



# Impact of Coping Strategies on Nurses' Well-Being and Practice

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## Key words

Nurses, practice environment, psychological well-being, safety attitudes, stress coping

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## Abstract

**Objectives:** To examine the mechanisms of coping strategies on nurses' psychological well-being, practice environments and safety attitudes.

**Methods:** A cross-sectional study design was used. Structural equation modeling was performed to analyze the results. Five hundred clinical nurses were randomly selected from a large group of 1,500 from a medical center with 1,350 beds in Taipei, Taiwan, from July to October 2015. Self-report questionnaires were administered to measure coping strategies (Brief COPE), psychological well-being (Ryff's Psychological Well-being Scale), nurses' practice environments (Practice Environment Scale of the Nursing Work Index), and safety attitudes (Safety Attitudes Questionnaire).

**Results:** Of the 500 participants who gave written consent, 474 (94.8%) filled out the questionnaire. Results showed that using more approach-oriented coping strategies and fewer avoidant coping strategies was associated with greater psychological well-being. Psychological well-being was directly associated with quality of nurses' practice environments and safety attitudes. The impact of psychological well-being on safety attitudes was mediated significantly by the quality of the practice environment. The use of approach-oriented coping strategies was significantly predictive of positive psychological well-being, a good practice environment, and good safety attitudes.

**Conclusions and Clinical Relevance:** This study found a distinct pathway for the relationships between clinical nurses' psychological well-being, practice environment, and safety attitudes. Psychological well-being in clinical nurses was higher for those with more approach-oriented coping strategies. Psychological well-being directly impacted safety attitudes, which mediated nurses' practice environments. The practical implications of the results suggest that interventions designed to promote positive psychological well-being may help improve nurses' practice environments, which, in turn, may result in better safety attitudes and nursing care outcomes.

Occupational stress and burnout are common among healthcare professionals, including nurses (Padilla Fortunatti & Palmeiro-Silva, 2017). In addition to the heavy workload, nurses are confronted with emotional changes associated with suffering, feelings of stress, emotional exhaustion, and poor psychological well-being (PWB; Divinakumar, Pookala, & Das, 2014; Oh, Uhm, & Yoon, 2016). The essence of nursing per se is highly demanding emotionally. Such stress on PWB often results in mental illness and emotional exhaustion (Divinakumar et al., 2014). One study found

that stress-induced emotional exhaustion predicted job satisfaction, nurse turnover, burnout, quality of practice environment, and quality of patient care (Van Bogaert, Clarke, Roelant, Meulemans, & Van de Heyning, 2010), and limited attention has been focused on the positive aspects of nurses' perceptions of patient safety. Our conceptual framework is based on positive psychology, according to which individual traits such as resilience, PWB, and a positive work environment can lead to the expression of positive emotions, improved nursing performance, and promotion of perceived

positive safety attitudes (Peterson, 2009; Peterson & Seligman, 2004).

Positive nursing practice environments are linked to better patient safety and care quality outcomes. In a cross-sectional survey of nurses and patients in 12 countries in Europe and the US, nurses with better work environments were associated with better quality of care and increased patient satisfaction, and they were half as likely as patients to give their hospitals poor or failing grades on patient safety (Aiken et al., 2012). A study focusing on hospital nurses in Japan likewise found that quality of the nursing practice environment was a significant predictor of quality of patient care (Anzai, Douglas, & Bonner, 2014). A study conducted in South Korea (Cho & Han, 2018) found that nurses who perceived that their hospitals had sufficient resources and staffing also perceived their nursing performance quality as better. Positive correlations have been consistently found between quality of the practice environment and patient safety in Europe, the US, and Asia.

