can be critical in terms of work stress. In fact, newly qualified nurses suffer from transitional stress when entering the healthcare workforce, despite several years of training (Gustavson et al., 2010). Transitional stress defines a challenging personal and professional process that involves moving from the known role of a student to the less familiar role of staff nurse (Boychuk, 2009). Newly qualified nurses must adjust appropriately to the workplace (including relationships with patients, families, and co-workers), counting only on their limited technological skills and clinical experience. This adaptation process may cause feelings of anxiety, insecurity, inadequacy, and instability. To understand the role of personal factors that cause discomfort in this transition process, it is essential to promote a critical adjustment and, therefore, higher quality nursing caring.

Although there are some studies on the transition of nursing students into the registered nurse workforce, the majority has focused mostly on environmental factors, and few have addressed the first years of their professional role (Faraz, 2016; Tastan, Unver, & Hatiplogu, 2013). Even fewer studies are longitudinal (Cherniss, 1989), and we found no published work that started with nursing students and followed them into their professional careers.

In sum, no published study has examined the influence of personality and coping on professional burnout in nurses from the beginning of their nursing studies to the three first years of their professional role. Therefore, the study of the contribution of personality traits and coping styles to burnout processes represents a substantial gap in the nursing literature.

Thus, the objective of this 6-year three-wave longitudinal study was to investigate whether nursing students’ neuroticism trait and emotion-focused and problem-focused coping can predict nurses’ burnout. The first measurement was conducted at the beginning of the first year of their studies (T1), the second was carried out after three years, coinciding with the end of their degree (T2), and the third took place three years after they enrolled in the workforce (T3). Based on the theoretical and empirical findings mentioned above, the following hypotheses were formulated (and incorporated in the research model, see Fig. 1).

1. The neuroticism personality trait positively predicts burnout at T3 (Model 1).
2. Emotional- and behavioural-focused coping positively predict burnout at T3 (Model 2).  
   2.1. Emotional coping predicts burnout (Model 2.1).  
   2.2. Behavioural coping predicts burnout (Model 2.2).

2. Methods

2.1. Study design

A non-experimental, longitudinal, three-wave prospective cohort study followed nursing students from three Spanish universities until they joined the labour market.

2.2. Participants

At T1, 249 nursing students participated (Fornés-Vives et al., 2012). Three years later (T2), 199 students (79.92% response rate) remained (Fornés-Vives, García-Banda, Frías-Navaarro, & Rosales-Viladrich, 2016). In the present study at T3, 70 participants (35.2% response rate) remained, of whom 82% had been working for more than one year. The age range was 20–48, and the mean age was 26.99 ± 5.72; the majority were women (88.5%), which is common in the nursing profession.

2.3. Instruments

2.3.1. Predictor variables

Personality: The Neuroticism (N) factor was measured using the Spanish version of the N-subscale of the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992) – adapted to the Spanish population by Cordero, Pamos, and Seisdedos (1999). On this 12-item subscale, participants answered on a five-point scale (1 = strongly agree, 5 = strongly disagree), rating the similarity of each item to their own usual thoughts and actions. Internal consistency measured with Cronbach’s alpha was 0.68 in T1, 0.83 in T2, and 0.86 in T3. The N subscale assesses the general tendency to experience negative emotions, such as anxiety, shame, and guilt, and to have difficulty controlling impulses and facing stress situations effectively (Costa & McCrae, 1992).

Coping: We used two scales from the COPE Questionnaire (Carver, Scheier, & Weintraub, 1989) – adapted to the Spanish population by Crespo and Cruzado (1997): ‘behaviour-focused coping” (11 items, \( \alpha = 0.63 \) in T1, 0.58 in T2, and 0.67 in T3) and “emotion-focused coping” (12 items, \( \alpha = 0.83 \) in T1, 0.83 in T2, and 0.85 in T3). Participants indicated on a four-point scale the extent to which they used the strategy, ranging from 0 (do not do this at all) to 3 (do this a lot). According to Lazarus and Folkman (1984), coping is a dynamic and changing process between a person and his/her environment. During this process, the person tries to solve problems by changing the environment (problem-focused coping) or the meaning of the event, in Fig. 1. Theoretical models designed to guide this research.

