

Self-Efficacy Perception Scale of Nursing Administrators: A Research Study

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Administrator nurses play an important role in managing costs and resources when providing high-quality healthcare services. Institutions require managers with sufficient knowledge and skills to provide effective and quality service. Administrative ability is indicated as a primary factor that can have a positive or negative impact on the vision of an organization. The purpose of this study was to develop and test a scale to identify duty-related, self-efficacy perceptions of nurses in administrative roles. Perceived self-efficacy is an important determinant in the process of initiating, maintaining, and successfully completing an action. It affects people's choices of activities and behavioral settings, how much effort they expend, and how long they will persist in the face of obstacles and negative experiences. If health organizations conduct proper research and determine the necessary competencies for each position and management level, then potential candidates may be selected to be trained as professional administrative nurses through development programs to improve their administrative competencies. The Self-Efficacy Perception Scale for Administrator Nurses (SEPSAN) is thought to use management process theory to help assess the self-efficacy perceptions of administrative nurses regarding their administrative activities.

Organizations must focus on the efficacy and competencies of their administrators to reach their goals. Perceived self-efficacy is an important determinant in the process of initiating, maintaining, and successfully completing an action. Hence, it is important to identify confidence levels of individual administrative nurses regarding their primary competencies in their administrative roles. The competence and skills of administrative nurses affect all

aspects of patient care and personnel welfare due to their responsibilities to provide a patient-centric work environment in which nurses can provide holistic healthcare services. The purpose of this study was to develop and test a scale to identify duty-related, self-efficacy perceptions of administrator nurses. The literature emphasizes the importance of evaluating the perceived self-efficacy of administrators (Gilmartin & Nokes 2015; Pillay 2008). It is

thought the present study will contribute to the relevant literature because there is no scale that can measure the comprehensive administration process/theory-based perceptions of the self-efficacy of administrative nurses at each level.

Background

Self-efficacy, which refers to the “individual’s belief in his or her capacity to execute behaviors necessary to produce specific performance attainments” (Carey & Forsyth, 2009), may be a determining factor of job satisfaction and improving abilities during different conditions, such as career and organization transitions (Gilmartin & Nokes, 2015). Studies by Cziraki and colleagues (2018) suggest the self-efficacy of administrative nurses impact their career expectations and motivations. Self-efficacy may affect expectations individuals may have about positive or negative outcomes of certain actions. In addition, individuals with strong self-efficacy will have more positive expectations regarding their future actions (Luszczynska et al. 2005).

Specialization in healthcare services, along with the quality and efficacy levels of professionals in the healthcare sector, has gained importance with regard to providing high-quality services. Institutions need managers with sufficient knowledge and skills to achieve effective, quality services. Administrative ability is the primary factor that positively or negatively impacts an organization's vision (Çetinkaya & Özutku 2010; Herdman 2012). Nurses, as well as other professional partners, face challenges in responding to the changing needs of patient populations and the changing nature of society. Administrative nurses face many difficulties in their administrative roles, coupled with increased workloads; hence, they need specific skills and competencies related to the effective presentation of healthcare services. It is vital to identify these competencies (Nazari et al., 2018).

The quality of nursing services requires the comprehensive management of these services by nurses with administrative skills. In this regard, administrative nurses are responsible for the following:

- Managing nursing practices and patient care.
- Managing human, fiscal, and other resources.
- Advancing employees.
- Ensuring conformance to occupational standards and regulations.
- Conducting strategic plans suited to their fields of responsibility.

- Supporting relationship development based on interdisciplinary cooperation (Baykal & Türkmen 2014).

Many studies illustrate the importance of administrative nurses in establishing a healthy working environment, increasing nurse satisfaction, employing and keeping clinical nurses, and improving quality of care and patient safety (Van Dyk et al., 2016).

Administrative nurses have important roles in 1) strengthening points of care that impact the quality and outcome of nursing services, and 2) contributing to the nursing profession (Gilmartin & Nokes 2015). Therefore, it is important to identify the confidence levels of individual administrative nurses regarding their primary competences in their roles. The development of a tool for measuring beliefs and self-efficacies of administrative nurses aims to contribute to improving nurses' innovative and department-based roles and using proof-based approaches that may support them in fulfilling these roles.

Methods

A two-step scale development and verification study was conducted.