In addition to causal relationships between the quality of the practice environment and patient safety, mental health factors, such as PWB, have been found to be positively correlated with patient safety. Research has found that PWB is important in promoting mental health among healthcare professionals (Murray, Murray & Donnelly, 2016), resulting in maintenance of a positive nurse practice environment and good patient care outcomes (Andrews & Wan, 2009; Begat, Ellefsen, & Severinsson, 2005; Coetzee, Klopper, Ellis, & Aiken, 2013). A cross-sectional questionnaire survey among hospital nurses in Japan confirmed that mental health status and medical errors were significantly correlated with each other, and that poor mental health significantly increased medical errors (Arimura, Imai, Okawa, Fujimura, & Yamada, 2010). A systematic review of research published before July 2015 showed that well-being was significantly and positively correlated with patient safety (Hall, Johnson, Watt, Tsipa, & O'Connor, 2016). In the same study, patient safety and quality of care outcomes were predicted both by well-being and quality of nurses' practice environments. A multilevel modeling approach applied to 357 psychiatric unit nurses in Belgium indicated that emotional exhaustion was a significant predictor of quality of care at the unit level; the quality of the nurses' practice environments and feelings of burnout predicted job outcomes and quality of nursing care (Van Bogaert et al., 2010). A cross-sectional survey in Ireland showed that a positive practice-environment improved patient safety outcome (Kirwan, Matthews, & Scott, 2013). Although a recent systematic review demonstrated a significant

correlation between patient safety and well-being (Hall et al., 2016), so far there have been no empirical studies exploring the impact of interventions on PWB, quality of the practice environment, and patient safety.

A study of nurses, PWB was found to be influenced by stress, and choice of stress coping mechanisms was the best predictor of mental health (Chang et al., 2006). Healy and McKay (2000) suggested that different stress coping strategies have different impacts on nurses' job satisfaction and mood, and approach-oriented coping responses are positive and beneficial. Approach-oriented coping responses to distress are problem focused and reflect cognitive and behavioral efforts to master or resolve life stressors (Labrague, McEnroe-Petitte, Leocadio, Van Bogaert, & Cummings, 2018). In contrast, avoidance coping is a maladaptive coping mechanism characterized by the effort to avoid dealing with a stressor. Likewise, a study of 129 Australian nurses revealed that the use of avoidance coping mechanisms was significantly related to mood disturbances (Healy & McKay, 2000). A study of 72 nurses in the United Kingdom showed similarly that the adoption of avoidance coping strategies was the best predictor of mental health status (Tyler & Cushway, 1992). Good mental health was positively associated with the use of problem-focused coping strategies and negatively associated with the use of emotion-focused coping strategies among Australian and New Zealand hospital nurses (Chang et al., 2007). A positive correlation exists between problem-focused coping strategies and mental health, but a negative correlation exists between avoidance coping strategies and mental health in this study.

Not only PWB, but also quality of the practice environment and patient safety, have been associated with differences in stress coping strategies. Active coping behavior was positively correlated with the quality of the practice environment (Andrews & Wan, 2009). A cross-sectional study of 121 operating room nurses in a hospital in Southern Taiwan indicated that constructive stress coping strategies were positively related to a good work environment and patient safety; moreover, destructive stress coping strategies were related to poor job satisfaction (Chen, Lin, Wang, & Hou, 2009). Selection of stress coping strategies is regarded as an individual trait; thus, we added it to our conceptual model. Despite this remarkable convergence of broad constructs, there are few data and no comprehensive models on the precise relationships between coping strategies, psychological well-being, nurses' practice environments, and patient safety among clinical nurses. Based on positive psychology and previous findings, the initial conceptual model was proposed as shown

in Figure S1. Specifically, the aim of this study was to examine the direct and indirect impacts of coping strategies on psychological well-being, quality of the practice environment, and patient safety among clinical nurses.