Note. NT1 = Neuroticism Time1; NT2 = Neuroticism Time2; NT3 = Neuroticism Time3; ECT1 = Emotional Coping Time1; ECT2 = Emotional Coping Time2; ECT3 = Emotional Coping Time3; BCT1 = Behavioural Coping Time1; BCT2 = Behavioural Coping Time2; BCT3 = Behavioural Coping Time3.
order to reduce the negative feelings associated with the problem (emotion-focused coping).

2.3.2. Criterion variable

Burnout: The Spanish version of Maslach Burnout Inventory (MBI; Maslach & Jackson, 1986), adapted by Seisdedos (1997), was used at T3. The MBI measures three components of burnout: emotional exhaustion (9 items, α = 0.84), depersonalization (5 items, α = 0.56), and personal accomplishment (8 items, α = 0.77). Answers were scored on a seven-point scale from 0-never to 6-every day. Maslach defined burnout as scores higher than 24 on emotional exhaustion and higher than 9 on depersonalization, along with scores under 33 on personal accomplishment. Emotional exhaustion is considered a core dimension and the first symptom of burnout process (Maslach & Jackson, 1981), whereas depersonalization is considered a maladaptive coping strategy (Diestel & Schmith, 2010) that increases the progression of burnout (Rudman & Gustavson, 2011), and reduced personal accomplishment seems to be a consequence of emotional exhaustion (Taris, Le Blanc, Schaufeli, & Schreurs, 2005).

2.4. Procedure

At T1, students in the first year of their studies in three Spanish nursing schools were invited to participate in the study. Full explanation of the research project was provided, and informed consent was obtained from students who agreed to participate. At T1 and at the end of their studies (T2), participants completed the set of questionnaires to measure personality, coping, and socio-demographic variables in a regular lecture class (Fornés-Vives et al., 2012; 2016). At T3, three years after graduation, T2 participants were contacted by phone or email and asked to collaborate in the last wave of the study. In the three phases of the study, it was made clear that participation was voluntary, that they could withdraw from the study at any time, and that their information would remain confidential. The same set of T1 and T2 questionnaires and a self-report on burnout were sent to participants and returned by email. Three reminders were sent by email to encourage participation.

2.5. Statistical analysis

Analyses were conducted using the IBM Statistical Package for Social Sciences (IBM SPSS) version 24 for Windows. First, sample attrition, descriptive statistics, and Pearson correlations between the study variables were calculated. Second, to test the hypotheses of the study models, we used structural equation modelling (SEM) with the EQS 6.2 software (Multivariate Software, 2012). Estimation was performed using the covariance matrix and maximum likelihood method (Bentler, 1995; Ullman & Bentler, 2004). Several criteria were used to evaluate the goodness-of-fit of the models, including the chi-square ($\chi^2$; Hu & Bentler, 1999), Comparative Fit Index (CFI; Bentler, 1990), Normed Fit Index (NFI; Bentler & Bonett, 1980), Non-Normed Fit Index (NNFI; Bentler & Bonett, 1980), and Standardized Root Mean Square Residual (SRMR). A reasonable fit is indicated if $\chi^2$ is not statistically significant, CFI, NFI, and NNFI are 0.90 or above, and SRMR is below 0.06.

3. Results

3.1. Preliminary analyses

To assess attrition bias, the T1, T2, and T3 mean scores on neuroticism, behavioural coping, and emotional coping for participants who remained in the study and those who dropped out were compared. No significant differences were found on any of the three variables.

Descriptive analysis (Table 1) showed that neuroticism scores and the use of behavioural and emotional coping strategies remained stable over time (except behavioural coping T2 > T1; $p = .04$). The T1, T2, and T3 neuroticism score means were slightly lower in our sample than in the NEO-FFI manual ($M = 22.33; SD = 7.99$) reported for adolescents and young people (17–23 years old) by Costa McCrae (1992; pp. 127). Finally, participants used more emotional coping than behavioural coping in the three assessments.

Table 1. Descriptive statistics and correlations among the study variables (n T1 = 249; n T2 = 199; n T3 = 70).

