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Title: Essential elements of the nursing practice environment in nursing homes: psychometric evaluation.  
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Conflict of Interest

This research was formed without other financial support and any conflict of interest. Copyright on the original Essentials of Magnetism instrument means that this instrument can not be reprinted without the expressed written permission of Health Sciences Research Associates and, therefore, permission was obtained.

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ABSTRACT  
BACKGROUND Increasing numbers and complex needs of older people in nursing homes strain the nursing workforce. Fewer adequately trained staff and increased care complexity raise concerns about declining quality. Nurses’ practice environment has been reported to affect quality of care and productivity. The Essentials of Magnetism II © measures processes and relationships of practice environments that contribute to productivity and quality of care and can therefore be useful in identifying processes requiring change to pursue excellent practice environments. However, this instrument was not explicitly evaluated for its use in nursing home settings so far.

AIMS AND OBJECTIVES To develop and psychometrically test the Essentials of Magnetism II in nursing homes.

DESIGN In a preparatory phase a cross-sectional survey study focused on face validity of the essentials of magnetism in nursing homes. A second cross-sectional survey design was then used to further test the instrument’s validity and reliability.

METHODS Psychometric testing included evaluation of content and construct validity, and reliability. Nurses (N=456) working at 44 units of 3 nursing homes were included.

RESULTS Respondent acceptance, relevance, and clarity were adequate. Five of the eight subscales and 54 of the 58 items did meet preset psychometric criteria.

CONCLUSIONS All essentials of magnetism are considered relevant for nursing homes. The subscales Adequacy of Staffing, Clinically Competent Peers, Patient Centered Culture, Autonomy, and Nurse manager support can be used in nursing homes without problems. The other subscales cannot be directly applied to this setting.

IMPLICATIONS FOR PRACTICE The valid subscales of the Essentials of Magnetism II instrument can be used to design excellent nursing practice environments that support nurses’ delivery of care. Before using the entire instrument, however, the other subscales have to be improved.

KEYWORDS

Environment, Factor Analysis, Nursing Home Care, Psychometric testing, Workforce Issues.

SUMMARY STATEMENT OF IMPLICATIONS FOR PRACTICE

What does this research add to existing knowledge in gerontology?

* The Essentials of Magnetism II © instrument could be useful to identify processes requiring change to pursue excellent practice environments in nursing homes enabling high quality of care for older individuals.
* Results of this research support the validity and reliability of the subscales Adequacy of Staffing, Clinically Competent Peers, and Nurse Manager Support of the essentials of magnetism in care for older people in nursing homes.
* Results from this study ask for some caution and suggests that perhaps the original structure of the Essentials of Magnetism II © instrument cannot be directly applied to other settings or cultures.

What are the implications of this new knowledge for nursing care with older people?

* The Essentials of Magnetism II © can be used to design excellent practice environments enabling nurses to sustain and even improve quality of care for older people.

How could the findings be used to influence policy or practice or research or education?

* Subscales Adequacy of Staffing, Clinically Competent Peers, and Nurse Manager Support should be used to evaluate nurses’ practice environments and policy in nursing homes to improve nurses’ practice environments.
* Building on this research, future research can develop the Essentials of Magnetism II © to be entirely valid and reliable in the nursing home setting.

BACKGROUND

Increasing numbers and complex needs of older people in nursing homes and other long-term care organizations strain the nursing workforce. Educational levels of nurses in nursing homes vary from vocational with 3 or 4 years of education to nurses on bachelor level with 4 years of education and nurses on master level with 6 years of education. The quality and quantity of nurses in nursing homes are under pressure (Abbey et al., 2006; Kloster et al., 2007; Suhonen et al., 2013). Also, there is an increasing trend to only admit individuals with highly complex needs to nursing home facilities. This combination of fewer trained staff and increased patient complexity raises concerns about declining quality of care (Suhonen et al., 2013).  
Quality of care, job satisfaction, productivity, and turnover rates have been reported to be influenced by nurses’ practice environment (Coetzee et al., 2013; Aiken et al., 2014). However, research concerning work processes’ impact on outcomes mostly focuses on acute care, and hospital care in particular. Research is needed to determine whether these relationships are consistent in other settings, such as nursing homes. An important prerequisite for testing such relationships is being able to adequately assess quality of nurses’ practice environment in this setting.   
The American Academy of Nursing identified organizational traits of excellent hospitals with professionally and personally rewarding practice environments for nurses, the so called Magnet hospitals (McClure, 1983). Excellently designed practice environments support nurses’ delivery of care, enabling them to sustain and improve quality of patient care, which is a possible answer to the existing strains on quality of care in nursing homes (Djukic et al., 2013). From studies in hospital settings, it is known that this can also be a relatively low cost strategy for quality of care improvement (Aiken et al., 2012).