## Methods

### Participants, Settings, and Procedure

The original sample consisted of 1,500 registered clinical nurses with 3 months or more of working experience in patient care from a medical center with 1,350 beds in Taipei City, Taiwan. A power analysis performed using a sample-size calculator for structural equation models (Soper, 2018) indicated that at least 296 participants would be required to assure statistical power of  $> .80$ , with  $\alpha < .05$  and a small effect size ( $d = .2$ ; Bajaj & Pande, 2015). To obtain similar numbers of participants from each work unit, we stratified the sample by specialty. The exclusion criteria were non-shift working, part-time job, and nonclinical staff. After review and approval by the hospital's ethics committee on human subject protection and consideration of attrition, 500 nurses were randomly sampled and contacted between July and October 2015.

Researchers explained to potential participants the study purposes, that participation was voluntary, that they would receive 200 New Taiwan dollars (approximately US\$7) as payment for the 20 to 30 min it would take to complete the survey, and that their participation would not influence their work. If they agreed to participate, they were asked to sign a consent form, accept the payment, and complete a questionnaire in their free time after work. To assure anonymity, they were asked to drop the consent form and questionnaire respectively into two separate boxes located at the front door of the Department of Nursing. Of the 500 nurses who returned written consents, 474 (94.8%) filled out the questionnaire.

### Instruments

The questionnaire included demographic items, Ryff's Psychological Well-being Scale (PWBS), the Brief COPE Inventory (COPE), Practice Environment Scale of the Nursing Work Index (PES-NWI), and Safety Attitudes Questionnaire (SAQ). The demographic items included gender, age, marital status, education level, years of nursing experience, number of children, and work unit.

### Ryff's Psychological Well-Being Scale

The PWBS consists of six subscales: Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance (Ryff & Essex, 1992). There are 14 items per subscale, seven worded positively and seven negatively. Participants respond to each item using a 6-point format, from 1 (*strongly disagree*) to 6 (*strongly agree*). The PWBS has been shown to have good construct validity and reliability (Chiang, Chien, Lin, Yeh, & Lee, 2013; Ryff & Keyes, 1995; Ryff, Lee, Essex, & Schmutte, 1994). Cronbach's  $\alpha$  for the subscales ranged from .82 to .90, and correlations with the 20-item PWBS subscales ranged from .97 to .98 (Ryff et al., 1994).

The PWBS used in the present study was translated and back-translated into Mandarin Chinese, and the results from structural equation modeling showed good internal consistency reliability ( $\alpha = .89$ ). The six-domain PWB model fit the data adequately, with factor loadings ranging from .30 to .90 (Chiang et al., 2013). Cronbach's  $\alpha$  coefficients for the six subscales ranged from .60 (Autonomy) to .86 (Positive Relation with Others) in the present study, and was .95 for the overall PWBS ( $N = 474$ ).

### Practice Environment Scale of the Nursing Work Index

We used the short version of the PES-NWI, which has five subscales with a total of 31 items. The PES-NWI is the most widely reported measure used to gauge the quality of nursing practice environments. According to Lake (2002), the 31-item PES-NWI was developed from the Nursing Work Index (NWI). Aiken and Patrician (2000) used the NWI items to develop a 46-item measure of professional practice models, the Revised Nurse Work Index (NWI-R). The PES-NWI consists of five subscales derived through factor analysis of the 48 NWI-R items: Nurse Participation in Hospital Affairs, Nursing Foundations for Quality of Care, Nurse Manager Ability, Leadership and Support of Nurses, Staffing and Resource Adequacy, and Collegial Nurse-Physician Relations. The short version has been shown by Lake to have good validity (loadings of .52 to .78) and reliability ( $\alpha = .71$  to .84). Participants respond to each item using a 4-point format, from 1 (*strongly disagree*) to 4 (*strongly agree*).

The Mandarin PES-NWI, used in this study, was found to have good reliability ( $\alpha = .93$ ) and validity (Liu et al., 2012). The Mandarin PES-NWI also showed

good validity and reliability in the present study. Cronbach's  $\alpha$  was .96 for the total scale and for the five subscales ranged from .75 (Collegial Nurse-Physician Relations) to .92 (Nursing Foundations for Quality of Care). The factor loadings of the five PES-NWI dimensions ranged from .75 to .96.