- **Phase 1:** Preparation of the item pool, expert opinion, testing of the content, and face validity.
- **Phase 2:** Testing of the internal consistency of the scale items and a test-retest analysis, as well as testing of the construct validity via confirmatory factor analysis (CFA).

Phase 1: Development of the Self-Efficacy Perception Scale for Administrator Nurses (SEPSAN) Content Validity

The following steps were performed:

- Generating an item pool based on management process theory.
- Determining the format for measurement.
- Performing the expert review of the initial item pool.
- Conducting the preliminary item face and content validation.

First, a scale based on Henry Fayol's management process theory was formed from 55 items (American Association of Colleges of Nursing [AACN], 2007; Baykal & Türkmen, 2014; Koçel, 2014; Vliet, 2011). The developed tool was tested for face and content validity by involving a panel of 12 experts from the field of management academia. These experts were asked to evaluate the clarity and relevance of the items. Based on explanations of the developed tool, each expert was asked for feedback for face and content validity. Based on their suggestions, seven items were removed, and suggested clarifications on the other items were made. The total number of items was changed from 55 to 48. The Content Validity Index (CVI) (Davis, 1992) was calculated by the number of raters scoring an item with a 3 or 4 (very or highly relevant) divided by all participating experts. The total CVI was 0.86. The final version of the scale consisted of 48 items. The scale

was then tested with 15 administrator nurses for clarity of the test items.

Phase 2: Instrument Validity and Reliability

Sample size considerations.

All administrator nurses ($N = 330$) in one university (4 public and 10 private hospitals located in the southeast of Turkey working upper, middle, and lower levels) were invited to participate in the survey. The upper-level nurses whose job is to represent all lower-level nurses and make and implement strategic decisions are called 'nurse coordinators' or 'healthcare managers.' Middle-level nurse managers responsible for implementing and coordinating decisions of healthcare managers are called 'supervisor nurses.' Executive nurses responsible for the assignment and coordination of nurses working in patient care clinics are also called 'clinical responsible nurses.' A total of 256 questionnaires could be evaluated, with 74 omitted due to erroneous and missing data. In validity and reliability studies, the recommended sample size of 2 to 20 participants are expected for each item (Kline, 1979) or at least 5 participants for each item (Esin, 2015). In this study, a sample size was judged with a more than 5:1 case-to-variable ratio based on Esin's (2015) recommendation. The response rate was 77.5%. All administrator nurses tried to be reached by taking the basic criteria of being a volunteer in participating in the research and being a manager for at least one year.

Data Collection

Data collection was performed in February and December 2017. The contact person in each hospital invited all eligible administrator nurses there to complete the survey, after explaining to them verbally and in writing the main aims of this study and the data collection procedure. In the survey, data were collected through a self-administered tool with a demographic/background section (e.g., age and gender) and the SEPSAN scale tool.

To measure administrator nurses' perception of their management self-efficacy, they were asked in the SEPSAN scale tool, "How competent are you in fulfilling your managerial roles?" They were asked to choose one of the possible responses, all of which were positive statements that corresponded to a five-point Likert scale, with 1 = "I am not competent at all;" 2 = "I am somewhat competent;" 3 = "I am undecided;" 4 = "I am competent;" and 5 = "I am very competent." They were given up to 30 minutes to answer the tool.

Ethical Consideration

To assess psychometric properties of the developed tool, it was applied to managerial staff in the 15 hospitals (5 public and 10 private) that voluntarily participated in this study, following Ethics Committee approval of a public university in Turkey approved the research (number 27.02.2017 under the Decision No. and Research Protocol Code 70).

Administrator nurses involved in this study were informed about the object and methodology of the study before their individual written consent to participate in it was obtained.

Data Analysis

All analyses were performed using the software programs Statistical Package for the Social Sciences 22 (SPSS 22) and Analysis of Moment Structures 22 (AMOS 22). According to the aims of this study, we performed the analyses reported in Table 1.

- To assess the reliability of the study's results, the item-total correlations were evaluated, the internal consistency was analyzed with Cronbach's alpha, and test results were reanalyzed to determine the time invariance.
- To assess the construct validity, CFA was performed.

Results

Demographic Characteristics of the Participants

Out of the 330 administrator nurses invited, 256 participated. As shown in Table 2, respondents were mainly female (84.4%), aged between 31 and 36 years (29.7%), married (75.8%), had an undergraduate degree (49.6%) but no specific education in management theory and practice (85.5%), and had worked as a nurse for 6 to 10 years (34.4%), specifically as a clinical responsible nurse (85.2%) and as a manager nurse in a public hospital (50.3%) for 1 to 5 years (40.2%).

