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**Article:**

Martinez-Inigo, D., Bermejo-Pablos, C. and Totterdell, P. [orcid.org/0000-0002-5335-2611](https://orcid.org/0000-0002-5335-2611)  
(2018) The Boomerang Effect: How Nurses' Regulation of Patients' Affect Associates With Their Own Emotional Exhaustion and Affective Experiences. *International Journal of Stress Management* , 25 (1). pp. 1-13. ISSN 1072-5245

<https://doi.org/10.1037/str0000039>

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**The boomerang effect: How nurses' regulation of patients' affect associates with their own emotional exhaustion and affective experiences.**

Published in:

Martinez-Íñigo, D., Bermejo-Pablos, C., & Totterdell, P. (2018). The boomerang effect: How nurses' regulation of patients' affect associates with their own emotional exhaustion and affective experiences. *International Journal of Stress Management*, 25, 1-13. doi: 10.1037/str0000039

**Abstract:**

Recent research has shown that the intentional regulation of others' affect has effects not only on the target (e.g., a patient) of the regulation, but also on the agent (e.g., a nurse). In particular, the use of intentional interpersonal affect regulation strategies has been found to predict employees' emotional exhaustion. Use of affect-worsening strategies is associated with an increase in emotional exhaustion, whereas the effect of using affect-improving strategies is less clear. Another relevant consequence of interpersonal affect regulation is its effect on affective experiences, which is one of the main determinants of job attitudes. This study tests the relationships between the interpersonal affect regulation strategies that nurses use to regulate their patients' affect and the nurses' emotional exhaustion and affective experiences. A longitudinal two-wave field study was conducted in sample of nurses. Participants completed a questionnaire on two different occasions, 2 months apart (T1, T2). Of the 141 participants at T1, 103 also completed the survey at T2. Longitudinal hierarchical regression analyses showed that using affect-worsening strategies was a significant predictor of nurse's emotional exhaustion, whereas using affect-improving strategies did not significantly predict their emotional exhaustion. For affective experiences, use of affect-worsening strategies was related to nurses experiencing low-activation negative affect (e.g., feeling depressed); whereas affect-improving strategies was related to them experiencing low-activation positive affect (e.g., feeling calm). Results support the view that intentional regulation of patients' affect needs to be considered not only in relation to the patients' perception of service quality but also from the perspective of nurses' well-being.

**Key words:** Interpersonal Affect regulation, self-control, emotional exhaustion, affective experience, emotion labor.

## **Introduction.**

Deliberately trying to influence other people's affect is common in social life. Emotions play a core role in social interactions, including those involved in the delivery of healthcare. Previous studies have shown that interpersonal affect regulation –the process of deliberately influencing the internal feeling states of others– is a pervasive phenomenon that occurs in a variety of interpersonal relationships and contexts (Niven, Totterdell, & Holman, 2009). Gray (2009) identifies nurses' emotion regulation during the interaction with patients as a key process that sustains the quality of nurse-patient care. Nursing frequently demands being with patients during difficult procedures or suffering from serious conditions and dealing with distrustful patients, aggressive patients or uncooperative patients when behavioural changes are required. Qualitative and quantitative evidence shows that all these functions are common in nurses' care delivery and require the use of interpersonal affect regulation to manage the patients' emotions (Allcock & Standen, 2001; Bakker & Heuven, 2006; Gray, 2009; Le Blanc, Bakker, Peeters, van Heesch & Schaufeli, 2001). Examples of strategies that nurses typically perform to intentionally change patients' affect when enacting these functions include: making a joke to cheer a patient up, dampening the high spirits of patients so that they absorb important information, and complimenting patients on their courage in order to encourage treatment adherence. Nurses' interpersonal involvement is a core feature of nursing that has therapeutic potential (Hunter & Smith, 2007)

Regulating the *patients' emotion*: consequences on nurses' well-being and affective experience

Despite its relevance for interaction with patients, the intentional regulation of patients' affect has been neglected in the study of emotion regulation at work. It is well-established that professionals' regulation of their own emotions has consequences for the quality of service they deliver and for their own well-being (Hülshager & Schewe, 2011). Professionals use different types of self-regulation strategy to express appropriate emotions to clients, and their

choice of strategy has an impact on their own well-being (Hülshager & Schewe, 2011). However, only a few studies have investigated the effects of intentional regulation of others' (patients, clients, colleagues) affect on job well-being. To the authors' knowledge no previous studies have analysed the effect of interpersonal affect regulation on nurses' well-being.

