ABSTRACT

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REVIEW

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Spiritual Climate as is Perceived by Greek Clinical Nurses. A Validation study

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Introduction: Organisational climate generally re-

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fers to issues such as information sharing climate, appreciation and recognition, concern for employee well-being, ethics and quality performance. In hospitals, it represents the shared beliefs and values that may affect the quality of care in health care groups and which could be managed to improve the quality of care. **Aim:** Aim of the study was the translation of the Spiritual climate Scale (SCS) in Greek language and the validation of the scale for the Greek population. **Methods**: The SCS is an anonymous self-administered questionnaire that contains four, five-point Likert scale, closed questions. The questionnaire was translated into Greek

tions. The questionnaire was translated into Greek language and then back translated in the English in order to be checked for any inconsistencies. The sample of the study was 275 nurses, working in two public hospital in Athens. Exploratory factor analysis, with principal components analysis was performed for checking the construct validity of the questionnaire. The test-retest reliability and the internal consistency were also examined. Statistical analysis performed by the use of SPSS 25.0. Statistical significance level was set at p=0.05.

Results: From the total 275 of the participants 238(86.5%) were women and the mean age was 43.8 \pm 8.7. The final Greek version of the question-naire includes all of the four questions and one factor was exported from the exploratory factor analysis. The Cronbach- α coefficient was 0.902 for the total questionnaire. **Conclusions**: The SCS is a valid and reliable questionnaire that can be used for assessing spiritual climate in Greek clinical areas.

Keywords: Validity, Reliability, spirituality, spiritual climate.

1. INTRODUCTION

Organisational climate is defined as 'a team's common perceptions of organisational policies, practices and processes'. Organisational climate generally refers to issues such as information sharing climate, appreciation and recognition, concern for employee well-being, ethics and quality performance. In hospitals, it represents the shared beliefs and values that may affect the quality of care in health care groups and which could be managed to improve the quality of care (1). Organisational climate in health care industry plays a significant role in the performance of health care delivery and can be appropriately modified to improve quality of care (2). In addition, empirical studies showed that organisational climate is related to outcomes such as team functioning and morale, aspects of quality of care and patient satisfaction (2-4).

Religion and spirituality are major aspects of several people's life, which guide them on a daily basis and enable them to cope with stress (5). Spiritual climate is a type of organisational climate that enables individuals to integrate their spirituality in their workplaces. Spiritual climate refers to employees' collective perception about their work environment. It promotes employees' inner harmony through meaningful work, hopefulness and authenticity. Besides, it provides a sense of community within the workplace and harmony in environment (6).

Workplace spirituality and spiritual climate in clinical settings have been associated with various outcomes regarding nursing care. A recent quantitative study, which involved 395 nurses as participants, examined the effect of workplace spirituality on nurses' performance (7). Consequently, a positive association was observed between the variables. The study suggested that intervention programs should be developed to enhance workplace spirituality (7). Similarly, in a cross-sectional study among 212 Koreans, Kown and Oh found that increased workplace spirituality is associated with nurses' self-efficacy and safety management activities, thus reinforcing the notion spiritual climate's positive influence on nursing care. Cruz et al. (9) suggested that hospitals should revoke policies and implement interventions that foster a spiritually friendly environment and create safe places where nurses can express their spirituality regardless of their religious orientation. As a result, hospital managers can improve job satisfaction among nurses. In another study in Korea, which involved 145 clinical nurses, the positive effect of workplace spirituality and positive spiritual climate were partially proved. The researchers conclude that despite the strong relation between workplace spirituality and job satisfaction, there was no direct association with nurse's burnout and nursing turnover intention (10).

Although organisational climate has been well researched in Greek health care system (11-13), data regarding nurses' perception of spiritual climate in clinical settings are limited. Currently, there is no available instrument in Greek language that assesses spiritual climate in clinical settings.

2. AIM

The purpose of the present study is to validate a spiritual climate scale language and verify if nurses' perception of spiritual climate is linked to demographic and work-related characteristics.

3. MATERIAL AND METHODS

Design

A descriptive, cross-sectional study design was employed to verify the psychometric properties of the Greek version of spiritual climate scale in Greek nursing staff.