Table 1.
Methods Used to Analyze Data

Examined Features	Statistical Methods
Content/scope validity	Expert opinions (Davis technique, content validity index)
Suitability of the sample size	Barlett test
Suitability of the data set for factor analysis	Kaiser-Mayer-Olkin (KMO) test
Construct validity	Confirmatory factor analysis (CFA)
Internal consistency	Cronbach's alpha coefficient
	Item-Total Correlation (ITC)
Test-repeat analysis	Pearson correlation

Table 2.
Demographics of Administrator Nurses Who Participated in Study

Demographics		N	%
Gender	Male	40	15.6
	Female	216	84.4
Age	19-24	16	6.3
	25-30	42	16.4
	31-36	76	29.7
	37-42	74	28.9
	43+	48	18.8
Education	High school	59	23.0
	Associate degree	55	21.5
	Undergraduate	127	49.6
	Master's degree	15	5.9
Marital status	Married	194	75.8
	Single	60	23.8
Management education	Yes	37	14.5
	No	219	85.5
Management position	Clinical responsible nurse	218	85.2
	Supervisor nurse (daytime)	12	4.6
	Supervisor nurse (night)	10	3.9
	Healthcare manager/nurse coordinator	16	6.2
Employment as a nurse	1-5 years	68	26.6
	6-10 years	88	34.4
	11-15 years	39	15.2
	16-20 years	40	15.6
	20+	21	8.2
Employment as a manager	1-5 years	103	40.2
	6-10 years	91	35.5
	11-15 years	30	11.7
	16-20 years	24	9.4
	20+	8	3.1
Institution of employment	Private	88	34.4
	Public	129	50.3
	University	39	15.2

Table 3.
Item-Total Reliability

Self-Efficacy Perception Scale Item-Total Correlations in Administrator Nurses (N = 256)	
Item No.	Items
Planning	
1	I can identify the nursing services mission and vision.
2	I can make a strategic plan that will take the nursing services towards the targeted vision.
3	I can plan corrective and preventive activities regarding circumstances that may have an impact on nursing services.
4	I can take responsibility on behalf of the nursing services department during the corporate strategic planning process.
5	I can represent nursing services at the highest level.
6	I can identify the external factors that have an impact on nursing services.
7	I can identify the internal factors that have an impact on nursing services.
8	I can take part in the development of policies and procedures that will contribute to the presentation of nursing services.
9	I can make an action plan in cooperation with the related departments in case of extraordinary circumstances (disaster, etc.).
10	I can make plans that will establish a balance between the goals of the institution and the department.
11	I can develop the budget for nursing services.
Organizing Subdimension	
12	I can identify the job descriptions for the employees that I manage in accordance with the expectations/standards of the institution and the laws in effect.
13	I can distribute duties and tasks in accordance with the job descriptions.
14	I can distribute the tasks and duties according to knowledge, skills and abilities/specialization.
15	I can identify the authorities and responsibilities of nurses and staff members with a clear hierarchy.
16	I can delegate authority to my subordinates when necessary.
17	I can provide the required working environment, tools, and equipment for more effective nursing services.
18	I can identify the number of nurses required and their quality based on the workload of the units.
Commanding Subdimension	
19	I can be an effective role model for employees.
20	I can use suitable methods to motivate employees.
21	I can ensure an effective communication network and cooperation between the unit I work for and other units and disciplines.
22	I can definitely utilize effective conflict resolution methods in my unit when required.
23	I can manage risks and crisis situations in my unit.
24	I can support the career and development plans of the employees.
25	I can conduct scientific studies that will contribute to nursing services.
26	I can start a change for improving nursing services.
27	I closely follow innovations in the field of nursing services.
28	I can develop and implement innovations related to nursing services.
29	I can ensure employee safety in the best possible manner.
30	I can ensure patient safety in the best possible manner.
31	I can ensure the effective execution of teamwork.