Niven et al. (2009) have empirically established two different categories of interpersonal affect regulation. First, they define interpersonal affect regulation that is aimed at improving how others feel (affect-improving). This can involve the agent (e.g., a nurse) trying to induce a positive feeling in a target person (e.g., a patient) but it can also involve reducing a negative feeling. Examples of affect-improving strategies in the nursing context are paying patients compliments and listening to their problems. A second category describes interpersonal affect regulation that is aimed at worsening how others feel (affect-worsening). This can involve trying to induce a negative feeling in a target person but it can also involve dampening a positive feeling. Examples of affect-worsening strategies used in nursing are making patients aware of the negative consequences that their behavior (e.g., smoking, amount of activity) has upon themselves or withdrawing attention from inappropriate behaviors to extinguish them. Affect-worsening strategies are typically used less often than affect-improving strategies, but can show stronger relations with health-related outcomes for those using them even when usage levels are low (Niven, Totterdell, Stride & Holman, 2011).

The use of interpersonal affect regulation strategies has been shown to influence the target's affective experience and also the quality of relationship between agent and target (Niven, Holman, & Totterdell, 2012). Less is directly known about the personal consequences for the agent, especially in healthcare settings. Our study empirically tests the effects of nurses' interpersonal affect regulation during interactions with patients on their emotional exhaustion (EEx) and affective experiences, in light of the fact that feedback from patients may be influential.

Interpersonal affect regulation and emotional exhaustion.

Emotional exhaustion is a state of physical and emotional depletion that usually arises from excessive personal demands and is one of the components of burnout (Maslach, Jackson, & Leiter, 1996). A recent study of healthcare workers showed that individuals' EEx was greater after trying to worsen patients' affect (Martínez-Iñigo, Poerio, & Totterdell, 2013). No relationship was found between using affect-improving strategies and EEx, until positive feedback from the patient –a mechanism that recovers resources drained during the interaction with the patient– was controlled which produced a positive relationship (i.e. a depleting effect).

The impact of interpersonal affect regulation on the agent's EEx has been explained as a consequence of the balance between two opposing processes (Martínez-Iñigo et al., 2013). Applied to the nurse-patient relationship, the first process refers to the self-regulation effort that the nurse puts into the regulation of the patient's affect. Interpersonal affect regulation strategies intentionally pursue the goal of changing the patient's affect. Goal-oriented behavior entails self-regulation which is a demanding process that relies on the availability of a limited resource. Drawing on the strength model of self-regulation (Baumeister, Bratslavsky, Muraven, & Tice, 1998), interpersonal affect regulation can be categorized as a deliberate self-regulation process that consumes self-regulation resources. For interpersonal affect regulation during healthcare delivery, self-regulatory resource might be required at different time points in the regulation process. For instance, nurses might need to select which strategy is most appropriate to the characteristics of the patient or detect when a change in the strategy is necessary. So sustained interpersonal affect regulation – in the absence of a mechanism to recover resources drained by the self-regulation effort – can end in a state of emotional exhaustion because it drains the limited regulatory resource. This process explains the positive relationship between the use of affect-worsening and EEx.

The second process involved in the explanation of the effects of interpersonal affect regulation on EEx is related to the amount of self-regulation resources the nurse recovers through the patient's feedback. According to the Conservation of Resource Model (Hobfoll, 1989), the patient's feedback contributes to the recovery of the resources that the nurse consumes during the social interaction. Martínez-Iñigo et al. (2013) have found evidence that patients' positive feedback buffers mental health professionals from the draining effects of interpersonal affect regulation during care delivery encounters. Affect-worsening strategies reduce the likelihood of positive feedback from the patient and increase the risk of emotional exhaustion. On the contrary, affect-improving strategies increase the likelihood of positive responses from the patients, counteracting the depleting effects of consciously regulating the patients' emotions. This explains why there is no relationship between affect-improving and EEx until the effects of feedback are removed from the equation.

Drawing on this research, we expected that the kind of strategy nurses use to regulate patients' emotions will contribute to explaining the effects of the interpersonal emotional demands associated with the nurses' role. For affect-worsening strategies, although their use in nursing work may be uncommon, we expect their effects on EEx will be significant. Specifically, we hypothesize that there will be a positive relationship between the use of affect-worsening strategies and EEx (H1a) because they deplete resources without initiating recovery. For interpersonal affect-improving, we hypothesise that the relationship with EEx will be negative (H1b) because of the buffering effect of patients' positive feedback, which may be more likely in a primary care role than in other care roles.

Interpersonal affect regulation and nurses' affective experience.

Niven, Totterdell, Holman, and Headley (2012) found initial evidence for a link between interpersonal affect regulation and agent's affective experience in two studies. They found that

agents experienced positive affect (e.g., enthusiasm) more frequently and with greater intensity when they had used affect-improving strategies. The opposite pattern was found for negative affective experience. Agents' negative affective experiences (e.g., anxiety) were positively associated with having used affect-worsening strategies.