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>4</th>
<th>5</th>
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<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
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<tbody>
<tr>
<td>1. Age T1</td>
<td>20.97</td>
<td>05.13</td>
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<tr>
<td>2. Age T2</td>
<td>23.23</td>
<td>04.84</td>
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<td>3. Age T3</td>
<td>26.99</td>
<td>05.72</td>
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<td>4. Neuroticism T1</td>
<td>21.71</td>
<td>07.23</td>
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<tr>
<td>5. Neuroticism T2</td>
<td>22.07</td>
<td>09.10</td>
<td>0.63*</td>
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<td>6. Neuroticism T3</td>
<td>21.53</td>
<td>08.58</td>
<td>0.52**</td>
<td>0.67**</td>
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<tr>
<td>7. Emotional Coping T1</td>
<td>0.82</td>
<td>00.54</td>
<td>0.35**</td>
<td>0.44**</td>
<td>0.33**</td>
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<td>8. Emotional Coping T2</td>
<td>0.90</td>
<td>00.55</td>
<td>0.27**</td>
<td>0.47**</td>
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<td>9. Emotional Coping T3</td>
<td>0.85</td>
<td>00.48</td>
<td>0.24**</td>
<td>0.29**</td>
<td>0.33**</td>
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<tr>
<td>10. Behavioural Coping T1</td>
<td>0.29</td>
<td>00.36</td>
<td>0.07**</td>
<td>0.03**</td>
<td>0.31**</td>
<td>0.26**</td>
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<td>11. Behavioural Coping T2</td>
<td>0.38</td>
<td>00.34</td>
<td>0.05**</td>
<td>0.10**</td>
<td>0.04**</td>
<td>0.49**</td>
<td>0.05**</td>
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<tr>
<td>12. Behavioural Coping T3</td>
<td>0.34</td>
<td>00.29</td>
<td>0.21**</td>
<td>0.21**</td>
<td>0.21**</td>
<td>0.20**</td>
<td>0.09**</td>
<td>0.48**</td>
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<tr>
<td>13. Burnout EE T3</td>
<td>16.65</td>
<td>10.01</td>
<td>0.32**</td>
<td>0.43**</td>
<td>0.40**</td>
<td>0.39**</td>
<td>0.32**</td>
<td>0.02**</td>
<td>0.28**</td>
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<tr>
<td>14. Burnout DE T3</td>
<td>03.75</td>
<td>04.10</td>
<td>0.16**</td>
<td>0.32**</td>
<td>0.34**</td>
<td>0.17**</td>
<td>0.23**</td>
<td>0.00**</td>
<td>0.07**</td>
<td>0.07**</td>
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<tr>
<td>15. Burnout RPA T3</td>
<td>38.62</td>
<td>06.59</td>
<td>0.03**</td>
<td>0.13**</td>
<td>0.02**</td>
<td>0.32**</td>
<td>0.14**</td>
<td>0.07**</td>
<td>0.02**</td>
<td>0.00**</td>
<td>0.00**</td>
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</tbody>
</table>

Note. EE = Emotional Exhaustion; DE = Depersonalization; RPA = Reduced Personal Accomplishment.

*p < .05; **p < .01.
3.3. Test for main hypotheses and specific predictions

The study hypotheses were tested using the SEM approach. Following the criteria proposed by Hooper, Coughlan, and Mullen (2008), the analyses showed a good approximate fit to our data in two models (Table 2) that supported hypothesis 1 and part of hypothesis 2. With regard to the first hypothesis, the latent construct of neuroticism (exogenous variable) was measured through observable variables (neuroticism in T1, T2, and T3), and burnout syndrome (endogenous variables) was measured from the emotional exhaustion and depersonalization dimensions of burnout, respectively. We selected the emotional exhaustion and depersonalization burnout variables because correlation analysis only indicated relationships between the T1, T2, and T3 neuroticism and emotional coping variables. The results showed a good fit for model 1 (see Table 2).

In the second hypothesis, we asserted that the latent constructs of emotional coping and behavioural coping (exogenous variables), measured at T1, T2, and T3, would predict the endogenous variables of burnout at T3. The results demonstrated an acceptable data fit for model 2.1 (see Table 2). Therefore, emotional coping styles are able to predict burnout. Finally, behavioural coping was not a good predictor of burnout (model 2.2). Regarding the fit of model 2.2, we can see acceptable indicators for $\chi^2$ and CFI, but not for SRMR, NFI, or NNFI (although the latter two were higher than 0.80). Consequently, we did not obtain support for the ability of the behavioural coping style to predict burnout in our SEM model. The path analysis confirms that neuroticism and emotional coping predicts burnout (Figs. 2 & 3).