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Table 3. (continued)
Item-Total Reliability

Self-Efficacy Perception Scale Item-Total Correlations in Administrator Nurses (N = 256)	
Item No.	Items
Coordinating Subdimension	
32	I can ensure the coordination between labor and fiscal resources.
33	I can coordinate employees and applications.
34	I can coordinate activities in line with the same objective.
35	I can use proof-based applications.
36	I can use my time in an effective and efficient manner.
37	I can provide mentorship (transferring knowledge and experience and guiding).
38	I can adapt employees and activities subject to changing conditions.
Controlling and Inspecting	
39	I can evaluate the conformity of our nursing services with quality standards.
40	I can provide feedback to nurses based on nursing services assessment results.
41	I can effectively manage the quality process.
42	I can measure the level of actualization of the predetermined goals.
43	I can identify deviations from the predetermined goals and take preventive measures.
44	I can evaluate the performance of each employee.
45	I can properly utilize promotion and punishment and rewards systems based on evaluation results.
46	I can implement a strength and autonomy program for nurses.
47	I can ensure the continuous training of nurses.
48	I can evaluate how the training program is reflected on our provided services.

Construct Validity, Internal Consistency, and Factor Loads

Table 3 shows the outcomes of item-total correlations. For each subdimension, the item-total score correlations were checked, and no coefficient less than 0.5 was found. Although item-total correlations were in the appropriate range, items 5, 10, 26, 27, 29, 30, and 48 were removed after CFA (see Figures 1-5). The Kaiser-Meyer-Olkin (KMO) Sample Measurement Value Sufficiency was 0.946, which was used to test the adequacy of the sample size before CFA, and $X^2 = 9454,402$ with the Bartlett test, which was used to evaluate the suitability

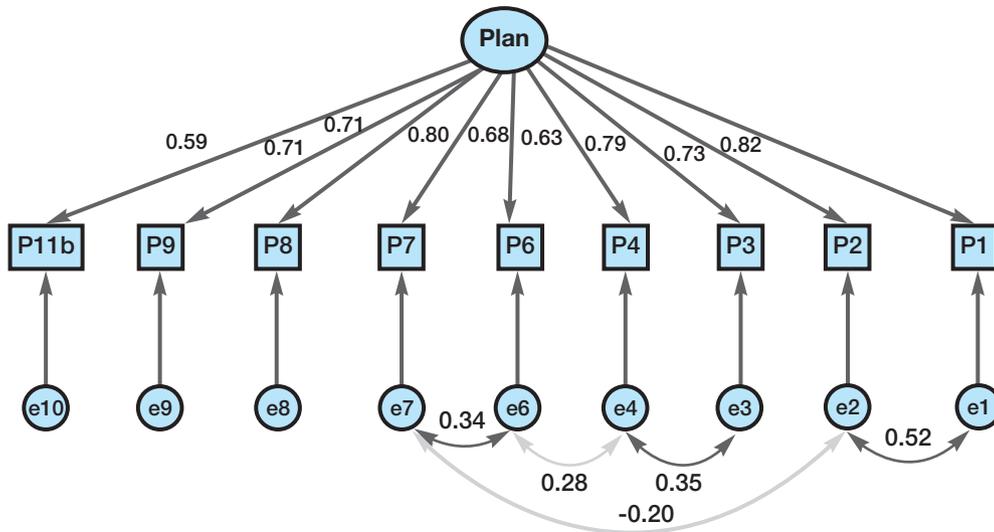
for factor analysis, which was determined to be highly significant ($p < 0.001$).

In addition, the internal consistency and factor loads of each subdimension of the scale shown in Table 4 are at the desired levels. The Cronbach's for the 48 items ranged from 0.86 to 0.91. To measure the invariance over time, the SEPSAN draft scale was applied to 45 administrator nurses with an interval of 15 days. The correlation coefficients between the first application and the second application total scores were positive and moderately statistically significant (planning: $r = 0.554$, Organizing: $r = 0.658$, Commanding: $r = 0.542$, Coordinating: $r = 0.583$ and

Controlling: $r = 0.589$, $p < 0.001$).