This relationship between interpersonal affect regulation and affective experiences may be relevant for the formation of job attitudes because, affective experiences have a direct influence on job attitudes. Empirical evidence has shown that affective experiences contribute to the development of attitudes through their influence on the evaluative component of attitudes (Breckler & Wiggins, 1989). The relationship between emotion regulation, affective experiences and action tendencies has been found for people's regulation of their own emotions at work and the relationship between emotion regulation and job attitudes has been empirically supported for nurses regulation of their own emotions (Yang & Chang, 2008).

Drawing on communication and appraisal theories of emotions (Van Kleef, 2014), we hypothesized that nurses' affective experiences will be predicted by the type of interpersonal affect regulation strategy they use during interactions with patients because the strategy will affect the feedback they receive. Research on the social dimension of emotions in organizations has described emotional cycles where the emotions of an individual influence the emotions of others (Hareli & Rafaeli 2007). Interpersonal affect regulation during health care delivery involves nurse's behavior intentionally aiming to change the patient's emotions. The patient's emotional expression following nurses' interpersonal affect regulation can ignite a cycle of emotion interchanges with the patient.

For affect-worsening strategies, nurses are more likely to receive negative feedback from patients. This negative feedback involves the expression of negative emotions that may be unconsciously mimicked and internalised by the nurses through a process of emotion contagion (Hatfield, Cacioppo, Rapson, 1994). Also nurses may perceive patients' expression

of negative emotions as an inappropriate response in a caring context. Perceptions of inappropriateness for emotional expression tend to evoke negative emotions in the perceiver (van Kleef, 2014). Thus, we expect that nurses use of interpersonal emotion regulation to worsen patients' affect will be positively associated with them experiencing both high-activation negative affect (e.g., anger) (H2a) and low-activation negative affect (e.g., depressed) (H2b).

For affect-improving strategies, the likelihood of patients' positive feedback through the expression of positive emotions is higher. In this case nurses' emotional contagion will be conducive to positive affective experience. Also expression of positive emotions (e.g., compassion, optimism) is considered more appropriate in a caring context, so patients' feedback will not evoke nurses' negative emotions. We expect that nurses use of interpersonal emotion regulation to improve patients' affect will be positively associated with them experiencing both high-activation positive affect (e.g., enthusiasm) (H3a) and low-activation positive affect (e.g., relaxed) (H3b).

## **Method**

### **Participants and procedure**

Participants were nurses located within the surgical and the outpatient services at a public hospital of a large urban community. Participants were recruited by the staff of the hospital's Nursing Management Department. The study used a longitudinal two-wave field study. A total of 141 nurses completed the questionnaire in the first wave (T1). Concerning demographics, 94.3% of participants were female, 82.3 % were located in the surgical service and 17.7% in the outpatients service, mean age was 47.4 years ( $SD = 10.0$ ) and mean job tenure was 20.5 years ( $SD = 11.8$ ). Nurses in surgical service attended patients in the holding area before surgery and monitored the patient's state in the first moments after surgery. During these periods regulation of the patients affect was required to make possible some medical

procedures (e.g., initiation of intravenous line) and to care for the patients (e.g., reducing anxiety or fear). Outpatient nurses attended their own patients. Regulation of patients' emotions was expected during these interactions as in other health care interactions (Gray, 2009). In the second wave (T2), a total of 103 nurses completed the survey again two months later. The demographics at T2 were similar to T1 for gender (94.2% female), age ( $M = 47.3$  yr,  $SD = 9.9$ ) and mean job tenure ( $M = 21.5$  yr,  $SD = 11.4$ ). Concerning their location, the percentage of nurses from the outpatient service decreased to 9.7%.

A set of independent samples t-tests was computed to test for the presence of a consistent pattern of drop-out in relation to the all the variables in the study. Results only indicated a significantly higher level on the frequency of affect-worsening strategy use among participants who dropped out ( $M = 1.65$ ,  $SD = .58$ ) had a significantly higher,  $t(135) = 2.20$ ,  $p = .02$ , compared with participants who didn't drop out ( $M = 1.44$ ,  $SD = .47$ ).

The survey was administered in the workplace before a regular training meeting. The study was presented as an investigation of the consequences of daily contact with patients. Participants were informed that participation was voluntary and that the information they provided would be anonymous.

## Measures

Interpersonal affect regulation. Affect-improving and affect-worsening strategies were measured with the Spanish version of the Emotion Regulation of Others Scale (Niven et al., 2011) which has been used in a previous study examining mental health professionals' regulation of patients' affect and job well being (Martínez-Iñigo et al., 2013). Participants rated the extent to which they had used 6 strategies (e.g., 'I gave someone advice to improve how the patient felt') to improve patients' affect and 6 strategies to worsen patients' affect (e.g., 'I complained to the patient about their behavior to try to make them feel worse') over the past two weeks on a 5-point scale (1 = not at all, 3 = a moderate amount, 5 = a great deal). The

internal consistencies for affect-improving were  $\alpha = .88$  and  $.86$  for Time 1 (T1) and Time 2 (T2) respectively, and for affect-worsening were  $\alpha = .74$  and  $.76$  for T1 and T2 respectively.

