

Original Article

Practice Environment Scale of the Nursing Work Index (5 items Version): Translation and validation in Greek

Aglaia Katsiroumpa, RN, MSc, PhD (c)

Clinical Epidemiology Laboratory, Faculty of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Ioannis Moisoglou, RN, MSc, PhD

Faculty of Nursing, University of Thessaly, Larissa, Greece

Olympia Konstantakopoulou, PhD

Laboratory and Teaching Staff, Public Health Domain, Faculty of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Maria Kalogeropoulou, RN, MSc, PhD

Clinical Epidemiology Laboratory, Faculty of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Parisis Gallos, PhD

Assistant Professor, Faculty of Nursing, University of West Attica, Athens, Greece

Maria Tsiachri, Kindergarten Teacher, MEd, PhD (c)

6th Kindergarten, Lamia, Greece

Petros Galanis, PhD

Assistant Professor, Clinical Epidemiology Laboratory, Faculty of Nursing, National and Kapodistrian University of Athens, Athens, Greece

Correspondence: Petros Galanis, Assistant Professor, Clinical Epidemiology Laboratory, Faculty of Nursing, National and Kapodistrian University of Athens, 123 Papadiamantopoulou street, GR-11527, Athens, Greece, e-mail: pegalan@nurs.uoa.gr

Abstract

Background: Measuring nurse work environments is essential to address the nursing shortage. **Aim:** To translate and validate the “Practice Environment Scale of the Nursing Work Index” (5 items version) in Greek. **Methods:** Study population included 80 nurses in Greece. We performed our study during August 2024. We employed the forward-backward method to translate and adapt the “Practice Environment Scale of the Nursing Work Index” (PES-5) in Greek language. We examined the construct validity of the PES-5 by performing confirmatory factor analysis. We examined the concurrent validity of the PES-5 using the “Quiet Quitting Scale” (QQS), the single item burnout measure, and the single item turnover intention measure. We examined the reliability of the PES-5 by calculating Cronbach’s alpha. **Results:** The PES-5 showed very good psychometric properties. Our confirmatory factor analysis confirmed the one-factor structure of the PES-5. Concurrent validity of the Greek version of the PES-5 was very good. We found a statistically significant negative correlation between PES-5 and QQS ($r = -0.410$, p -value < 0.001), and single item turnover intention measure ($r = -0.227$, p -value = 0.043). We found that the PES-5 had very good reliability since Cronbach’s coefficient alpha was 0.651. **Conclusions:** The Greek version of the “Practice Environment Scale of the Nursing Work Index” is a reliable and valid tool to measure the nursing practice environment.

Keywords: Practice Environment Scale; practice; nursing environment; nurses; Quiet Quitting Scale; Greece

Introduction

The nursing practice environment was conceptualized through the lens of organizational, occupational, and work sociology. This interdisciplinary approach highlights the complexities of organizing professional work that involves treating patients with fluctuating health conditions in intricate organizational settings. These factors form the foundation of the nursing practice environment phenomenon. An empirical tool for measuring the work environment would enable managers to address shortcomings and allow researchers to establish theoretical connections with quality, safety, and outcomes, while also providing comparative standards (Lake, 2002, 2007; Lake et al., 2019; Zangaro & Jones, 2019).

Recently, nurses are experiencing a burnout crisis primarily stemming from work environments characterized by excessive workloads and insufficient organizational backing and leadership (Alves, Oliveira, & Paro, 2019; Ystaas et al., 2023). The emotional labor inherent in nursing makes practitioners particularly vulnerable to burnout, moral distress, and compassion fatigue (Galanis, Vraha, Fragkou, Bilali, & Kaitelidou, 2021). The probability of burnout diminishes when nurses operate in a conducive work environment. In particular, the increased nurses' participation in hospital affairs, the better collegial nurse-physician relationships and nurse manager ability, leadership, and support of nurses were associated with decreased nurses' burnout (Moisoglou, Yfantis, Tsiouma, & Galanis, 2021; Protopappa et al., 2023).