### Safety Attitudes Questionnaire

The SAQ is the most widely reported measure of attitudes of healthcare providers about issues relevant to patient safety (often called safety climate or safety culture). The SAQ has been validated as a measure of patient safety climate and shown to be highly correlated with patient safety outcomes (Watts, Percarpio, West, & Mills, 2010). The SAQ is a well-developed questionnaire that links to patient safety culture and patient outcome (Sexton et al., 2006). It consists of six factors: Teamwork Climate, Safety Climate, Perceptions of Management, Job Satisfaction, Working Conditions, and Stress Recognition. Scale reliability was  $\alpha = .90$  with good validity (Sexton et al., 2006). Participants respond to each item using a 5-point Likert scale: "disagree strongly," "disagree slightly," "neutral," "agree slightly," and "agree strongly," respectively. The translated Mandarin SAQ used in this study also was shown to have good reliability ( $\alpha = .74-.92$  for the subscales) and validity (Lee et al., 2010). We used the short version of the Mandarin SAQ, which has six subscales with 30 core items.

In the present study, Cronbach's  $\alpha$  was .93 for the total short SAQ, and the reliability of the six subscales ranged from .67 (Perceptions of Management) to .85 (Safety Climate and Job Satisfaction). The factor loadings of the six SAQ dimensions were high, ranging from .50 to .91, with the exception of a moderate but still acceptable loading for Stress Recognition (.39).

### Brief COPE Inventory

The full COPE is a multidimensional self-report inventory measuring coping strategies for dealing with stress and developed using a theoretical approach (Carver, Scheier, & Weintraub, 1989). The Brief COPE has 14 subscales with two items per scale (Carver, 1997). Participants respond to each item using a 4-point format, from 1 ("I haven't been doing this at all") to 4 ("I've been doing this a lot"). The subscales have been shown by Carver (1997) to have good validity and reliabilities ranging from  $\alpha = .50$  (Venting) to .90 (Substance Use).

Carver recommends that researchers not combine the scales into "problem focused" and "emotion focused"

aggregates, or into an "overall" coping index; rather, they should use their own data to determine the composition of the higher-order factors. For this reason, the Mandarin Brief COPE used in the present study also had good validity and reliability. The Mandarin Brief COPE is divided into two dimensions: Approach-Oriented Coping and Avoidant Coping. Cronbach's  $\alpha$  for the total scale was .82; for the Approach-Oriented Coping and Avoidant Coping dimensions they were .80 and .63, respectively (Lai, 2010).

The Approach-Oriented Coping factor, which has an acceptable  $\alpha = .93$ , consists of six subscales: Active Coping (items 2 and 7), Use of Emotional Support (items 5 and 15), Use of Instrumental Support (items 10 and 23), Positive Reframing (items 12 and 17), Planning (items 14 and 25), and Acceptance (items 20 and 24). The Avoidant Coping factor ( $\alpha = .73$ ) consists of five subscales: Humor (items 18 and 28), Religion (items 22 and 27), Self-Distraction (items 1 and 19), Venting (items 9 and 21), and Self-Blame (items 13 and 26). The three subscales Denial (items 3 and 8), Substance Use (items 4 and 11), and Behavioral Disengagement (items 6 and 16) were deleted because of nonsignificant loading coefficients. The factor loadings of the six subscales of the Approach-Oriented Coping dimension are high, ranging from .68 to .79, with the exception of a low, but significant and still acceptable, loading for Active Coping (.46). The factor loadings of the five subscales of the Avoidant Coping dimension are high, ranging from .54 to .72, with the exception of low, but significant and acceptable, loadings for Religion (.31) and Self-Blame (.41). All these data are from the present study.

### Ethical Approval

The study was reviewed and approved by the Institutional Review Board of the Tri-Service General Hospital (Approval No. 2-103-05-043).