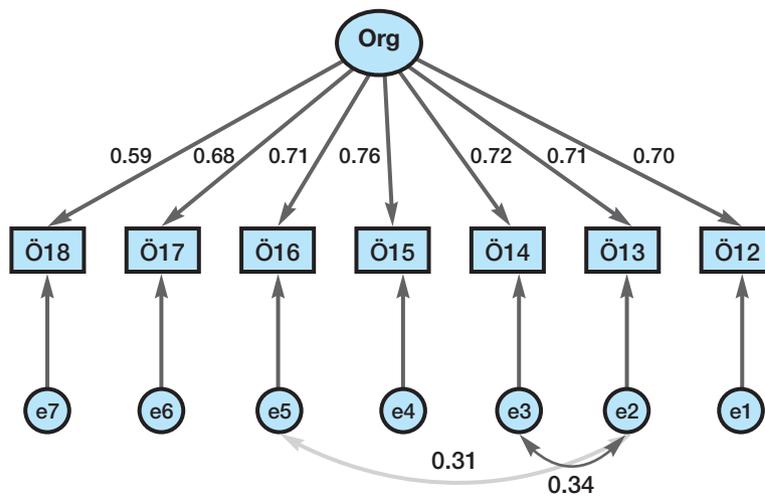
As shown in Figure 1, the construct validity was confirmed for each independent subscale with the CFA. According to modification suggestions, two items from the Planning, four items from the Organizing, and one item from the Controlling subdimensions were removed. As a result of setting the fault covariance between the suggested items, the analysis fit indices were within acceptable limits in each subdimension of the scale, as seen in Table 5. CFA ranges were as follows: χ^2/df from 1.73 to 2.45; RMSEA from 0.54 to 0.75; GFI from 0.955 to 0.977; AGFI from 0.909 to 0.947; CFI from 0.974 to 0.988; RMR from

Figure 1.
Planning Subdivision Confirmatory Factor Analysis



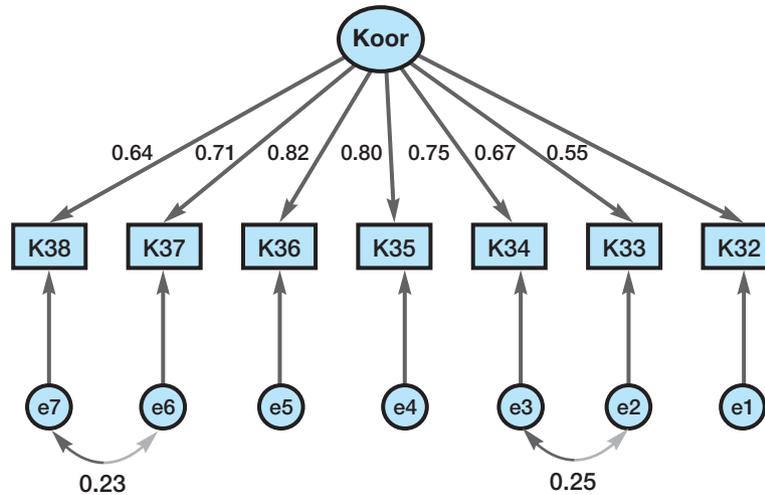
Notes: rmsea = 0.075; chi-square = 2,450.

Figure 2.
Organizing Subdivision Confirmatory Factor Analysis



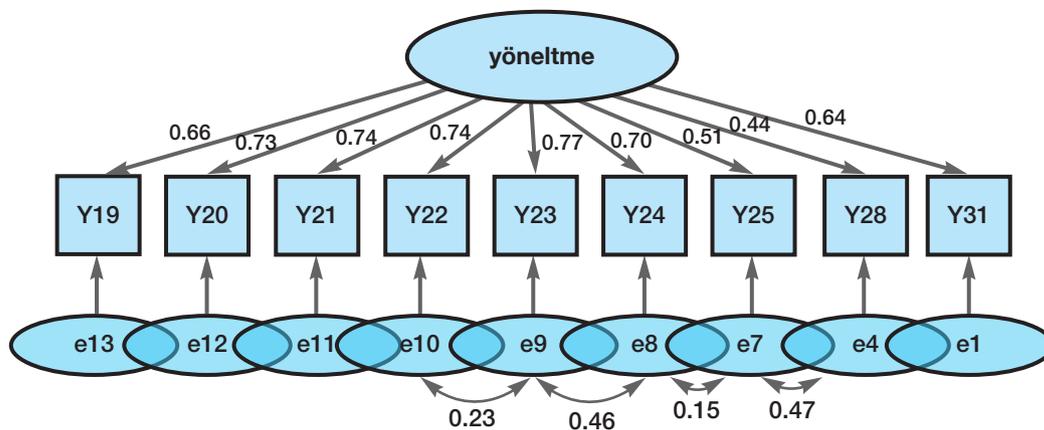
Notes: rmsea = 0.054; chi-square = 1,737.