For decades, healthcare systems worldwide have grappled with safety issues in patient care, including adverse events, medication errors, falls, and surgical mistakes. Research has identified healthcare environments as high-risk settings lacking a safety culture, resulting in prolonged hospital stays, disability, or even fatalities (Farokhzadian, Dehghan Nayeri, & Borhani, 2018; Ree & Wiig, 2019). An unhealthy working environment for nurses' compromises patient safety by increasing the likelihood of adverse events (Moisoglou et al., 2020; Moisoglou et al., 2021). The nursing profession and current healthcare landscape are inherently chaotic,

and studies have shown that a positive safety culture emerges from credible and visible leaders who champion patient safety practices (Pronovost, Cleeman, Wright, & Srinivasan, 2016). It is crucial to recognize that nurses have the most frequent patient interactions, positioning nurse leaders as key influencers in shaping patient safety culture to achieve improved patient outcomes (Hendricks, Cope, & Baum, 2015; Murray, Sundin, & Cope, 2018).

The quality of the nursing work environment serves as an indicator of nurse work well-being. A leader who engages staff, promotes teamwork, acknowledges good performance, and stimulates motivation can significantly impact the quality of work life (Gottlieb, Gottlieb, & Bitzas, 2021). Leadership style, which describes how leaders interact with others, can be broadly categorized into two main approaches: task-oriented and relational (Wong, Cummings, & Ducharme, 2013).

To our knowledge, no study until now has translated and validated the "Practice Environment Scale of the Nursing Work Index" (5 items version) (PES-5) (Lake et al., 2024) in Greek language. Therefore, the aim of our study was to translate and validate the PES-5 in Greek language.

Methods

Study design: Study population included 80 nurses in Greece. We collected our data in August 2024. We employed the forward-backward method to translate and adapt the PES-5 in Greek language (Galanis, 2019). The PES-5 includes 5 items and one factor. Example items are the following: "Administration that listens and responds to nurse concerns", "A clear philosophy of nursing that pervades the patient care environment, and "A nurse manager who is a good manager and leader". Answers are on a four-point Likert scale; completely disagree (1), disagree (2), agree (3), and completely agree (4). Total score on PES-5 ranges from 1 to 4. Higher scores indicate a better nursing practice environment.

We conducted confirmatory factor analysis to examine the construct validity of the PES-5 (Galanis, 2013). We examined the reliability of the PES-5 by calculating Cronbach's alpha. We examined the concurrent validity of the PES-5 using the "Quiet Quitting Scale"

(QQS) (Galanis, et al., 2023), the single item burnout measure (Hansen & Pit, 2016), and the single item turnover intention measure (Spector, Dwyer, & Jex, 1988). In particular, we used the Greek versions of QQS (Galanis, et al., 2024; Galanis, et al., 2023) and single item burnout measure (Galanis, et al., 2024). We employed the QQS since several studies have showed that the phenomenon of quiet quitting is a new threaten for workers and especially nurses (Galanis, 2023; Galanis, et al., 2024; Galanis, et al., 2023; Moisoglou et al., 2024).

Ethical considerations: We applied the guidelines of the Declaration of Helsinki to perform this study (World Medical Association, 2013). Additionally, the study protocol was approved by the Ethics Committee of Faculty of Nursing, National and Kapodistrian University of Athens (approval number; 494, approval date; April 2024).