4. Discussion

Our study examined the influence of personality and coping on burnout during the 6-year-transition period from the beginning of nurses' training to the first three years of their professional role.

With respect to burnout, we obtained a 11.4% DE-burnout prevalence, higher than the rate (8.86%) obtained by Grau-Alberola et al. (2010), although their EE-burnout prevalence rate (22.47%) was very similar to ours (23%). A recent systematic review by Gómez-Urquiza et al. (2017), which included five studies about the presence of Spanish burnout in primary healthcare nurses using the MBI, showed high EE-burnout levels ranging from 5.2% to 31.3% and high DE-burnout levels ranging from 8.6% to 32.2%. In sum, our results coincide with other studies found in the nursing burnout literature.

### Table 2

Goodness-of-fit indices for all path models.

<table>
<thead>
<tr>
<th>Model</th>
<th>$\chi^2$</th>
<th>df</th>
<th>CFI</th>
<th>NFI</th>
<th>NNFI</th>
<th>SRMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism-Burnout ($M_1$)</td>
<td>6.887ns</td>
<td>4</td>
<td>0.973</td>
<td>0.941</td>
<td>0.932</td>
<td>0.050</td>
</tr>
<tr>
<td>Emotional Coping-Burnout ($M_{2.1}$)</td>
<td>5.496ns</td>
<td>4</td>
<td>0.981</td>
<td>0.937</td>
<td>0.951</td>
<td>0.063</td>
</tr>
<tr>
<td>Behavioural Coping-Burnout ($M_{2.2}$)</td>
<td>8.680ns</td>
<td>4</td>
<td>0.927</td>
<td>0.883</td>
<td>0.817</td>
<td>0.094</td>
</tr>
</tbody>
</table>

Note. df = Degrees of Freedom; CFI = Comparative Fit Index; NFI = Non-Normed Fit Index; NNFI = Non-Normed Fit Index; SRMR = Standardized Root Mean Square Residual. ns = Non-significant.

Fig. 2. Results of structural equation modelling between neuroticism and burnout. Standardized solution (Model 1).

Fig. 3. Results of structural equation modelling between emotional coping and burnout. Standardized solution (Model 2.1).
As expected, the emotional personality trait of neuroticism was highly related to burnout. Therefore, as neuroticism increases, two of the three burnout factors, emotional exhaustion and depersonalization, also increase. In our review of cross-sectional studies, we found similar associations between neuroticism and EE-burnout ($r = 0.37$; Hochwälder, 2009; $r = 0.47$; Zellars, Hochwarter, Perrewé, Hoffman, & Ford, 2004) and between neuroticism and DE-burnout ($r = 0.13$, Hochwälder, 2009; $r = 0.38$, Zellars et al., 2004) in professional nurses. However, Cañadas-De La Fuente et al. (2015) obtained higher correlations between neuroticism and EE- ($r = 0.58$) and DE-burnout ($r = 0.41$) than in our study, but their sample was from another Spanish region, older, and more experienced. According to Suls and Martin’s neurotic cascade (2005), people with high neuroticism tend to have difficulties dealing with negative thoughts and emotions, and stronger reactions to recurring problems (hyperreactivity to all kinds of stressors).

As found in the literature, emotional coping was related to burnout. In our study, the use of emotional coping by nursing students at the beginning of their studies was associated with EE- and RPA-burnout, and with EE-burnout when they were working as health professionals. Support for these relationships between emotional coping and EE-burnout and between emotional coping and RPA-burnout was found in the literature (Ben-Zur & Michael, 2007; Buitendach & Moola, 2011; Payne, 2001; Shinan-Altmann, Werner, & Cohen, 2016). In fact, a recent meta-analysis concluded that different coping strategy interventions could reduce nurses’ EE-burnout (Huang-Fang, Chia-Chi, Tsair-Wei, & Yu-Rung, 2016).