Emotional exhaustion. This was measured using eight items (e.g., “I feel emotionally drained from my work”) from the EEx scale from the Spanish version (Seisdedos, 1997) of the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996). Participants rated on a 7 point-scale ranging from 0 (never) to 6 (every day) how frequently they felt emotionally exhausted. As EEx is related to depletion of self-regulation resources (e.g. Goldberg & Grandey, 2007) changes in its levels were expected during the two months lag between Time 1 and Time 2 measures. The internal consistencies of this scale were  $\alpha = .86$  and  $.82$  for T1 and T2 respectively.

Affective experience at work. This was measured using the 20 items of the Job-Related Affective Well-being scale (JAWS; Van Katwyk, Fox, Spector, & Kelloway, 2000). Participants were required to rate how frequently their job had made them experience high-activation negative affect (e. g., angry or furious), low-activation negative affect (e. g., depressed or bored), high-activation positive affect (e. g., enthusiastic or energetic) and low-activation positive affect (e. g., relaxed or satisfied) over the last two weeks on a 5-point scale (1 = Never, 5 = Extremely often). Five items composed each subscale. The internal consistency for high-activation negative experiences  $\alpha = .81$  at both times, and for low-activation negative experiences  $\alpha = .79$  and  $\alpha = .84$  for T1 and T2 respectively, for high-activation positive were  $\alpha = .80$  and  $.74$  for T1 and T2 respectively, for low-activation positive experiences were  $\alpha = .76$  and  $\alpha = .84$  for T1 and T2 respectively.

Control variables. Previous research has found that the emotion regulation process and its outcomes are associated with demographic variables including age, gender, tenure (Dahling & Pérez, 2010), and job/occupation (Grandey, Rafaeli, Ravid, Wirtz, & Steiner, 2010) and with interactional variables including frequency of interaction with patients (Morris & Feldman,

1996). Individual traits have also shown a significant relationship with the emotion regulation process (e.g., Martínez-Íñigo et al, 2013). Previous studies have also controlled for negative affectivity because it is an individual trait that increases emotion regulation demands under a “service with smile” (expressing positive and suppressing negative affect) framework (e.g., Diefendorff, Croyle & Gosserand, 2005). The effects of these demographic, interactional and dispositional variables were controlled for in the data analysis. To measure the extent of exposure to patients, participants were required to indicate on a 6-points scale the average number of patients they interact with in a working day (1 = less than 5, 6 = more than 40). To measure negative affectivity, we used the relevant subscale of the Spanish version (Sandín et al., 1999) of the Positive and Negative Affectivity Scale (PANAS; Watson, Clark, & Tellegen, 1988). The scale included 10 items pertaining to negative affect states (e. g., anger, shame, guilt) and used a 5-point (1 = not at all; 5 = a great deal) response scale concerning the extent to which the participant usually feels in the way described by each item.

#### Data Analysis

All analyses were conducted using SPSS version 19. Descriptive statistics and bivariate correlations were used to describe the sample and the relations between variables at each wave and between T1 and T2. To test whether the use of interpersonal affect regulation strategies were related to EEx and affective experiences over the time we conducted longitudinal hierarchical regression analysis (Finkel, 1995). To test if intra-individual changes in affect-worsening between T1 and T2 predicted change in EEx (H1a), EEx at T2 was regressed on affect-worsening at T2 controlling for the effects of both affect-worsening and EEx at T1. Additionally, control variables for gender, age, tenure, service, exposure to patients and negative affectivity were also specified to predict EEx at T2. The same analysis was conducted with affect-improving at T2 as a predictor of EEx at T2 to test if intra-individual change in affect-improving strategies positively predicted change in EEx (H1b).

To test if interpersonal affect regulation strategies were related to the nurse's affective experience over time, the same regression analyses were conducted with each of the four types of affective experience at T2 as the outcomes. To test if changes in affect-worsening positively predicted high-activated and low-activated negative affect experiences at T2, regression equations for high-activation and low-activation positive affective experiences at T2 were computed (H2a and H2b, respectively), with affect-worsening strategies at T2 as the predictor, after controlling for the effect of affect-worsening and high-activation and low-activation positive experiences at T1. Control variables were also specified to predict high-activation and low-activation negative affect experiences at T2. The same regression analyses were conducted to test if affect-improving strategies positively predicted nurses' high-activation (H3a) and low-activation (H3b) positive affective experiences over time.