Statistical analysis: We performed confirmatory factor analysis (CFA) to examine the construct validity of PES-5. In particular, we calculated chi-square/degree of freedom (χ^2/df); root mean square error of approximation (RMSEA); goodness of fit index (GFI); adjusted goodness of fit index (AGFI); Tucker–Lewis index (TLI); incremental fit index (IFI); normed fit index (NFI); comparative fit index (CFI) (Baumgartner & Homburg, 1996; Hu & Bentler, 1998). Acceptable value for χ^2/df is <5 , for RMSEA is <0.10 , and for all other measures in the CFA >0.90 . We used the AMOS version 21 (Amos Development Corporation, 2018) to conduct the CFA. We calculated Pearson’s correlation coefficient between PES-5, QQS, single item burnout measure, and single item turnover intention

measure to examine the concurrent validity of the PES-5. P-values less than 0.05 were considered as statistically significant. We used the IBM SPSS 21.0 (IBM Corp. Released 2012. IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.) for the analysis.

Results

Study population included 233 nurses. In our sample, percentage of females was 87.5% (n=70) and percentage of males was 12.5% (n=10). Mean age of participants was 41.4 years with a standard deviation of 9.1 years.

We performed confirmatory factor analysis to examine the structure of the “Practice Environment Scale of the Nursing Work Index” and we found that the Greek version of the scale had a one-factor structure as the original version (Figure 1). Table 1 presents model fit indices for the confirmatory factor analysis of the PES-5. All indices indicated an acceptable one-factor model. In particular, χ^2/df was 1.100, RMSEA was 0.036, GFI was 0.978, AGFI was 0.908, TLI was 0.919, IFI was 0.992, NFI was 0.919, and CFI was 0.991. Moreover, standardized regression weights for the 12 items ranged from 0.45 to 0.62 (Figure 1).

We calculated Pearson’s correlation coefficient between PES-5, QQS, single item burnout measure, and single item turnover intention measure to examine the concurrent validity of the PES-5 (Table 2). We found a statistically significant negative correlation between PES-5 and QQS ($r = -0.410$, p -value < 0.001), and single item turnover intention measure ($r = -0.227$, p -value = 0.043). Cronbach’s coefficient alpha for PES-5 was 0.651.

Table 1. Confirmatory factor analysis for the Greek version of the “Practice Environment Scale of the Nursing Work Index”.

Model	χ^2	df	χ^2/df	RMSEA	GFI	AGFI	TLI	IFI	NFI	CFI
5 items	4.401	4	1.100	0.036	0.978	0.908	0.919	0.992	0.919	0.991

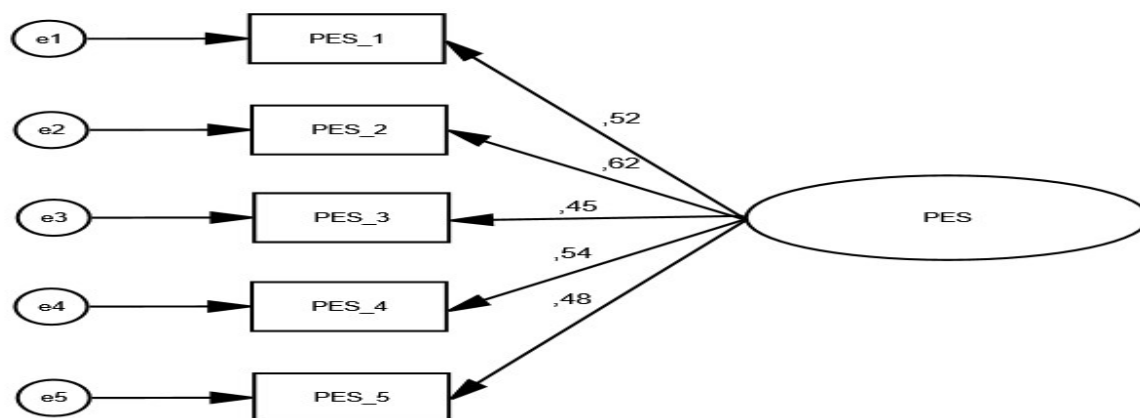


Figure 1. Confirmatory factor analysis for the Greek version of the “Practice Environment Scale of the Nursing Work Index”.