Sample and settings

Nurses and nurse assistants working in two public hospitals of the 1st health region, located in Athens, the capital of Greece, were recruited. A convenience sample was employed, and 350 questionnaires were distributed randomly to nurses and nurse assistants in the two hospitals. Data were collected between September and October 2019. The participants filled out the survey voluntarily, and a total of 275 questionnaires were completed. Inclusion criteria involve being a nurse or nurse's assistant, currently working in the two aforementioned hospitals and possessing a minimum of one year of working experience.

Ethical consideration

Ethic Committees of both hospitals and the Ethic committee of School of Health Sciences of the University of Peloponnese granted permission for conducting the research. The questionnaires were anonymous and selfadministered. Nurses meeting the inclusion criteria was verbally requested in order to participate in the study. Each participant was informed about the purpose of the study and about the right to participate, and they could refuse or withdraw at any time.

Instrumentation

A three-part, self-administrated questionnaire was used for data collection in this study.

The first part included questions regarding demographic and work-related characteristics of the sample.

The second part comprised the Ethical Climate Scale. The Ethical Climate Scale (ECS) is a four-item scale that assesses the spiritual climate of health care settings. It was developed from Doram et al. (2017). The scale has a fivepoint Likert scale answer option for each item that ranges from 1 (strongly disagree) to 5 (strongly agree). A total score can be computed for this scale, and it ranges from 0 to 100; the higher the score the more positive the spiritual climate. The original version of spiritual climate scale exhibited good psychometric properties Cronbach $\alpha = .863$ (14).

The third part involved the Functional Assessment of Chronic Illness Therapy-Spiritual Well-Being Scale-12 non-illness. FACIT-Sp-12 was used to assess nurses' spirituality. This scale is used to measure three dimensions of spirituality, namely meaning, peace and faith, and provides a total score. This scale evaluates a last seven-day period and is a twelve-item questionnaire. Responses are given in a four-point Likert scale ranging from 0, which corresponds to 'not at all', to 4 which corresponds to 'very much'. Higher scores in the total scale and in the three domains indicate higher spirituality. The Greek version of FACITsp-12 was used since it was validated from Fradelos et al. (2016) and was used both in healthy individuals and those who suffer from chronic conditions (15, 16).

The translation and cultural adaption procedure

Based on the World Health Organisation's translation and linguistic validation methodology (17), two independent bilingual researchers first conducted two forward translations from English to the Greek language. Then, a reconciliation of the two forward translations was provided by a third translator. Finally, a back translation into English was performed by a fourth translator. In the final step of this procedure, the final translation was reviewed and finalised by a fifth translator. Then, it was tested on 10 nurses who completed the test version of the questionnaire as part of the cognitive interviewing procedure. The questionnaire was evaluated for clarity and validity of the instrument. The duration of the interviews ranged from 10 to 15 minutes, of which less than 5 minutes were required for most of the participants to complete the Greek version of the SCS. No individual found the SCS questions irrelevant, upsetting or disturbing.

Statistical analysis

Quantitative variables are presented as means (± standard deviation) and qualitative variables as absolute and relative frequencies. To ensure internal consistency, the questionnaire was assessed with Cronbach a coefficient, and to ensure the reliability of SCS, the method of test-retest was used. For the construct validity of the scale, factor analysis technique was applied. Convergent validity was assessed by the degree of correlation between SCS and facit-sp12 as it was assumed that increased ethical climate will be positively correlated with nurses' spiritual wellbeing (18). In addition, independent t-test and one-way ANOVA with LSD post hoc test were used to verify spiritual climate scale differences based on demographic and wok-related characteristics. For the statistical analysis of the data IBM SPSS Statistics 22 was used and as the statistical significance level was set to a = 5%.