More importantly, the findings based on SEM analyses provided evidence that neuroticism plays a significant role in predicting cases of burnout. Our results also suggest that neuroticism and emotional coping are good predictors of burnout factors. Thus, emotional instability was a particularly salient predictor of EE and DE experiences, leaving personal accomplishment out of this prediction. Based on cross-sectional studies (Cañadas-De La Fuente et al., 2015; Narumoto et al., 2008), we know that emotional instability plays an important role in burnout. However, to the best of our knowledge, this is the first longitudinal study following nursing students until they enter the workforce that confirms the involvement of the neuroticism trait in burnout syndrome. We believe that the tendency to worry and react quite emotionally to professional demands makes individuals more vulnerable to feelings of fatigue, irritability, and resource depletion, leading to emotional exhaustion over time. Moreover, professional nurses with high levels of neuroticism may need to detach and protect themselves from the emotional stress of their workplace through indifference, cynicism, and depersonalization. Therefore, emotion regulation training (relaxation, mindfulness, and cognitive-behaviour techniques) seems necessary in the nursing curricula in order to provide nursing students with the emotional abilities and skills they will need in their professional environment. However, high levels of the neuroticism trait do not seem to interfere in nurses’ sense of self-efficacy or reduce their personal accomplishment after three years of professional experience.

Likewise, the path predicting the effect of emotion coping on emotional exhaustion and depersonalization was statistically significant. However, the effect of behavioural coping on burnout was not significant. These findings indicate that only emotional (not behavioural) coping contributes to the development of potential emotional burnout (EE, DE) experiences, but it does not determine personal accomplishment. No evidence of similar results in longitudinal nursing studies has been found to support our findings. Based on our results, emotional exhaustion and depersonalization could be considered two consequences of using maladaptive emotional strategies. Emotion-focused coping seems to be less effective than behavioural coping in solving work demands. However, personal accomplishment may be more related to personal resources that nurses believe they have in work-related situations than to the use of coping strategies.

Regarding a potential explanation of the neuroticism, coping behaviour, and burnout relationships, Narumoto et al. (2008), in a Japanese cross-sectional study with 72 nurses and nurse’s assistants and using a structural equation modelling, found that emotion-oriented coping mediated the negative influence of neuroticism on burnout. As Suls and Martin (2005) showed in their review about reactivity to stress and the use of coping strategies in neurotic people, individual differences not only influence reactivity to stressors, but they also contribute to the use of maladaptive coping strategies and are associated with the creation and complication of stressors. Some of their reviewed studies showed that people with high neuroticism tend to exaggerate the degree of threat and underestimate their personal resources. Due to their high emotional reactivity, they try to solve their daily problems through emotion-focused strategies, rather than using problem-focused strategies.

4.1. Strengths, limitations, and future implications

The main strength of our study was the three-wave longitudinal assessment of nursing students’ basic traits and coping styles in order to predict burnout. We followed 249 students from three different Spanish universities from the beginning of their studies (T1) to the end (T2), and three years after entering the nursing workforce (T3). To our knowledge, no longitudinal study of these characteristics has been published in the nursing field. The study not only builds on previous cross-sectional evidence, but it also expands previous research by using longitudinal SEM analysis.

One considerable limitation is the sample size drop from wave 2 to wave 3. Unfortunately, when we started this study, the Spanish financial crisis produced a large number of job losses, even for health professionals. Therefore, some participants declined to respond in wave 3 because they had been unable to enter the nursing workforce. This unexpected reduction in sample size did not allow us to examine whether coping styles were mediators between the neuroticism personality trait and burnout, due to the greater complexity of the resulting model.

Our results may have important implications for further nursing research and practice because it emphasizes the involvement of neuroticism and the emotional coping style in the detrimental experience of burnout in nursing professionals. Follow-up studies using larger professional nursing samples and other areas affected such as family (Martínez, Murgui, García, & García, 2019), extended time lags, and refined measurement methods are needed to confirm or reject our findings.

5. Conclusions

Professional burnout is a very serious nursing stress process that, based on our results, can be predicted by students’ neuroticism trait and emotional coping style. The nursing profession entails a serious commitment to patients and continuous involvement with co-workers, requiring the ability to build cordial, respectful, and caring interpersonal relationships. In order to prevent nursing professionals’ burnout, our results suggest that it would be necessary to implement an intervention program designed to build emotional regulation in nurses. The program could start while they are students at the university and be maintained throughout their professional lives. This program should include not only relaxation, but also mindfulness techniques, in an attempt to provide nurses with a broad base of resources with which to achieve more adaptive and healthier ways to face professional problems. It would train participants, based on their emotional personality profile, to recognize and identify their reactions in order to fully process and regulate their emotional responses when dealing with professional stress and exhaustion.

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