Figure 3.
Coordinating Subdivision Confirmatory Factor Analysis



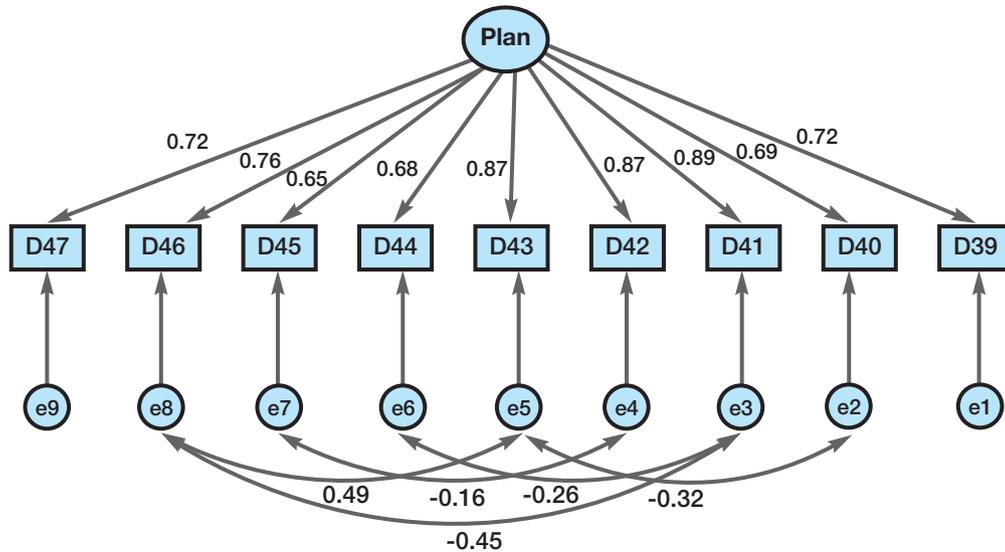
Notes: rmsea = 0.074; chi-square = 2,386.

Figure 4.
Commanding Subdivision Confirmatory Factor Analysis



Notes: rmsea = 0.063; chi-square = 2,021.

Figure 5.
Controlling Subdivision Confirmatory Factor Analysis



Note: rmsea = 0.072; chi-square = 2,329.

Table 4.
Internal Consistency Analysis and Factor Loads of the Subdimensions of the SEPSAN Scale (N = 256)

Scale Subdimensions	Changing Item Numbers	Items	ITC	Factor Loads	α^*
Planning	1-1*, 2-2, 3-3, 4-4, 6-5, 7-6, 8-7, 9-8, 11-9	9	0.572-0.758	0.59-0.80	0.91
Organizing	12-10, 13-11, 14-12, 15-13, -16-14, 17-15, 18-16,	7	0.551-0.701	0.59-0.76	0.86
Commanding	19-17, 20-18, 21-19, 22-20, 23-21, 24-22, 25-23, 28-24, 31-25	9	0.531-0.712	0.44-0.77	0.91
Coordinating	32-26, 33-27, 34-28, 35-29, 36-30, 37-31, 38-32	7	0.520-0.730	0.55-0.82	0.87
Controlling	39-33, 40-34, 41-35, 42-36, 43-37, 44-38, 45-39, 46-40, 47-41	9	0.614-0.786	0.65-0.87	0.91

Notes: * α = Cronbach's alpha internal consistency coefficient; ITC = Item-Total Correlation.

Table 5.
CFA Model Fit Indices of Subdimensions of the SEPSAN Scale (N = 256)

	X/df	RMSEA	GFI	AGFI	CFI	RMR	NFI
Planning	2450	0.075	0.955	0.909	0.974	0.023	0.957
Organizing	1737	0.054	0.977	0.947	0.988	0.013	0.972
Commanding	2021	0.063	0.961	0.924	0.978	0.017	0.958
Coordinating	2386	0.074	0.970	0.929	0.980	0.016	0.966
Controlling	2329	0.072	0.955	0.909	0.978	0.018	0.962

Note: CFA = confirmatory factor analysis.

0.13 to 0.23; and NFI from 0.957 to 0.972. Cutoff values suggested by Schumacher and Lomax (2010), Çapık (2014), and Evci and Aylar (2017) were considered for the assessment of the fit indices. The acceptable values were less than 2 and less than 5 for χ^2/df ; greater than 0 and 90 for GFI, AGFI, CFI, and NFI; and 0.08 for RMSEA, RMR, and SRMR.