To be able to establish an excellent practice environment, areas of improvement have to be determined, which in turn requires valid and reliable measures (Warshawsky & Havens, 2011). Several instruments have been developed to measure nurses’ perceptions of their practice environment. An example is the Practice Environment Scale of the Nurse Work Index-Revised (PES- NWI), which is a globally used instrument measuring contributing elements of the practice environment to nursing job satisfaction (Lake, 2002; Warshawsky & Havens, 2011). Another example is the Essentials of Magnetism II (EOMII) © instrument (Health Sciences Research Associates (HSRA), California), which is also used globally to measure processes and relationships of practice environments contributing to productivity and quality of patient care (Schmalenberg & Kramer, 2008). Both instruments have a common ancestor, the Nursing Work Index (NWI) (Lake, 2002. Schmalenberg & Kramer, 2008).

The Dutch version of the EOMII (D-EOMII) showed acceptable reliability and validity in the hospital setting (De Brouwer et al., 2014). The Dutch Nurses’ Association (V&VN) wants to be able to test differences and similarities of the nursing work environment of nurses in all settings and therefore aims to use the same instrument across settings, for which the D-EOMII was selected. As both the Dutch EOMII and the original EOMII are tested for hospital setting and home health care only, the researchers wanted to test whether the D-EOMII scale can be used in nursing homes (Mensik, 2007).

The EOMII was developed to measure eight attributes defined by Magnet hospital nurses as essential to quality care: Clinically Competent Peers, Collaborative Nurse-Physician Relationships, Clinical Autonomy, Nurse Manager Support, Control over Nursing Practice, Perceived Adequacy of Staffing, Support for Education, and Patient Centered Culture (Schmalenberg & Kramer, 2008). The EOM is a process measurement which is essential to understanding and improving nursing practice (Kramer et al., 2014). Using this instrument can help to identify processes requiring change to pursue excellent practice environments. Yet, whether this equally applies to nursing homes is unknown.

Purpose

The purpose of this research was to test the psychometric properties of the D-EOMII instrument for the nursing home setting, with a view to validity and reliability.

METHODS

Preparatory phase

The research team started with a preparatory phase to test the face validity of the EOMII. Thirteen randomly selected nurses (educational levels varied from three or four years on vocational level to four years on bachelor level) of two average sized nursing homes in the south of the Netherlands rated relevance and comprehensiveness of each EOMII item. All items were considered relevant and comprehensive with an average congruency percentage above 80% (De Vet, 2011). Interviews with these nurses further explored relevance of constructs and items, omissions, and acceptance in terms of feasibility. Interviewees noted that five items (13, 14, 16, 17, and 52) were not as important because their practice environment met these requirements. However, the nurses explained that if the practice environment would not meet these requirements this would be problematic, thus indicating the relevance of the items for other work settings than their own. Item 52 (High performance and productivity of nurses are expected) was the exception. Two nurses indicated that the client is important instead of production. To them, the term 'production' had a negative connotation as they saw it as linked to quantity instead of quality. Five experts also discussed the results. These respondents considered the eight essentials of magnetism and the items both relevant and comprehensive. The nurses and experts declared no omissions.

Psychometric testing of the D-EOMII

In the second phase, described in this article, a cross-sectional survey design was used to test the validity and reliability of the D-EOMII in nursing homes. Validity was tested in terms of content (relevance, comprehensiveness, and respondent acceptance) and construct validity (structural validity and hypothesis testing). Reliability was operationalized in terms of internal consistency.

Validity

The researchers used average congruency percentages above 80% to define the relevance and comprehensiveness of items (De Vet, 2011). Response rates per item determined respondent acceptance; fewer than 3% missing scores defined acceptance.