## **Results**

Descriptive statistics and bivariate correlations for the study variables are presented in Table 1. To test whether the use of affect-worsening strategies predicted nurses' EEx over time (H1a), hierarchical regression was computed with EEx at T2 as the dependent variable. As expected affect-worsening at T2 significantly predicted EEx at T2 ( $\beta = .29, p = .003$ ) when it was entered in step 3 (see Table 2), which supported H1a. Contrary to expectation (H1b), affect-improving at T2 was not a significant predictor of EEx at T2 ( $\beta = -.01, p = .87$ ).

We predicted that the use of affect-worsening strategies would be positively related to the nurses' high-activation (H2a) and low-activation (H2b) negative affect experiences over time. To test this, two hierarchical regression analysis were computed using high-activation and low-activation negative affect experience at T2 as the dependent variable respectively (see Table 3). Contrary to expectation (H2a), high-activation negative affective experience at T2 was not predicted by affect-worsening strategies ( $\beta = .12, p = .26$ ). Affect-worsening at T2 was

a significant predictor of low-activation negative affective experience ( $\beta = .31, p = .007$ ), which supported H2b.

To test if the use of affect-improving strategies predicted nurses' positive affective experiences over time the same hierarchical analysis were conducted with high-activated and low-activated positive affective experience at T2 as dependent variables (see Table 4). As expected, affect-improving at T2 was a significant predictor of low-activation positive affect ( $\beta = .23, p = .04$ ), which supported H3b. Contrary to expectation (H3b), the use of affect-improving strategies at T2 was not a significant predictor of high-activation positive experiences at T2 ( $\beta = .10, p = .41$ ).

The negative correlation between affect-worsening strategies and low-activation positive affective experiences at T2 was unexpectedly significant (see Table 1), so a supplementary hierarchical regression analysis was conducted to test whether changes in affect-worsening strategies predicted low-activation positive affective experiences over time. The regression coefficient for affect-worsening at T2 was marginally significant ( $\beta = -.20, p = .06$ ).

## **Discussion**

The main purpose of this paper was to examine whether the strategies nurses use to regulate patients' emotions are related to their own well-being, measured as EEx and affective experiences at work. The empirical evidence on the effects of interpersonal affect regulation on the agent's well-being is scant and, to the authors knowledge, no research has examined those effects in the interaction between nurses and patients.

Drawing on the strength model of self-control (Baumeister et al., 1998) and the conservation of resource model (Hobfoll, 1998), previous research shows that the type of interpersonal affect regulation strategy used during social interaction is related to the amount of self-control resource drained and the likelihood of recovering part of the depleted resource

through the interaction partner's positive feedback. The balance between the draining and the recovery process predicts the effects of interpersonal affect regulation on the agent's EEx (Martínez-Íñigo et al. 2013). If the limited self-control resource is drained in the absence of opportunities to regain those resources, individuals may become emotionally exhausted.

The results support the idea that when nurses use strategies intentionally trying to worsen affect during the interaction with patients it has a negative impact on nurses' EEx. As would be expected, affect-worsening was not a strategy that was used much by nurses (its mean score was lower than that of affect-improving), but clearly it has an effect when it is used. This fits with the notion that bad events have greater impact than positive ones (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001). The result also indirectly supports a model where affect-worsening is characterized as a conscious strategy that drains self-control resources and reduces the likelihood of patients' positive feedback. However, the results also showed that changes in the use of interpersonal affect-improving strategies were not significantly related to EEx over time. This result can be explained by the higher likelihood of nurses receiving positive feedback from patients when nurses use interpersonal affect-improving strategies. Patients' positive feedback allows recovery of the resources drained by the nurses' effort to enhance the patients' positive affect. A previous study found that the relationship between interpersonal affect-improving strategies and EEx became significant when the effect of patients' feedback was controlled (Martínez-Íñigo et al., 2013). Overall, the findings suggest that the type of interpersonal affect regulation strategy the nurse performs to deliberately try to change patient's affect predicts nurse's EEx.

Moreover, our results extend the range of outcomes arising from interpersonal affect regulation to include affective experiences at work, which is one of the main determinants of job attitudes. The definition of two of the most studied job attitudes – job satisfaction and organizational commitment – includes an affective dimension. In the case of job satisfaction,

the affective component reflects the recall of past affective experience. For organizational commitment, a three-dimensional model has been proposed that includes an affective commitment dimension (Meyer, Stanley, Herscovitch, & Topolnytsky 2002). In their meta-analysis of the antecedents of organizational commitment, Meyer, et al., (2002) found that work-related negative affective experiences (e.g., role conflict) have stronger correlations with affective commitment when compared with the other dimensions of organizational commitment. Considering that job attitudes are fundamentally important to understanding individual effectiveness and performance at work, the analysis of the relationship between interpersonal affect regulation and affective experiences has both theoretical and practical implications.