4. RESULTS

Descriptive statistics

The sample consisted of 275 nurses of which 67 (24.4%) were working at Hippokratio hospital and 208 (75.1%) at Sotiria hospital. Most of them were women (238 (86.5%)), and the mean age was 43.8 ± 8.7. Regarding their marital status, 73 (26.5%) were single, 177 (64.4%) were married and the rest 25 (9.1%) were either widowed or divorced. Out of the total number of participants, 68 (24.7%) had completed secondary education, while 207 (76.3%) held a University degree. In addition, 79 (28.7%) had a Master's degree, and 6 (2.2%) had a PhD degree. Their work experience was 19.9 ± 9.7 years. Regarding their working department, 30 (10.9%) were working in outpatient facilities, 124 (45.1%) in medical departments, 42 (15.3%) in surgical departments, 52 (18.9%) in ICUs and 27 (9.8%) in other departments. Finally, 71 (25.8%) were nurse Table 2. Psychometric properties of spiritual climate scale (n=275). assistants, 179 (65.1%) were staff nurses, 23 (8.4%) were

Test (A) Pearson's r Paired t-test (t) Retest (B) Spiritual climate Mean ± St. Correlation be-Difference Mean ± St. Dev. tween A and B A and B Dev. Item 1 3.00±1.14 3.02±1.11 0.992** -1.000NS 0.991** -1.000NS Item 2 3.38±1.00 3.40±0.96 Item 3 3.16±1.08 3.12±1.04 0.963** 1.000NS 3.30±1.05 0.982** 1.429NS Item 4 3.26±1.04 55±24.4 55.05±23.8 0.995** 0.704NS Total NSp>0.05, **p<0.001

Table 1. Test- retest reliability of Spiritual climate (3 week period between test-retest. n=50).

	Factor load- ings	Mean ±SD	Corrected item-total correlation	Cronbach's α if item is deleted
Item 1	0.838	3.23±1.07	0.720	0.895
Item 2	0.896	3.49±1.01	0.805	0.865
Item 3	0.910	3.20±1.03	0.828	0.856
Item 4	0.874	3.41±1.09	0.771	0.877
Eigenvalue	3.097	Total score =	58.29±23.15	
% variance	77.4%			
KMO=0.824 Bartlett's test: $\chi^2(6)$ =706.42 p<0.001 Scales' Cronbach's α 0.902				

head of departments and 2(0.7%) were sector supervisors.

Scale reliability

The reliability of SCS was tested for stability and internal consistency.

The test-retest method was used to verify the reliability of the SCS. Out of the 275 nurses, 50 completed the questionnaire for a second time (retest) after a three-week period which is a sufficient lapse of time for one to already forget previous answers. For the statistical control the repeatability of measurements between test and retest, the Pearson's correlation coefficient was estimated and paired t-test for the difference between the two administrations of the questionnaire. Results of the test-retest reliability are shown in Table 1.

Correlations between the two administrations of the questionnaire, in scales total score (r = 0.995 and p < 0.001) and partial for each item (r = 0.992 and p<0.001 for 'item 1', r = 0.991 and p<0.001 for 'item 2', r = 0.963 and p<0.001 for 'item3' and r = 0.982 and p<0.001 for 'item4'), suggest that a strong correlation exists between them. Moreover, t values in the Paired t-test between the two administrations, in scales total score (t = -0.704 $\kappa\alpha\iota$ p>0.05) and partial for each item (t = -1 and p>0.05 for 'item 1', t = -1 and p>0.05 for 'item 2', t = 1 and p>0.05 for 'item3' and t = 1.429 and p>0.05 for 'item4'), were not statistically significance. Thus, there were no differences between the two administrations, and the questionnaire has high test-retest reliability which meets the characteristic of stability.

Internal consistency

Cronbach's Alpha coefficient was used to test the internal consistency of the SCS. Internal reliability coefficient for the total score of the SCS questionnaire was 0.902, which showed that the scale has very good internal consistency. Moreover, the audit showed that substantial increasing of the Cronbach's a would not happen if an item was deleted. Thus, it was important that all questions were internally coherent with one another.

Construct validity of the Greek version of SCS

Factor analysis was applied to explore the construct validity of the questionnaire. In particular, exploratory factor analysis with principal components analysis were applied. High value of KMO index (KMO = 0,824) and the statistical significance of Bartlett's Test of Sphericity ($\chi^2(6) = 706.42$, p = 0.000) suggested that there is a sampling adequacy and that applying factor analysis would provide satisfactory results. The factor analysis resulted in one factor, with Eigenvalue >1 (Kaiser criterion) that interpreted 77.4% of the total variance. All items loading in factors had values >0.40 which is the marginal acceptance point (Table 2).