The researchers operationalized construct validity in terms of structural validity (factor structure) and through hypothesis testing (subscale correlation with organizational job satisfaction). The research team used confirmatory factor analysis (CFA). Principal component analysis with varimax rotation on items per subscale was conducted to confirm original factors (Eigenvalues >1 were included). The research team corrected for within group variation to account for clustering by using unit averages in the CFA (N =44 units). Factor loadings ≥.40 were considered significant (Sharma, 1996). Hypothesis testing was operationalized by investigating the relationships between D-EOMII and overall job satisfaction (OJS). The researchers calculated Spearman’s correlation coefficients. Hypotheses were that correlations between total D-EOMII-score and OJS as well as between subscale scores and OJS would be moderately/strongly positive (>0.30), as a positive perception on practice environment is related to OJS (Kramer & Schmalenberg, 2005). In case of a correlation <0.30, the researchers rejected the hypothesis.

Reliability

Internal consistency in terms of subscale-total and item-subscale correlation, Cronbach’s alpha, and Cronbach’s alpha if-item-deleted determined reliability of the D-EOMII (De Vet et al., 2011). The researchers computed Cronbach’s α coefficient for the entire scale and each subscale. Cronbach’s α-if-item-deleted was computed per item, thus determining whether deletion of items leads to higher alphas of the subscales. Furthermore, the research team explored subscale-total and item-subscale correlations, using Pearson’s correlation coefficients. Pearson’s correlation above 0.30 indicated adequate subscale-total correlations and item-subscale correlations (De Vet et al., 2011).

Items were considered for deletion/alteration if ≥2 of the following criteria were met: missing scores >3%, item-subscale Pearson’s correlation <0.30, item within a subscale with Cronbach's α <0.70, and higher Cronbach's α for subscale if-item-deleted (De Vet et al., 2011). Subscales were considered for deletion/alteration if ≥2 of the following criteria were met: hypothesis of specific subscale is rejected (correlation subscale with OJS <0.30), factor structure containing >1 factor per subscale, subscale-total Pearson’s correlation <0.30, Cronbach's α of subscale <0.70.

Participants and setting

The research team distributed the D-EOMII on all units of three nursing homes geographically spread in the Netherlands by purposeful sampling from December 2009 to January 2010. Urban and suburban nursing homes in the west, middle and east of the country were included. A nursing home can be defined as an organization that offers possibilities for residence, care and cure of older people with physical and cognitive impairments with three specific areas: 1) care and medical treatment of older people with dementia, 2) care and medical treatment of older people with physical impairments, and 3) rehabilitation (prevention, reduction, and cure of consequences for older people with permanent physical injury or functional handicap) (Boumans et al., 2008). There are 1900 nursing homes in the Netherlands (Deuning, 2009). Purposeful sampling also included the selection of nursing homes that contained all three aspects of nursing home care.

All nurses and carers with educational levels varying from vocational to bachelor (3-4 years) training were included when working on units for more than six months (N=456). The researchers excluded assistants, managers, nurse administrators, and interns/students.

Instrument

The Dutch EOMII (D-EOMII) measures eight constructs (EOM) using 58 items with a four-point Likert scale (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree) via a web application (De Brouwer et al., 2014). In addition, respondents had to score items as 0=irrelevant, 1=relevant, and 0=unclear, 1=clear. One question was added for overall job satisfaction (OJS) using a single-item-measure with a ten-point scale ranging from 0 (I hate my job) to 10 (I love my job).

Ethical considerations

In line with Dutch law (CCMO, 2009), the researchers did not need approval of an ethics committee as patient care was not affected or altered and no individuals were subjected to invasive or burdensome regimes. All participants were informed both verbally and via an instruction letter and they were free to choose whether or not to participate and withdraw at any time.

RESULTS

Sample

Respondents (N=276, response rate=60.5%) were nested in 44 units of 3 nursing homes. Educational levels varied from carers on vocational level with 3 years of education (71.4%, n=197), nurses on vocational level with 4 years of education (17.0%, n=47) to nurses on bachelor level with 4 years of education (11.6%, n=32). Years of nursing experience varied from 1 to >30 years (mean=17.9 years). Most respondents worked all shifts (57.6%), 26.1% worked only day shifts, 5% and 8.3% worked only evening and night shifts respectively, and 2.9% worked in other combinations of shifts.

Psychometrics

*Validity*

Content validity was confirmed as all items were considered relevant (range: 82-100%) and clear (range: 83-99%). Results concerning respondent acceptance indicated that missing scores on items increased slightly towards the end of the D-EOMII (range: 0-3%) (Table 1). CFA (Table 1) indicated that three subscales formed clear factors, as in the original EOMII (Perceived Adequacy of Staffing, Clinically Competent Peers, and Nurse Manager Support). Two subscales (Nurse-Physician Relationships and Support for Education) were spread over two factors and three subscales (Clinical Autonomy, Control over Nursing Practice, and Patient Centered Culture) were spread over three factors. No specific pattern could be determined for the factors in these subscales.