Table 2. Pearson’s correlation coefficient between PES-5, QQS, single item burnout measure, and single item turnover intention measure.

Scale	PES-5
QQS	
Correlation coefficient	-0.410
P-value	<0.001
Single item burnout measure	
Correlation coefficient	-0.079
P-value	0.486
Single item turnover intention measure	
Correlation coefficient	-0.227
P-value	0.043

Discussion

To our knowledge, this was the first study that translates and validates the “Practice Environment Scale of the Nursing Work Index” in a sample of nurses in Greece. We found that the PES-5 is a reliable and valid tool to measure nursing work environments.

In particular, we found that Cronbach’s coefficient alpha for the PES-5 was 0.651. Among others, two systematic reviews confirm our results (Lake, Rosenbaum, Sauveur, Buren, & Cho, 2023; Warshawsky &

Havens, 2011). In particular, Lake et al. (2023) performed a systematic review and identified 38 articles in 35 countries. The PES-5 has been translated in 24 languages and 15 language variants. Translations have been mainly in European, Middle Eastern, and Southeast Asian languages. Cronbach’s coefficient alpha for the PES-5 ranged from 0.61 to 0.95 among studies. Among studies, 23 found that the PES-5 has very good psychometric properties, 8 found that the PES-5 has moderate psychometric properties, and 15 found that the PES-5 has low

psychometric properties. Moreover, Warshawsky and Havens (2011) identified 37 articles in five countries through 10 practice settings. They found that the PES-5 have been translated into three languages.

Additionally, we found a statistically significant negative correlation between PES-5 and QQS, and single item turnover intention measure. A recent systematic review confirms our findings since several studies found significant correlations between the PES-5 and several nurse, patient, and organizational outcomes (Warshawsky & Havens, 2011).

Also, we performed confirmatory factor analysis to examine the structure of the “Practice Environment Scale of the Nursing Work Index” and we found that the Greek version of the scale had a one-factor structure as the original version. Our findings are supported from several other studies (Lake et al., 2023).

Our study had several limitations. We performed a cross-sectional study with a convenience sample of nurses to validate the PES-5 in Greek. Additionally, we examined several types of reliability and validity, but future studies should examine further the psychometric properties of the PES-5. For example, scholars should examine in the future the convergent validity and the criterion validity of the PES-5.

In conclusion, the Greek version of the “Practice Environment Scale of the Nursing Work Index” is a reliable and valid tool to measure nursing working environments.