Our results confirmed that interpersonal affect-worsening and affect-improving regulation strategies significantly predicted low-activation negative and low-activation positive affective experiences, respectively. However, contrary to our hypotheses, the interpersonal affect regulation strategies did not predict nurses' high-activation affective experiences. This unexpected result may be explained by the kind of emotional expression that characterizes interaction in the working place in general, and during interaction with patients in a healthcare setting in particular. The expression of high-activation affect (e.g., excitement, anger) may be considered a sign of low professionalism and discouraged by organizations (Smith & Kleiman, 1989). As in other interactions between people (Hatfield, Cacioppo, & Rapson, 1994), patients are likely to reciprocate expression of emotion. Moreover, during healthcare delivery, the higher status that the professional role confers to nurses may reduce the likelihood that patients will express high-activation negative emotions (Berdahl & Martorana, 2006), which in turn may reduce the chance that patients will transmit high-activation negative emotion to the nurses. This may explain why the relation between interpersonal affect regulation and high-activation affective experiences was not significant

over time. Nurses' interpersonal relationships within the team may be more predictive of nurses' high activation affective experiences. Previous research shows that intra-team conflict can result in a negative affective climate (Gamero, González-Romá, & Peiró 2008) and that greater interpersonal conflict (e.g., workplace bullying) is related to higher levels of anxiety and depression and a lower level of job satisfaction among nurses (Quine, 2001). Alternatively, the non-significant relation between interpersonal affect regulation and high-activation affective experience might be explained by a reduction of self-regulation resource owing to the nurse's effort to regulate the patient's affect, because the reduction may lower the nurse's activation level.

Future research will need to explore if interpersonal affect regulation strategies have an impact on nurses' job attitudes, such as organizational commitment and job involvement, that is mediated by their impact on affective experience. These attitudes are known to be related to performance behavior, quality of healthcare delivery, and turnover (Gregory, Way, Lefort, Barrett, & Parfrey, 2007).

Although the present findings provide support for the view that nurses' interpersonal regulation strategies during interaction with patients have impact on their own well-being, a number of research limitations can be identified. Firstly, the fact that control over the variables was absent because it was conducted in a natural setting. Analysis of the relationships between the study variables under more controlled conditions will supply stronger evidence on the validity of our results. Although longitudinal design, as in our study, supplies stronger evidence than cross-sectional studies on the causality of relations between variables, an experimental or quasi-experimental design would strengthen inferences concerning causality.

Secondly, all the measures were self-reported which may have inflated the relationship between the variables. Restrictions arising from the research context made it unviable to obtain

measures from different sources to reduce common method variance. The non-significance of some of the cross-sectional correlations (e. g., interpersonal affect regulation strategies and EEx at T1) may indicate that the use of a common method did not unduly inflate all relationships (Spector, 2006).

Thirdly, nurses who dropped out of the study at time 2 used affect worsening strategies more frequently than nurses who completing measures at both time points. This drop out could be explained by participants' reluctance to admit they use affect worsening at the workplace, especially if they perceive that they are using them more frequently than they think they ought to. This selective drop-out might have reduced the variances and underestimated the correlation between the use of affect worsening and EEx. However, considering that the attrition level was moderate and systematically affected only one of the predictors, we expect that the regression parameter estimates will have only been mildly affected by selective drop-out (Wolke et al., 2009).

Fourthly, sample size in our study ( $N = 103$ ) limited statistical power to detect the small increments in effect size that can be expected by adding the interpersonal affect regulation strategy (affect-improving or affect-worsening at time 2) when the other predictors have already been entered into the equation. A power analysis shows that detection of a small increment in effect size in our analysis with a power of .80 and an alpha of .05 requires a higher sample size ( $N = 395$ ) than the one used. This could explain why the negative regression coefficient for affect improving, as a predictor of emotional exhaustion, was not significant, although it was negative as expected. This could also explain the lack of confirmation of the positive associations hypothesized between affect-worsening strategies and high negative affect experiences and between affect-improving strategies and high positive affect experiences.

Our study measured EEx, which is only one dimension of burnout, so future research should test if interpersonal affect regulation strategies are directly or indirectly related to other dimensions of burnout (depersonalization and personal accomplishment). Future studies with different samples are also needed to test if the effects of interpersonal affect regulation on EEx that were found in this study for nurses and previously for other professionals (including prison officers and mental health professionals) generalize to other occupations. It is possible that the effects may depend on the emotion management expectations of different job roles which may in turn affect the feedback that workers receive from their use of interpersonal emotion regulation.