Convergent validity was assessed by the degree of correlation between SCS and facit-sp12, which was statistically and significantly positively corelated (r = 0.164, p = 0.006).

Regarding the association of spiritual climate scale with nurses' demographic and work-related characteristic we observed that the only differences in nurses' perceptions of spiritual climate were associated with sex and working position. Male nurses perceived spiritual climate more positively than female nurses (t = 2.597, p = 0.035). Similarly, nurse assistants perceived spiritual climate more positively than nurses (F = 2,703, p = 046, LSD = 6,8435, p = 0.034).

5. DISCUSSION

The aim of our study was to assess the validity and reliability of the Greek version of the Spiritual Climate Scale and to analyse the association of nurses' perception of spiritual climate with demographic and work-related characteristics.

Workplace spirituality relates to the values, attitudes and

behaviours of developing a shared vision and culture based on values of altruism, integrating the concept of community and developing a sense of hope - faith that generates the pursuit of the organisation's vision. In summary, the motivational cycle that comes from intrinsic motivation based on vision (performance), altruistic love (reward) and hope-faith (effort) leads to an increased sense of spiritual adjustment and positive organisational outcomes, organisational commitment, productivity and continuous improvement. Recent developments and scientific research on workplace spirituality, ethics and positive psychology provide a consensus on the values, attitudes and behaviours required for positive human health and psychological wellbeing. Satisfying these spiritual needs in the workplace positively impacts human health and psychological wellbeing and is the foundation for organisation performance (19, 20). Due to the stressful environment of hospital setting, demanding nature of nursing profession and the burden experienced by nurses, a spiritual friendly work environment and positive spiritual climate may be beneficial not only for nurses but also for a hospital as an organisation as well as for patients (14).

The Greek translation of spiritual climate scale has excellent psychometric properties as it is supported by the reliability test performed to examine stability, internal consistency and construct validity. More particularly, the Cronbach a of the scale was found to be 0.902, which is higher than the accepted value of 0.70 (21), thus indicating that the scale has excellent internal consistency. The value of Cronbach a that is reported in our study is higher than the original (14) and Arabic versions (a = 0.88) of the spiritual climate scale because it was culturally adapted from Cruz et al. (22). For testing scales stability, test - retest procedure was employed. The adequate sample size (n = 50), the strong correlation between the measurements and the no significant differences in paired t-test indicate that the Greek translation of spiritual climate scale is a capable instrument for reporting hospitals' spiritual climate (23). In addition, EFA revealed one factor solution that can explain the 77.4% and high factor loading for each item. These results support the construct validity of the instrument and are in line with a previous study that examined the dimensionality of the instrument (22). Convergent validity was assessed by the degree of correlation between SCS and facit-sp12, which was found to be statistically and significantly positively correlated. This finding not only supports the convergent validity of the Greek translation of spiritual climate scale but also reinforces previous studies and general notion about the association of positive spiritual climate of an organisation with employees' spiritual wellbeing (18, 24-25).

Regarding the association of the perceived spiritual climate with participants' characteristics, we observed that it can be influenced only by sex and working position. More specifically, male nurses perceive a more positive spiritual climate in Greek hospitals. This finding disagrees with previous studies in nursing personnel according to which either women perceive a more positive spiritual climate or there is no significant difference between the two genders (22, 26). This can be partially explained through the lens of cultural differences since previous studies were conducted among Arabic speaking nurses. Differences were also observed between nurses and nurse assistants' perception of spiritual climate, which also disagrees with the findings of a recent study (22, 26). This can be explained by the fact that registered nurses in Greece often have more responsibilities and roles in a health care unit, leading to increased levels of stress and burden and to poor perception of various aspects of organisational climate among nursing personnel (27, 28).