References

- Alves, P. C., Oliveira, A. D. F., & Paro, H. B. M. D. S. (2019). Quality of life and burnout among faculty members: How much does the field of knowledge matter? *PLOS ONE*, *14*(3), e0214217. doi: 10.1371/journal.pone.0214217
- Baumgartner, H., & Homburg, C. (1996). Applications of structural equation modeling in marketing and consumer research: A review. *International Journal of Research in Marketing*, *13*(2), 139–161. doi: 10.1016/0167-8116(95)00038-0
- Farokhzadian, J., Dehghan Nayeri, N., & Borhani, F. (2018). The long way ahead to achieve an effective patient safety culture: Challenges perceived by nurses. *BMC Health Services Research*, *18*(1), 654. doi: 10.1186/s12913-018-3467-1
- Galanis, P. (2023). Quiet Quitting: A Significant Threat for Healthcare Industry or an Inevitable Reaction of the Healthcare Workers? *International Journal of Caring Sciences*, *16*(2), 512–513.
- Galanis, P., Katsiroumpa, A., Vraka, I., Konstantakopoulou, O., Moisoglou, I., Gallos, P., & Kaitelidou, D. (2024). Quiet quitting among employees: A proposed cut-off score for the “Quiet Quitting” Scale. *Archives of Hellenic Medicine*, *41*(3), 381–387.
- Galanis, P., Katsiroumpa, A., Vraka, I., Siskou, O., Konstantakopoulou, O., Katsoulas, T., ... Kaitelidou, D. (2024). The single item burnout measure is a reliable and valid tool to measure occupational burnout. *Archives of Hellenic Medicine*, *41*(2), 245–250.
- Galanis, P., Vraka, I., Fragkou, D., Bilali, A., & Kaitelidou, D. (2021). Nurses’ burnout and associated risk factors during the COVID-19 pandemic: A systematic review and meta-analysis. *Journal of Advanced Nursing*, *77*(8), 3286–3302. doi: 10.1111/jan.14839
- Galanis, P. (2013). Validity and reliability of questionnaires in epidemiological studies. *Arch Hellen Med*, *30*(1), 97–110.
- Galanis, P. (2019). Translation and cross-cultural adaptation methodology for questionnaires in languages other than Greek. *Arch Hellen Med*, *36*(1), 124–135.
- Galanis, P., Katsiroumpa, A., Vraka, I., Siskou, O., Konstantakopoulou, O., Katsoulas, T., ... Kaitelidou, D. (2024). Nurses quietly quit their job more often than other healthcare workers: An alarming issue for healthcare services. *International Nursing Review*, under press. doi: 10.1111/inr.12931
- Galanis, P., Katsiroumpa, A., Vraka, I., Siskou, O., Konstantakopoulou, O., Moisoglou, I., ... Kaitelidou, D. (2023). The quiet quitting scale: Development and initial validation. *AIMS Public Health*, *10*(4), 828–848. doi: 10.3934/publichealth.2023055
- Galanis, P., Moisoglou, I., Malliarou, M., Papathanasiou, I. V., Katsiroumpa, A., Vraka, I., ... Kaitelidou, D. (2023). Quiet Quitting among Nurses Increases Their Turnover Intention: Evidence from Greece in the Post-COVID-19 Era. *Healthcare*, *12*(1), 79. doi: 10.3390/healthcare12010079
- Gottlieb, L. N., Gottlieb, B., & Bitzas, V. (2021). Creating Empowering Conditions for Nurses with Workplace Autonomy and Agency: How Healthcare Leaders Could Be Guided by Strengths-Based Nursing and Healthcare Leadership (SBNH-L). *Journal of Healthcare Leadership*, *13*, 169–181. doi: 10.2147/JHL.S221141
- Hansen, V., & Pit, S. (2016). The Single Item Burnout Measure is a Psychometrically Sound