### Statistical Analyses

Prior to data analysis, the dataset was examined for accuracy, number and pattern of missing responses, and outliers, using SPSS statistical software for Windows, version 20.0 (IBM Corp., Armonk, NY, USA). Descriptive data (means and standard deviation) were computed for the PWBS, PES-NWI, SAQ, and COPE. A post hoc power analysis was done with Monte Carlo simulation using Mplus software (Muthén & Muthén, 2002) and the result indicates a power of  $>0.8$ . To determine the relationships among these variables, structural equation modeling (SEM) was performed using Mplus (version 5.1). SEM investigates latent variables with multiple

indicators and provides unbiased estimates of mediation and suppression effects. It may provide more accurate estimates than a hierarchical regression approach of the mediating effects when latent variables are modeled (Cheung & Lau, 2008).

SEM is an inclusive statistical approach for testing the correlations in the path model and the measurement model simultaneously. The first step in our application was to specify the measurement model with a confirmatory factor analysis representing the latent variable. This allowed for an examination of an a priori measurement model corresponding to the latent variable indicators. After it was confirmed that each of the variables could be significantly explained by its factors, structured models were defined and created by indicating the relations among each of the variables in the models.

The model fit was evaluated using multiple criteria. The comparative fit index (CFI) indicates the proportion in the improvement of the overall fit of the model relative to a null model that has no relationships among the observed variables. The standardized root mean squared residual (SRMR) is the standardized difference between the observed and predicted covariance (Hu & Bentler, 1999). The indicators of model fit for refinement of the model and stopping criteria were (a)  $\chi^2/df < 5$  (Hooper, Coughlan, & Mullen, 2008), (b) CFI  $\geq .90$ , (c) root mean square error of approximation  $\leq .08$  (Hooper et al., 2008), and (d) SRMR  $\leq .08$  (Hu & Bentler, 1999).

## Results

### Sample Characteristics

Table S1 presents the background data for the 474 participants who completed the survey. Most were women ( $n = 455$ , 96%) and single ( $n = 353$ , 74.5%). They ranged in age from 20 to 59 years; mean age was 29.6 years ( $SD = 7.4$ ). They had an education level of at least a bachelor's degree ( $n = 351$ , 74%). About one third reported that their nursing experience was less than 2 years, with 27.4% reporting 2 to 5 years ( $n = 130$ ). Most participants worked in medical-surgical wards ( $n = 282$ , 59.5%). Table S2 presents the data for the PWBS, PES-NWI, and SAQ and the influence of years of experience. There are no differences for the effects of years of experience, except for the Autonomy subscale.

### Model of PWB-PES-NWI-SAQ

The results show that the COPE did not significantly predict PES-NWI scores. Thus, we adopted a model

that removed the path "approach-oriented coping-PES-NWI." The model fit statistics of the proposed PWB-PES-NWI-SAQ model are as shown in Table S3. The modification revealed a high correlation between job satisfaction and stress recognition by using the modification index (MI) programmed in the Mplus software (MI = 92.59). The first revision model revealed a high correlation between personal growth and self-acceptance (MI = 79.46). The second revised model had a good fit, as shown in Figure S2 and Table S3. Therefore, the final model is adequate to explain the mediation effects of the PWBS, PES-NWI, and SAQ.

Consistent with our conceptual model that was based on prior literature, the standardized correlations showed that the effect was stronger for approach-oriented coping ( $r_{\text{approach-oriented}} = .71$ ) than for avoidant coping ( $r_{\text{health}} = -.30$ ). There was no significant interaction between coping strategies and practice environment, but approach-oriented coping was significantly related to both PWB and safety attitudes. PWB also significantly predicted the quality of the practice environment and safety attitudes, and the quality of the practice environment was the most significant predictor of SAQ scores (see Figure S2).