The total D-EOMII-score and five subscales (Clinical Autonomy, Perceived Adequacy of Staffing, Clinically Competent Peers, Nurse Manager Support, and Patient Centered Culture) correlated moderately to strongly (>.30) with OJS. However, three subscales correlated weakly with OJS (Nurse-Physician Relationships r=.12, Support for Education r=.28, and Control over Nursing Practice r=.22) (all correlations in Table 2).

*Reliability*

Subscale-total correlations (see Table 1) showed moderate correlations for two subscales (Nurse-Physician Relationships r=.36 and Clinically Competent Peers r=.39) and strong correlations for six subscales (r ranged from .57-.89). Item-subscale correlations indicated that two items correlated lower than 0.30 with their subscale (items 14 r=.19 and 52 r=.22 of the subscales Clinical Autonomy and Patient Centered Culture), while five items correlated moderately (items 5 r=.40, 9 r=.47, 15 r=.46, 17 r=.41, 24 r=.33), and 51 items correlated strongly (r=.63) with their subscale.

Cronbach’s α for the entire scale was 0.92, alphas of six subscales were above 0.70, while α was below 0.70 for two subscales (Support for Education and Clinically Competent Peers). Cronbach’s α of different subscales increased by separately deleting seven items (items 5, 9, 14, 24, 30, 35, 52, see table 1).

Four items violated ≥2 criteria (items 9, 14, 35 en 52 (Box 1)) and three subscales violated ≥2 criteria (subscales support for education, nurse-physician relationships, and control over nursing practice).

DISCUSSION

This study aimed to assess whether the D-EOMII-instrument applies to nursing homes. Respondents’ ratings on relevance and comprehensiveness as well as respondent acceptance were satisfactory, and similar to results of De Brouwer et al. (2014) testing the D-EOMII in hospitals. Although construct validity analysis further indicated that the subscales Adequacy of Staffing, Clinically Competent Peers, Patient Centered Culture, Autonomy, and Nurse Manager Support can be used, construct validity analysis could not confirm similarity to the original scale for the three subscales Nurse-Physician Relationships, Support for Education, and Control over Nursing Practice.

Possible explanations for the results could firstly be found in the educational levels of nurses working in nursing homes. In this study only 12% had a bachelor degree compared to 58-65% in the hospital studies (De Brouwer et al., 2014; Yilidrim, 2012). It is possible that nurses with a lower educational level interpret the items differently from nurses with higher educational levels which can result in a different factor structure.

Secondly, it is notable that the factor structure for the subscale Nurse-Physician Relationship is different from the original structure. In practice, the nature of this relationship is different for nursing homes and hospitals, with a view to contact frequency and intensity. In nursing homes in the Netherlands, nurse-physician contact mostly occurs in weekly multidisciplinary consultations, as compared to daily and frequent contacts in hospitals. Nursing home physicians are also responsible for multiple units. This can explain why this subscale does not show the same results as in the hospital setting. Furthermore, the researchers noted that the two deviating items in this subscale are the negatively formulated items. This may be due to the difficulty of the items. It can also be possible that two different constructs are measured, namely two different types of nurse physician relationships: the collegial relationship and the negative relationship.

Thirdly, the factor structure of the subscale Control over Nursing Practice deviated from the original structure. The most notable item of this subscale was item 24 concerning the interdisciplinary structure. This can be related to the results described above about the nurse-physician relationship. Control over Nursing Practice is considered important for delivering excellent patient care in nursing homes. However, it is possible that in the nursing home setting the construct is better without item 24. To be certain of this conclusion further research is necessary as the items are considered both relevant and clear.

The last subscale that differed from the original factor structure was Support for Education. Results of this deviation lie in the results of item 9 concerning rewards for pursuing education. This item is the only negatively formulated item of this subscale which can lead to a difference in interpretation of the item and therefore also in a different factor structure. The subscale will improve if this item is deleted. However, the item is considered relevant by nurses for delivering high quality patient care. Further study on the formulation of the item is suggested before deleting this item.