- Screening Tool for Occupational Burnout. *Health Scope*, 5(2). doi: 10.17795/jhealthscope-32164
- Hendricks, J., Cope, V., & Baum, G. (2015). Postgraduate nurses' insights into the nursing leadership role. Do they intuitively link the role to patient safety? *Journal of Nursing Education and Practice*, 5(9), p72. doi: 10.5430/jnep.v5n9p72
- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modeling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 3(4), 424–453. doi: 10.1037/1082-989X.3.4.424
- Lake, E. T. (2002). Development of the practice environment scale of the nursing work index. *Research in Nursing & Health*, 25(3), 176–188. doi: 10.1002/nur.10032
- Lake, E. T. (2007). The Nursing Practice Environment. *Medical Care Research and Review*, 64(2 suppl), 104S-122S. doi: 10.1177/1077558707299253
- Lake, E. T., Gil, J., Moronski, L., McHugh, M. D., Aiken, L. H., & Lasater, K. B. (2024). Validation of a short form of the practice environment scale of the nursing work index: The PES-5. *Research in Nursing & Health*, 47(4), 450–459. doi: 10.1002/nur.22388
- Lake, E. T., Rosenbaum, K. E. F., Sauveur, C., Buren, C., & Cho, P. (2023). Translations of the Practice Environment Scale of the Nursing Work Index: A systematic review. *Nursing & Health Sciences*, 25(3), 365–380. doi: 10.1111/nhs.13034
- Lake, E. T., Sanders, J., Duan, R., Riman, K. A., Schoenauer, K. M., & Chen, Y. (2019). A Meta-Analysis of the Associations Between the Nurse Work Environment in Hospitals and 4 Sets of Outcomes. *Medical Care*, 57(5), 353–361. doi: 10.1097/MLR.0000000000001109
- Moisoglou, I., Katsiroumpa, A., Vraka, I., Kalogeropoulou, M., Gallos, P., Prasini, I., & Galanis, P. (2024). Quiet Quitting Threatens Healthcare Organizations and Services: Alarming Evidence from a Cross-Sectional Study with Nurses in Greece. *International Journal of Caring Sciences*, 17(2), 1115–1122.
- Moisoglou, I., Yfantis, A., Galanis, P., Pispirigou, A., Chatzimargaritis, E., Theoxari, A., & Prezerakos, P. (2020). Nurses Work Environment and Patients' Quality of Care. *International Journal of Caring Sciences*, 13(1), 108–116.
- Moisoglou, I., Yfantis, A., Tsiouma, E., & Galanis, P. (2021). The work environment of haemodialysis nurses and its mediating role in burnout. *Journal of Renal Care*, 47(2), 133–140. doi: 10.1111/jorc.12353
- Murray, M., Sundin, D., & Cope, V. (2018). The nexus of nursing leadership and a culture of safer patient care. *Journal of Clinical Nursing*, 27(5–6), 1287–1293. doi: 10.1111/jocn.13980
- Pronovost, P. J., Cleeman, J. I., Wright, D., & Srinivasan, A. (2016). Fifteen years after To Err is Human: A success story to learn from. *BMJ Quality & Safety*, 25(6), 396–399. doi: 10.1136/bmjqs-2015-004720
- Protopappa, A., Moisoglou, I., Meimeti, E., Galanis, P., Lykoudi, E., Tsolakoglou, I., ... Papanikolaou, V. (2023). Nurses' Work Environment and Practice as A Predictor of Burnout. *Pakistan Journal of Medicine and Dentistry*, 12(2), 3–9. doi: 10.36283/PJMD12-2/002
- Ree, E., & Wiig, S. (2019). Employees' perceptions of patient safety culture in Norwegian nursing homes and home care services. *BMC Health Services Research*, 19(1), 607. doi: 10.1186/s12913-019-4456-8
- Spector, P. E., Dwyer, D. J., & Jex, S. M. (1988). Relation of job stressors to affective, health, and performance outcomes: A comparison of multiple data sources. *Journal of Applied Psychology*, 73(1), 11–19. doi: 10.1037/0021-9010.73.1.11
- Warshawsky, N. E., & Havens, D. S. (2011). Global Use of the Practice Environment Scale of the Nursing Work Index. *Nursing Research*, 60(1), 17–31. doi: 10.1097/NNR.0b013e3181ffa79c
- Wong, C. A., Cummings, G. G., & Ducharme, L. (2013). The relationship between nursing leadership and patient outcomes: A systematic review update. *Journal of Nursing Management*, 21(5), 709–724. doi: 10.1111/jonm.12116
- World Medical Association. (2013). World Medical Association Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects. *JAMA*, 310(20), 2191–2194. doi: 10.1001/jama.2013.281053
- Ystaas, L. M. K., Nikitara, M., Ghobrial, S., Latzourakis, E., Polychronis, G., & Constantinou, C. S. (2023). The Impact of Transformational Leadership in the Nursing Work Environment and Patients' Outcomes: A Systematic Review. *Nursing Reports*, 13(3), 1271–1290. doi: 10.3390/nursrep13030108
- Zangaro, G. A., & Jones, K. (2019). Practice Environment Scale of the Nursing Work Index: A Reliability Generalization Meta-Analysis. *Western Journal of Nursing Research*, 41(11), 1658–1684. doi: 10.1177/0193945918823779