## Discussion

Results from the study show that PWB is important for assessing nurses' perceptions of patient safety and quality of the practice environment. In line with our conceptual framework, results from SEM revealed that PWBS scores significantly predicted PES-NWI and SAQ scores. Although the potentially positive effect of PWB on quality of the practice environment and safety attitudes has been described in the literature, few studies have directly tested this hypothesis. Furthermore, the components of PWB have rarely been examined in research on nurses' practice environments and patient safety. Despite the proven benefits of PWB for other groups, no studies to our knowledge have explored relationships between the PWBS, PES-NWI, and SAQ in healthcare professionals, and in nurses in particular.

Good mental health plays an important role in patient safety and quality of care. Cross-sectional data from a survey of 500 physicians in the United States indicates that stressed, burned out, and dissatisfied physicians are highly likely to more frequently deliver suboptimal patient care (William, Manwell, Konrad, & Linzer, 2007). Emotional exhaustion in internal medicine physicians is associated with self-reported suboptimal patient care (Shanafelt, 2002). Few studies have investigated the relationships between nurses' mental health and suboptimal patient care (Brady,

O'Connor, Burgermeister, & Hanson, 2012). Our results are consistent with previous studies indicating that PWB is correlated with safety attitudes, which in turn may predict quality of patient care.

The current results also reveal that PES-NWI scores significantly predicted SAQ scores. Previous studies have found that the quality of the practice environment is positively correlated with patient safety in both Western and Asian regions (Aiken et al., 2012; Anzai et al., 2014), results consistent with ours. The SAQ is a validated measure of patient safety culture found to be a significant indicator of patient safety (Watts et al., 2010). Numerous empirical studies indicate that the quality of the nursing practice environment has a profound influence on the quality of patient care (Aiken et al., 2012; Coetzee et al., 2013; Kirwan et al., 2013; Van Bogaert, Kowalski, Weeks, Van Heusden, & Clarke, 2013). There has also been increasing recognition of the impact of the quality of the nursing practice environment on nurses' life satisfaction (Nemcek, & James, 2007) and, in turn, retention of nurses and their work commitment (Coetzee et al., 2013). Research on the nursing practice environment has begun to address the relationships of nurses' mental health with the quality of the practice environment, and if positive practice environment could be exploited to improve the productivity of nurses working in mental health (Roche, Duffield, & White, 2011).

However, a clear understanding of the impact of nurses' practice environments on their mental health and patients' safety is limited. A recent study found that the nurse-manager work relationship is a strong predictor of nurses' work-related stress and well-being (Van Bogaert, Adriaenssens, Dilles, Martens, Van Rompaey, & Timmermans, 2014), but much more can still be done to investigate the impact of good mental health on the quality of clinical nurses' practice environments and patient safety. The continued interest in this topic of PWB is reflected in the fact that we see recent studies examining the importance of PWB and its associations with the quality of the practice environment, nurse retention, and patient care outcomes (Andrews & Wan, 2009; Murray et al., 2016). In our study results, the PES-NWI served as a mediator between the PWBS and SAQ. This result demonstrates that safety attitudes, safety, and the consequences of nursing care were mediated by the nursing practice environment, and nurses with elevated PWB had a more positive perception of their practice environments and better patient safety outcomes.

Specifically, we found that different coping strategies influenced PWBS and SAQ scores in different ways. The approach-oriented coping strategy was the most

significant (positive) predictor of PWBS and SAQ scores. For the avoidant coping strategy, on the other hand, the magnitude of the influence on PWB was small, although still significant. There was no significant interaction between avoidant coping strategies and safety attitudes. In previous studies, similar results were found for mental health and job satisfaction (Chang et al., 2006; Healy & McKay, 2000). This indicates that approach-oriented coping, in which individuals try to eliminate stressors and modify their external causes, is associated with improved PWB and directly/indirectly influences safety attitudes. This is an interesting finding, which is consistent with the literature on the benefits of problem-focused coping strategies for mental health (Chang et al., 2007). Also, it stresses the importance of PWB, given that PWB and approach-oriented coping strategies may promote positive patient safety attitudes, resulting in positive patient care outcomes.