Furthermore, cultural differences across countries can result in different findings, which appears clearly in item 52. In the interviews, Dutch nurses mentioned that ‘expected productivity’ has a negative connotation of labeling personal care as industrial productivity in the Netherlands, as opposed to the original version (Schmalenberg & Kramer, 2008). This item also fell out with the rest of the items in the Dutch validation study for hospitals (De Brouwer et al., 2014). It seems likely that more subtle cultural differences could influence scores on other items as well.

Finally, other studies showed that all subscales are significantly correlated with OJS (Schmalenberg & Kramer, 2008; Yildirim et al., 2013; Bai et al., 2015). This study also showed that all subscales are significantly correlated with OJS. However a moderate to strong correlation with OJS was indicated for only five of the eight subscales. This shows that the constructs are related to the organizational job satisfaction. In total, however, 33% of the hypothesized correlations did not meet the set criterion. Therefore, construct validity is not fully confirmed for the nursing home setting.  
A strength of our study is the preparatory phase for content validity in the new setting. This step, and the importance of its positive results, should not be underestimated. This phase showed that the eight essentials of magnetism and the items were confirmed in terms of relevance and comprehensiveness. Furthermore, the researchers ensured to take clustering of nurses in units into account, which was crucial to validly performing our analyses. The research team performed CFA on individual constructs instead of exploratory factor analyses on the entire scale as is often done, thus using the most adequate approach to test whether data fit hypothesized factor structures (De Vet et al., 2011). Also, this study included multiple methods to assess construct validity.

The response rate was 60.5%. To validly and reliably aggregate data from individuals to group level, a ≥40% response rate on the D-EOMII is recommended (Schmalenberg & Kramer, 2008; Kramer, et al., 2009). Though this recommended rate was clearly met, non-response can cause bias when the sample is not representative of the population. The almost 40% non-response could have been caused by our use of a web-based survey (Nulty, 2008). Also a lack of time during shifts or the use of multiple surveys in a short time period could have caused non-response. Though we had no indications of systematic bias, we cannot fully rule this out. De Vet et al. (2011) recommend samples of over 100 for calculating correlation coefficients. For this, the sample size was acceptable.

A possible study limitation is that CFA was performed on data aggregated at the level of 44 units to account for clustering of data from nurses within the same wards. De Vet et al. (2011) propose a minimum of 4-10 cases per item. This criterion was satisfied for all but one subscale (PCC subscale: eleven items). In future studies more units are preferred.

For practice, implications are that the essentials of magnetism can be used to evaluate nurses’ practice environment and policy in nursing homes as all essentials of magnetism are considered relevant. Use of the D-EOMII instrument requires more caution. Subscales Adequacy of Staffing, Clinically Competent Peers, Patient Centered Culture, Autonomy, and Nurse Manager Support can be used in this context without problems. However, further research on the other subscales and forming a more adequate comprehensive measure is necessary to determine areas requiring improvement.

The researchers suggest that the subscale Nurse Physician Relationship should not necessarily be divided into two subscales. However, the subscale can be used in determining a negative or positive nurse-physician relationship.

The subscale Support for Education should be improved. The negatively formulated item ‘Few rewards for pursuing education’ is significantly correlated to its subscale. However, it does load on a different factor and Cronbach’s alpha increases 0.18 if the item is deleted. The researcher team suggests that this item should be altered into a positive formulation as the item is considered relevant.

The researchers recommend that the subscale Control over Nursing Practice should be subjected to further research. Results of the factor and reliability analyses show that several items should be deleted, however those items are considered relevant. Therefore, the researchers recommend a further content validity study on this subscale.

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Table 1: Subscales, items, range, mean, relevance, clarity, factor loading, explained variance, item-subscale, and subscale-to-total correlation and reliability