Finally, although our results are in concordance with the hypothesis deriving from the strength of self-regulation model and the conservation of resource model, the amount of effort the nurses put into the regulation of patients emotions and the recovery of those resources during the interaction with the patient or from other sources (e. g., colleagues or supervisor) was not measured, so the explanation of the processes linking nurse's interpersonal affect regulation and EEx and affective experience is based only on theory. Future studies should address this issue and include measures of nurses self-regulation effort and the level of resources recovered.

Our results show that effect of nurses' interpersonal affect regulation on their EEx and affective experience is partially explained by the type of regulation strategy they perform to manage interactions with patients. The use of affect-worsening shows a negative association with nurses' EEx and frequency of low-activation negative affective experience, meanwhile affect-improving strategies were not associated with an increase in EEx but heightened the frequency of low-activation positive affect experiences. Drawing on these results, some practical measures can be implemented to potentially improve nurses' well being and prevent affective experiences that may contribute to the development of negative job attitudes.

Creating working conditions that promote the use of interpersonal affect-improving strategies to the detriment of affect-worsening strategies may reduce the level of nurses' EEx. Considering these strategies are oriented to the patients' affective experiences, their effects on well-being may pass unnoticed to the nurse. Making nurses aware of the "boomerang effect" of the regulation of others' affect may help nurses to implement affect-improving strategies. Although the use of affect-worsening strategies is uncommon, nurses in our study and other health care professional (Martínez-Íñigo et al., 2013) self-reported their use is required under certain circumstances. In these situations, the presence of other sources of positive feedback and support from the organization, the supervisor or colleagues can serve as buffer against depletion effects and promote the nurses' well-being (Schaufeli, van Dierendonck, & van Gorp, 1996).

Besides the potential impact on nurses, our results are also relevant for the management of healthcare organizations. Previous research suggests affect-worsening strategies have a negative effect on the quality of interpersonal relationships (Niven et al., 2012), which in turn may decrease the perception of the quality of care delivery. Also, negative affective experience may reduce nurses' involvement in their job role, promote withdrawal behaviors and increase the risk of turnover. From this perspective, managers of healthcare organizations should promote job designs, working conditions, emotional climates, and organizational cultures that promote the use of affect improving regulation strategies.

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Table. 1 Means, standard deviations, and correlations for the study variables (N = 103).

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Time 1																			
1. Age	47.4	10.0	--																
2. Tenure	20.5	11.8	.66**	--															
3. Exposure to patients	1.15	1.70	.17*	.23*	--														
4. Neg. affectivity	1.76	0.60	-.15 <sup>†</sup>	-.14	-.07	--													
5. Affect-worsening	1.50	0.50	.12	.05	-.12	.37**	--												
6. Affect-improving	3.70	0.85	-.19*	-.02**	.08	.12	.01	--											
7. E. exhaustion	2.37	1.33	-.02	-.01	.08	.47**	.07	.12	--										
8. H/- affect	2.28	0.79	-.03	-.07	-.07	.72**	.34**	.06	.57**	--									
9. L/- affect	2.19	0.72	.06	-.02	.05	.64**	.29*	.09	.70**	.78**	--								
10. H/+ affect	2.56	0.70	-.10	.01	-.15	.03	-.06	.38**	-.11	.06	.01	--							
11. L/+ affect	3.53	0.67	-.08	-.01	-.06	-.45**	-.16 <sup>†</sup>	.16 <sup>†</sup>	-.45**	.46**	-.46**	.43**	--						
Time 2																			
12. Affect-worsening	1.42	0.50	.15	.08	-.16	.15	.62**	-.09	.10	.23*	.18 <sup>†</sup>	-.06	-.10	--					
13. Affect-improving	3.67	0.70	-.28**	-.02**	.17	.07	-.13	.59**	.05	.10	.01	.26**	.07	-.32**	--				
14. E. exhaustion	2.09	1.20	.05	-.13	.10	.53**	.17 <sup>†</sup>	.08	.78**	.47**	.62**	-.29**	-.51**	.28**	.02	--			
15. H/- affect	2.00	0.67	.02	-.01	-.11	.65**	.22*	.06	.58**	.66**	.67**	-.10	-.37**	.28**	.03	.63**	--		
16. L/- affect	2.00	0.74	.05	.01	-.08	.62**	.23*	.06	.60**	.57**	.69**	-.19	-.44**	.36**	-.09	.72**	.81**	--	
17. H/+ affect	2.68	0.66	-.08	.00	-.08	.05	.01	.20*	-.14	-.07	-.01	.61**	.47**	-.05	.13	-.22*	-.09	-.19 <sup>†</sup>	--
18. L/+ affect	3.69	0.70	-.05	.01	-.09	-.42**	-.04	.13	-.43**	-.46**	-.43**	.39**	.65**	-.20*	.23*	-.47**	-.54**	-.59**	.47**

\*\* p < .01; \* p < .05 ; <sup>†</sup> p < .10. Neg. affectivity = Negative affectivity; E. exhaustion = Emotional Exhaustion; H/- affect = High activation negative affect;

L/- affect = Low activation negative affect; H/+ affect = High activation positive affect; L/+ affect = Low activation positive affect.