In contrast, we found that avoidant coping strategies were negatively associated with PWBS scores. In other words, avoidant coping strategies, in which individuals attempt to reinterpret the stressor instead of modifying its external cause, predict negative mental health outcomes in hospital nurses (Tyler & Cushway, 1992). Thus, our results are in line with those of previous studies on the prediction of mood disturbances by deteriorating mental health caused by the use of avoidant coping (Chang et al., 2007; Healy & McKay, 2000; Lim, Bogossian, & Ahern, 2010). Approach-oriented coping is a beneficial style of coping, whereas avoidant coping is a counterproductive coping style that has damaging consequences for PWB.

Our results indicated that PES-NWI scores were not associated with choice of coping strategies. A cross-sectional survey indicated that active coping behavior may exert control over variables associated with the practice environment (Andrews & Wan, 2009). However, the nationwide health insurance system adopted in Taiwan is characterized by good accessibility, comprehensive population coverage, short waiting times, and low costs (Wu, Majeed, & Kuo, 2010). On the other hand, problems with the system include limited consultation time, poor gatekeeping for specialist services, and financial problems. The payment systems for healthcare providers are formulated in the global budget and based on "pay for performance" schemes (Wu et al., 2010). The resulting limitation of resources available for nursing care and administrative support poses financial dilemmas for the hospital managers, most of whom are physicians. Improvement of nurses' practice environments is restricted by government health insurance policy and the hospital

accreditation system. This explains why our results revealed that coping strategies were not associated with PES-NWI scores.

In summary, although PWB is a key component of relationships between the nursing practice environment and patient safety, results from this study suggest that approach-oriented coping may have beneficial effects on nurses' PWB and safety attitudes. In contrast, avoidant coping may have deleterious effects on nurses' PWB, the effects of which can limit their ability to provide effective and good quality patient care. The results suggest that interventions designed to promote PWB may be valuable in promoting a positive nursing practice environment and patient safety.

## Limitations

Although these findings are notable, several limitations should be taken into account. It is noteworthy that most of the empirical research on PWB has been cross-sectional rather than longitudinal; future research should examine longitudinally the possible interaction between the nursing practice environment and patient safety, including its possible moderation by PWB. The participants were mainly young women, which limits the generalizability of our findings. Finally, the data were derived entirely from self-report measures, and thus the results are subject to the limitations associated with research methodology.

## Conclusions

Psychological well-being is important for nurses who face the challenge of balancing job stress and patient care outcomes without succumbing to the emotional exhaustion that might lead to burnout and loss of job retention. This study's findings suggest that approach-oriented coping strategies have significant positive effects on psychological well-being and patient safety, and avoidant coping strategies have the opposite effect. These findings have important implications for nurse education interventions that aim to promote nurses' psychological well-being, which in turn may result in a better nursing practice environment, improved patient safety, and better nursing care outcomes.

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## Clinical Resources

- American Nurses Association. 2017 Year of the healthy nurse. <http://www.nursingworld.org/healthynurse2017-april>
- American Psychiatric Nurses Association. How do you define the term safety check? <https://www.apna.org/i4a/pages/index.cfm?pageID=4364>
- NSW Nurses' Association. Stress management for nurses. <http://www.health.nsw.gov.au/nursing/Publications/stress-mngt.pdf>

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## Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web site:

**Figure S1.** Conceptual framework of the COPE-PWB-PESNWI-SAQ.

**Figure S2.** COPE-PWB-PESNWI-SAQ model.

**Table S1.** Summary of Demographic Characteristics ( $N = 474$ )

**Table S2.** Scale Scores of Study Variables by Clinical Nurse Experience ( $N = 474$ )

**Table S3.** Model Fit Statistics for the Results of the Construct ( $N = 474$ )