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *Subscales*  Items | Range scale (minimum-maximum) | Mean (SD) | Missing scores (% of 276) | Relevance (%) | Clarity (%) | Loadings  Factor 1  **(EV\*\*\* %)** | Loadings  Factor 2 **(EV\*\*\*%)** | Loadings Factor 3  **(EV\*\*\*%)** | Item-subscale and subscale-total  correlation | Cron-bach’s  α | α if- item-deleted |
| *Nurse-physician relationships* | 9-24 (6-24) | 18.61 |  |  |  | **40.22** | **23.95** |  | 0.36\* | 0.71 |  |
| 1: Student-teacher: MD’s teach nurses |  | 3.20 (1.0) | 0 | 94 | 93 | .555 |  |  | 0.69\*\* |  | 0.66 |
| 2: Collaborative: willing cooperation based on mutual power |  | 3.25 (.88) | 1 | 98 | 98 | .846 |  |  | 0.85\*\* |  | 0.57 |
| 3: Negative: frustrating and hostile |  | 3.29 (.81) | 1 | 93 | 98 | .529 | .601 |  | 0.72\*\* |  | 0.64 |
| 4: Student-teacher: RN’s teach/influence MD’s |  | 2.89 (1.0) | 1 | 95 | 93 | .702 |  |  | 0.58\*\* |  | 0.70 |
| 5: Friendly stranger: formal, courteous, information exchange only |  | 2.60 (1.2) | 1 | 93 | 96 |  | .895 |  | 0.40\*\* |  | 0.76 |
| 6: Collegial: physicians treat nurses as equals |  | 3.40 (.92) | 2 | 99 | 99 | .773 |  |  | 0.64\*\* |  | 0.67 |
| *Support for education* | 7-16 (4-16) | 11.67 |  |  |  | **52.98** | **25.65** |  | 0.72\*\* | 0.60 |  |
| 7: Nurses’ pursuing education is valued in organization |  | 3.28 (.55) | 2 | 100 | 99 | .828 |  |  | 0.71\*\* |  | 0.47 |
| 8: Support to attend continuing education programs |  | 3.25 (.60) | 2 | 99 | 99 | .844 |  |  | 0.83\*\* |  | 0.33 |
| 9: Few rewards for pursuing education |  | 2.24 (.77) | 2 | 95 | 99 |  | .992 |  | 0.47\*\* |  | 0.78 |
| 10: Financial assistance or time off |  | 2.91 (.59) | 2 | 96 | 99 | .849 |  |  | 0.75\*\* |  | 0.45 |
| *Clinical autonomy* | 15-32 (9-36) | 24.41 |  |  |  | **32.79** | **17.40** | **12.89** | 0.62\*\* | 0.75 |  |
| 11: Autonomy is risky- nurses fear getting into trouble |  | 2.65 (.63) | 2 | 100 | 99 | .871 |  |  | 0.79\*\* |  | 0.67 |
| 12: Know that nurse manager wants us to make decisions |  | 2.82 (.58) | 2 | 99 | 99 | .854 |  |  | 0.84\*\* |  | 0.66 |
| 13: Must get permission before independent or interdependent decisions |  | 2.39 (.62) | 2 | 95 | 99 | .691 |  |  | 0.56\*\* |  | 0.73 |
| 14: Practice spheres decision making |  | 3.00 (.61) | 2 | 96 | 99 |  |  | .897 | 0.19 |  | 0.77 |
| 15: Evidence-based practice provide knowledge base |  | 2.64 (.57) | 2 | 82 | 85 |  | .750 |  | 0.46\*\* |  | 0.74 |
| 16: Bureaucratic rules inhibit |  | 2.67 (.63) | 2 | 87 | 94 | .684 |  |  | 0.68\*\* |  | 0.70 |
| 17: Must do things against better judgment |  | 2.93 (.61) | 2 | 94 | 96 |  | .624 |  | 0.41\*\* |  | 0.75 |
| 18: Positive accountability |  | 2.67 (.60) | 2 | 97 | 97 | .667 |  |  | 0.63\*\* |  | 0.71 |
| 19: Administration sanctions staff nurse clinical autonomy |  | 2.64 (.60) | 2 | 92 | 94 |  | .625 | -.427 | 0.50\* |  | 0.74 |
| *Control over nursing practice* | 12-27 (8-32) | 19.91 |  |  |  | **28.59** | **24.13** | **14.31** | 0.63\*\* | 0.70 |  |
| 20: Control over nursing practice structure in place |  | 2.65 (.61) | 2 | 92 | 92 | .815 |  |  | 0.54\*\* |  | 0.67 |
| 21: Input and decision making into practice issues/policies |  | 2.40 (.61) | 2 | 94 | 98 | .479 | .679 |  | 0.81\*\* |  | 0.59 |
| 22: Recognition by MDs, administrators, and others |  | 2.78 (.50) | 2 | 95 | 93 | .682 |  |  | 0.66\*\* |  | 0.65 |
| 23: Structure is present but mostly "talk" |  | 2.39 (.60) | 2 | 97 | 97 | .672 |  |  | 0.63\*\* |  | 0.65 |
| 24: Structure is interdisciplinary |  | 2.71 (.65) | 2 | 93 | 98 |  |  | .946 | 0.33\*\* |  | 0.75 |
| 25: Personnel policies and issues |  | 2.10 (.60) | 2 | 93 | 94 |  | .733 |  | 0.69\*\* |  | 0.63 |
| 26: Can describe outcomes as a result of shared decision-making |  | 2.30 (.60) | 3 | 89 | 90 |  | .863 |  | 0.50\*\* |  | 0.70 |