Table 2. Interpersonal affect regulation strategies (affect-worsening and affect-improving) as predictors of emotional exhaustion (N = 103).

Step	Predictors	Step1	Step2	Step3	Predictors	Step1	Step2	Step3
1	Age	.11	.02	-.06	Age	.11	.02	.01
	Gender	.05	.00	.01	Gender	.05	.00	-.01
	Tenure	.03	.06	.11	Tenure	.03	.06	.07
	Exposure to patients	.01	.00	.03	Exposure to patients	.01	.00	.01
	Service	.12	.01	.10	Service	.12	.08	.09
	Negative affectivity	.54**	.13	.15	Negative affectivity	.54**	.14	.14
2	E. exhaustion at T1		.68**	.66**	E. exhaustion at T1		.68**	.68**
	A-worsening at T1		.04	-.13	A-improving at T1		-.02	.01
3	A-worsening at T2			.29**	A-improving at T2			-.05
	$\Delta R^2$ at each step	.30	.29	.05	$\Delta R^2$ at each step	.30	.29	.00

\*\* p < .01; \* p < .05.

\*\* p < .01; \* p < .05.

Note. Standardized regression coefficients are presented for each step in the regression equation.

Step 3 in the model shows emotional exhaustion at T2 regressed onto interpersonal affect regulation at T2, having controlled for age, gender, exposure to patients, service, negative affectivity, emotional exhaustion at T1, and interpersonal affect regulation strategy at T1.

Table 3. Interpersonal affect worsening-strategies as a predictor of high- and low-activation negative affective experiences (N = 103).

Step	Predictors	High-activation negative affect			Low-activation negative affect			
		Step1	Step2	Step3	Predictors	Step1	Step2	Step3
1	Age	.14	.15	.11	Age	.14	.11	.03
	Gender	.04	.03	.04	Gender	.03	.00	.02
	Tenure	-.08	-.08	-.05	Tenure	-.08	-.06	.00
	Exposure to patients	-.13	-.12	-.10	Exposure to patients	-.04	-.10	-.05
	Service	.02	.04	.04	Service	.00	.07	.07
	Negative affectivity	.68**	.45**	.46**	Negative affectivity	.59**	.33**	.36**
2	H/- affect at T1		.36**	.34**	L/- affect at T1		.47**	.41**
	A-worsening at T1		-.03	-.09	A-worsening at T1		.01	-.17
3	A-worsening at T2			.12	A-worsening at T2			.31**
	$\Delta R^2$ at each step	.48	.07	.00	$\Delta R^2$ at each step	.35	.14	.05

\*\* p < .01; \* p < .05.

Note. Standardized regression coefficients are presented for each step in the regression equation.

Step 3 in the model shows high and low activation negative affective experience at T2 regressed onto interpersonal affect worsening regulation at T2, having controlled for age, gender, exposure to patients, service, negative affectivity, high and low negative affective experiences at T1 respectively, and affect worsening strategy at T1.

Table 4.  
 Interpersonal affect-improving strategies as a predictor of high- and low-activation positive affective experiences (N = 103).

Step	Predictors	High-activation positive affect			Low-activation positive affect			
		Step1	Step2	Step3	Predictors	Step1	Step2	Step3
1	Age	-.02	-.04	-.01	Age	-.12	-.15	-.09
	Gender	-.12	-.06	-.06	Gender	-.09	-.12	-.11
	Tenure	.15	.00	.06	Tenure	.17	.31	.27
	Exposure to patients	-.10	-.02	-.02	Exposure to patients	.01	.04	.00
	Service	-.14	-.09	-.03	Service	-.04	-.09	-.10
	Negative affectivity	.03	.13	.13	Negative affectivity	-.44**	-.24*	-.24*
2	H/+ affect at T1		.62**	.61**	L/+ affect at T1		.57**	.58**
	A-improving at T1		-.14	-.19	A-improving at T1		.11	.00
3	A-improving at T2			.10	A-improving at T2			.23*
	$\Delta R^2$ at each step	.06	.31	.01	$\Delta R^2$ at each step	.22	.29	.03

\*\* p < .01; \* p < .05.

Note. Standardized regression coefficients are presented for each step in the regression equation. Step 3 in the model shows high and low activation positive affective experience at T2 regressed onto interpersonal affect improving regulation at T2, having controlled for age, gender, exposure to patients, service, negative affectivity, high and low positive affective experience at T1 respectively, and affect improving strategy at T1.