Among the strengths of the present study should be mentioned the adequate sample size that was recruited (n = 275) and the novelty of the subject since the perceptions of spiritual climate in Greece were assessed for the first time. Nevertheless, the present study also has two limitations. First, the convenience sample technique does not allow the generalisation of the findings. Second, only exploratory factor analysis was performed and not confirmatory factor analysis. These two limitations should be addressed to guide future research based on spiritual climate in Greek hospitals.

6. CONCLUSIONS

The Greek translation of the spiritual climate scale is easy to use and assess. Besides, it is simple to apply an instrument that examines the extent to which nurses' spirituality is accepted in their clinical settings. According to our study, the Greek translation of the spiritual climate scale led to validity and reliability among Greek nurses, thereby supporting its excellent psychometric properties.

- Author's contribution: Both authors contributed equally in the preparation of the manuscript and they were overseeing this project, had full access and responsibility of the data. Study design and instruction on the use of instruments for the outcome measures used in this study were made by both authors. Analysis and interpretation of data, manuscript preparation and final proof reading was made by the first author.
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REFERENCES

- Kastanioti C, Siourouni E, Mavridoglou G, Polyzos N. Evaluation of the organizational culture profile in public hospitals. Archives of Hellenic Medicine. 2011; 28(1): 70-78.
- Stone PW, Du Y, Gershon RR. Organizational climate and occupational health outcomes in hospital nurses. Journal of Occupational and Environmental Medicine. 2007; 49(1): 50-58. doi: 10.1097/01.jom.0000251622.05429.0c
- Ying L, Kunaviktikul W, Tonmukayakal O. Nursing competency and organizational climate as perceived by staff nurses in a Chinese university hospital. Nursing & health sciences. 2007; 9(3): 221-227. doi: 10.1111/j.1442-2018.2007.00324.x
- Ancarani A, Mauro CD, Giammanco MD. Patient satisfaction, managers' climate orientation and organizational climate. International Journal of Operations & Production Management. 2011; 22; 31(3): 224-250. doi: /10.1108/0144357111111900
- Krok D. Religiousness, spirituality, and coping with stress among late adolescents: A meaning-making perspective. Journal of Adolescence. 2015; 45: 196-203. doi: doi: 10.1016/j.

adolescence.2015.10.004.

- Pandey A, Gupta RK, Arora AP. Spiritual climate of business organizations and its impact on customers' experience. Journal of business ethics. 2009; 88(2): 313-332. doi: 10.1007/ s10551-008-9965-z
- Noh GM, Yoo MS. Effects of workplace spirituality and organizational citizenship behavior on nursing performance. Journal of Korean Academy of Nursing Administration. 2016; 22(3): 251-259. doi: 10.11111/jkana.2016.22.3.251
- Kown KY, Oh PJ. Effects of Nursing Workplace Spirituality and Self-efficacy on the Patient Safety Management Activities of Nurses. Journal of Korean Academy of Nursing Administration. 2019; 25(2): 106-114. doi: 10.11111/ jkana.2019.25.2.106
- Cruz JP, Alquwez N, Albaqawi HM, Alharbi SM, Moreno-Lacalle RC. Nurses' perceived spiritual climate of a hospital in Saudi Arabia. International nursing review. 2018; 65(4): 559-566. doi: 10.1111/inr.12481
- Jin JH, Ju HO, Kim KS, Park YM. Effects of nursing workplace spirituality on job satisfaction, burnout and turnover intention among general hospital nurses. J Korean Clin Nurs Res. 2017; 23(2): 142. doi: 10.22650/JKCNR.2017.23.2.142
- Antoniou AS, Davidson MJ, Cooper CL. Occupational stress, job satisfaction and health state in male and female junior hospital doctors in Greece. Journal of managerial psychology. 2003; 18(6): 592-621. doi: 10.1108/02683940310494403
- Dreliozi A, Siskou O, Maniadakis N, Prezerakos P. Clinical Governance and effective Quality & Risk management in Greek hospitals. International Journal of Health Research and Innovation. 2013; 1(3): 7-17.
- Bellou V. Identifying organizational culture and subcultures within Greek public hospitals. Journal of health organization and management. 2008; 22(5): 496-509. doi: 10.1108/14777260810898714.
- Doram K, Chadwick W, Bokovoy J, Profit J, Sexton JD, Sexton JB. Got spirit? The spiritual climate scale, psychometric properties, benchmarking data and future directions. BMC health services research. 2017; 17(1): 132. Doi: 10.1186/s12913-017-2050-5
- 15. Fradelos EC, Tzavella F, Koukia E, Tsaras K, Papathanasiou IV, Aroni A, Alikari V, Ralli M, Bredle J, Zyga S. The translation, validation and cultural adaptation of functional assessment of chronic illness therapy-spiritual well-being 12 (facit-sp12) scale in Greek language. Mater Sociomed. 2016; 28(3): 229. doi: 10.5455/msm.2016.28.229-234
- 16. Fradelos EC, Kapsiocha E, Tzavella F, Kastanidou S, Tsaras K, Papagiannis D, Papathanasiou IV. Factors Associated with Psychological Distress in University Students and the Relation to Emotional Intelligent and Spirituality: a Crosssectional Study. Mater Sociomed. 2019; 31(4): 262-267. doi:

10.5455/msm.2019.31.262-267.

- 17. WHO | Process of translation and adaptation of instruments [Internet]. Who. int. 2020 [cited 29 March 2020]. Available from: https://www.who.int/substance_abuse/research_tools/ translation/en/
- Benefiel M, Fry LW, Geigle D. Spirituality and religion in the workplace: History, theory, and research. Psychology of Religion and Spirituality. 2014; 6(3):175. doi: 10.1037/a0036597
- Fry LW. Toward a theory of spiritual leadership. The Leadership Quarterly. 2003; 14: 693-727. doi: 10.1016/j. leaqua.2003.09.001
- 20. Fry LW. Introduction to The Leadership Quarterly special issue: toward a paradigm of spiritual leadership. Leadership Quarterly. 2005; 16: 619-622. doi: 10.1016/j. leaqua.2005.07.001
- Bolarinwa OA. Principles and methods of validity and reliability testing of questionnaires used in social and health science researches. Nigerian Postgraduate Medical Journal. 2015 Oct 1; 22(4): 195. doi: 10.4103/1117-1936.173959.
- Cruz JP, Albaqawi HM, Alharbi SM, Alicante JG, Vitorino LM, Abunab HY. Psychometric assessment of the Spiritual Climate Scale Arabic version for nurses in Saudi Arabia. Journal of nursing management. 2018; 26(4): 485-492. doi: 10.1111/jonm.12574
- 23. Souza AC, Alexandre NM, Guirardello ED. Psychometric properties in instruments evaluation of reliability and validity. Epidemiologia e Serviços de Saúde. 2017; 26: 649-659. doi: 10.5123/S1679-49742017000300022.
- 24. Pandey A, Chattopadhyay D, Bose S. The impact of leaders' spirituality at work and their reputation on teams' spiritual climate. International Journal of Indian Culture and Business Management. 2015; 11(4): 473-495. doi: /10.5465/ ambpp.2013.11397abstract
- Kolodinsky RW, Giacalone RA, Jurkiewicz CL. Workplace values and outcomes: Exploring personal, organizational, and interactive workplace spirituality. Journal of business ethics. 2008 Aug 1; 81(2): 465-480. doi: 10.1007/s10551-007-9507-0
- Albaqawi HM, Alquwez N, Almazan JU, Alharbi SM, Catimbang CC, Rivera PP, Cruz JP. Workplace Spiritual Climate and Its Influence on Nurses' Provision of Spiritual Care in Multicultural Hospitals. Religions. 2019; 10(2): 118. doi: 10.3390/rel10020118
- 27. Dimitriadou-Panteka A, Lavdaniti M, Sapountzi-Krepia D, Psychogiou M, Konstadinidou-Stafkou A, Benos A. Nurses' perceptions about the nurse's social role in Greece. International Journal of Caring Sciences. 2008; 1(2): 86.
- Iliopoulou KK, While AE. Professional autonomy and job satisfaction: survey of critical care nurses in mainland Greece. Journal of advanced nursing. 2010; 66(11): 2520-2531. doi: doi: 10.1111/j.1365-2648.2010.05424.x.