| 27: Management and others decide nursing issues |  | 2.57 (.64) | 3 | 95 | 92 | .600 |  |  | 0.52\*\* |  | 0.69 |
| *Adequacy of staffing* | 7-24 (6-24) | 15.60 |  |  |  | **53.27** |  |  | 0.57\*\* | 0.82 |  |
| 28: Staffing is adequate for quality care |  | 2.10 (.75) | 3 | 100 | 99 | .787 |  |  | 0.79\*\* |  | 0.78 |
| 29: Not enough competent nurses |  | 2.70 (.66) | 3 | 98 | 99 | .746 |  |  | 0.75\*\* |  | 0.79 |
| 30: Must vary care delivery system because not enough staff |  | 2.72 (.61) | 3 | 90 | 90 | .529 |  |  | 0.54\*\* |  | 0.83 |
| 31: Adequate for safe care |  | 2.73 (.63) | 3 | 99 | 99 | .692 |  |  | 0.69\*\* |  | 0.80 |
| 32: Teamwork helps staffing adequacy |  | 2.63 (.68) | 3 | 100 | 99 | .809 |  |  | 0.81\*\* |  | 0.77 |
| 33: Not enough even if all positions filled |  | 2.72 (.61) | 3 | 97 | 98 | .780 |  |  | 0.76\*\* |  | 0.78 |
| *Clinically competent peers* | 5-15 (4-16) | 11.1 |  |  |  | **44.72** |  |  | 0.39\*\* | 0.53 |  |
| 34: Work with other nurses who are clinically competent |  | 2.93 (.52) | 3 | 99 | 98 | .503 |  |  | 0.51\*\* |  | 0.53 |
| 35: High clinical competence is rewarded |  | 2.32 (.59) | 3 | 96 | 95 | .509 |  |  | 0.70\*\* |  | 0.57 |
| 36: Degree education is evidence of competence |  | 3.02 (.45) | 3 | 95 | 99 | .832 |  |  | 0.71\*\* |  | 0.34 |
| 37: Certification is evidence of competence |  | 2.87 (.50) | 3 | 88 | 98 | .766 |  |  | 0.69\*\* |  | 0.38 |
| *Nurse manager support* | 15-48 (10-40) | 34.79 |  |  |  | **72.14** |  |  | 0.89\*\* | 0.96 |  |
| 38: Nurse manager represents unit |  | 2.93 (.70) | 3 | 100 | 98 | .893 |  |  | 0.90\*\* |  | 0.95 |
| 39: Provides needed resources |  | 2.80 (.56) | 3 | 96 | 99 | .720 |  |  | 0.72\*\* |  | 0.96 |
| 40: Resolves Nurse-physician conflicts |  | 2.87 (.64) | 3 | 98 | 99 | .899 |  |  | 0.90\*\* |  | 0.95 |
| 41: Nurse manager supports interdisciplinary team |  | 2.90 (.55) | 3 | 95 | 96 | .750 |  |  | 0.75\*\* |  | 0.95 |
| 42: Nurse manager provides competent staff |  | 2.75 (.62) | 3 | 100 | 99 | .682 |  |  | 0.68\*\* |  | 0.96 |
| 43: Nurse manager provides constructive feedback |  | 2.93 (.62) | 3 | 98 | 99 | .898 |  |  | 0.89\*\* |  | 0.95 |
| 44: Nurse manager support facilitates teamwork |  | 2.81 (.68) | 3 | 98 | 97 | .877 |  |  | 0.88\*\* |  | 0.95 |
| 45: Nurse manager is visible and approachable |  | 2.96 (.71) | 3 | 99 | 99 | .908 |  |  | 0.91\*\* |  | 0.95 |
| 46: Nurse manager walks the talk |  | 2.87 (.61) | 3 | 97 | 97 | .916 |  |  | 0.91\*\* |  | 0.95 |
| 47: Nurse manager asks for best practice evidence |  | 2.90 (.57) | 3 | 97 | 97 | .907 |  |  | 0.90\*\* |  | 0.95 |
| *Patient centered culture* | 19-41 (11-44) | 30.68 |  |  |  | **28.97** | **21.05** | **10.47** | 0.84\*\* | 0.79 |  |
| 48: Try new things |  | 2.95 (.48) | 3 | 92 | 96 |  | .758 |  | 0.54\*\* |  | 0.77 |
| 49: Concern for patient is paramount |  | 3.01 (.55) | 3 | 99 | 97 |  | .635 |  | 0.60\*\* |  | 0.77 |
| 50: Organization takes swift action |  | 2.44 (.57) | 3 | 98 | 93 |  | .759 |  | 0.55\*\* |  | 0.78 |
| 51: People are enthusiastic |  | 2.80 (.59) | 3 | 99 | 99 | .699 |  |  | 0.63\*\* |  | 0.76 |
| 52: High performance and productivity are expected |  | 2.93 (.56) | 3 | 92 | 97 |  |  | .909 | 0.22 |  | 0.82 |
| 53: Inter- and intra-disciplinary teamwork |  | 2.86 (.58) | 3 | 100 | 99 | .832 |  |  | 0.71\*\* |  | 0.75 |
| 54: Cost is important, but the patient comes first |  | 2.58 (.71) | 3 | 100 | 99 |  | .786 |  | 0.51\*\* |  | 0.78 |
| 55: Contributions of all are valued |  | 2.92 (.65) | 3 | 99 | 97 | .793 |  |  | 0.75\*\* |  | 0.74 |
| 56: Proactive, anticipating changes |  | 2.73 (.57) | 3 | 91 | 92 | .506 |  |  | 0.55\*\* |  | 0.77 |
| 57: Organization is value-driven; values are known and shared |  | 2.60 (.56) | 3 | 91 | 83 | .642 |  |  | 0.61\*\* |  | 0.76 |
| 58: Transmits cultural values |  | 2.85 (.52) | 3 | 96 | 95 | .751 |  |  | 0.62\*\* |  | 0.76 |
| Total |  |  |  |  |  |  |  |  |  | 0.92 |  |

\*\*\* EV = Explained variances

\*\*. Correlation is significant at the 0.01 level (2-tailed).

\*. Correlation is significant at the 0.05 level (2-tailed).

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Table 2: Correlation subscales and organizational job satisfaction

|  |  |  |
| --- | --- | --- |
|  |  | OJS |
| Nurse-physician relationships | Pearson Correlation | .166\*\* |
| Sig. (2-tailed) | .007 |
| N | 266 |
| Support for education | Pearson Correlation | .282\*\* |
|  | Sig. (2-tailed) | .000 |
|  | N | 266 |
| Clinical autonomy | Pearson Correlation | .322\*\* |
|  | Sig. (2-tailed) | .000 |
|  | N | 266 |
| Control over nursing practice | Pearson Correlation | .221\*\* |
| Sig. (2-tailed) | .000 |
|  | N | 266 |
| Adequacy of staffing | Pearson Correlation | .345\*\* |
|  | Sig. (2-tailed) | .000 |
|  | N | 266 |
| Clinically competent peers | Pearson Correlation | .310\*\* |
| Sig. (2-tailed) | .000 |
|  | N | 266 |
| Nurse manager support | Pearson Correlation | .349\*\* |
| Sig. (2-tailed) | .000 |
|  | N | 266 |
| Patient centered culture | Pearson Correlation | .479\*\* |
| Sig. (2-tailed) | .000 |
|  | N | 266 |
| Total | Pearson Correlation | .451\*\* |
|  | Sig. (2-tailed) | .000 |
|  | N | 266 |

\*\*. Correlation is significant at the 0.01 level (2-tailed).

Box 1: Items not meeting stated criteria

Four items do not meet two or more of the criteria:

Item 9: Few rewards for pursuing education

Cronbach’s α of subscale = 0.60, Cronbach's α if-item-deleted increases with 0.18

Item 14: Practice spheres decision making

Pearson’s correlation with subscale = 0.19, Cronbach's α if-item-deleted increases with 0.02

Item 35: High clinical competence is rewarded

Cronbach’s α of subscale = 0.53, Cronbach's α if-item-deleted increases with 0.04)

Item 52: High performance and productivity are expected

Pearson’s correlation with subscale= 0.22, Cronbach's α if-item-deleted increases with 0.03