Discussion

Scale development requires sufficient knowledge in the fields of theory, methodology, and statistics (Carpenter, 2018). It is the process of developing a reliable and valid measure for the qualification to be evaluated (Tay & Jebb, 2017). The stages of scale development have been discussed in the related literature. They are defining the concept to be measured and identifying the content for measurement, scale preparation and preliminary implementation, and assessment of the reliability and validity of the scale (Boateng et al., 2018; Carpenter, 2018; Erdo an et al., 2015; Evci & Aylar, 2007; Tezba aran, 2008). Similar steps were followed in this study. At the first stage of the scale development process in this study, an item pool of 55 questions related to the Administrative Management theory of Henry Fayol was generated (AACN, 2007; Baykal & Türkmen, 2014; Koçel, 2014; Vliet, 2011). Validity was defined as “the extent to which the scores from a test measure the intended variable” (Sönmez & Alacapınar, 2011, p. 384). The

validity of a scale is an indication of its measurement accuracy. It studies the conformity of the measurement tool to its objective (Büyüköztürk et al., 2016), whereas content validity is a method of validity testing that evaluates whether the items encompass the expressions related to the attribute to be measured (Ellez, 2011; Harmancı & Yıldırım, 2012). The Lawshe or Davis methods can be used to determine content validity (Yurdugül, 2005). In this study, the opinions of 12 experts were asked to evaluate the content validity of the scale. The required revisions were made in accordance with the opinions, after which the CVI was calculated via the Davis (1992) method, seven items were removed, and suggested revisions were made in the expressions, thus designing the draft scale with 48 items. The CVI was 0.86 overall, which was statistically significant ($p < 0.05$).

Reliability is “the degree to which the research method produces stable and consistent results” (Karagöz, 2015, p. 709). It can be best expressed by the reliability coefficient (r), which varies from 0.00 to +1.00. The closer the reliability of a measurement tool to 1 is, the more reliable it is (Büyüköztürk et al., 2016). The time invariance criterion as a reliability assessment method is the correlation between data obtained as a result of measurements during a certain time interval and under the same conditions identified based on the previous and next correlation coefficients (Karasar, 2011). The SEPSAN draft scale

was applied to 45 administrator nurses with an interval of 15 days to measure time invariance. Literature suggests the inclusion of at least 30 people for the test-retest (Karasar, 2011). The test-retest correlation coefficient obtained using the Pearson product moment for all items of the scale varied between 0.30 and 0.98 (Rousson et al., 2002). The correlation coefficients between the total scores for the first and second applications of the reapplied scale were positive and statistically significant at a moderate level ($p < 0.001$).

Internal consistency is a measure of the reliability of the identified measurement ability of all aspects of the scale. It is an indication of the correlation between items. A high internal consistency coefficient shows the items in the measurement tool are measuring a homogeneous structure (Büyüköztürk et al., 2016; Esin, 2015). In this study, Cronbach’s alpha and the item-total correlation coefficient were used to test the internal consistency. Values of the Cronbach’s alpha coefficient below 0.4 indicate the scale is ‘unreliable;’ values that vary between 0.40-0.59 show the scale is of ‘low reliability;’ values between 0.60 and 0.79 indicate the scale is ‘reliable;’ and values ranging between 0.80 and 1.00 show the scale is highly reliable (Harmancı & Yıldırım, 2012; Yurdugül, 2005). The Cronbach’s alpha reliability coefficients examined to test the internal consistency of the SEPSAN scale (0.86 to 0.91) pointed out the scale items were highly reliable for each dimension.

The item-total correlation provides information on the reliability of each item of the scale (Esin, 2015). If the items in the scale are of equal weight and independent, the correlation coefficient between each item and total values are expected to be high. Even though there is no standard value for the reliability of the item-total correlation coefficient, the minimum value should be 0.30 (Esin, 2015). According to Karasar (2011), there should be doubts about the reliability of items with coefficients below 0.5. The item-total correlations were examined for each subdimension of the draft scale (Planning, Organizing, Commanding, Coordinating, and Controlling), and there was no coefficient below 0.5.

The construct validity expresses “the degree to which a measurement tool is in accordance with its objective of measuring a directly unobservable and difficult to measure theoretically abstract concept and the degree to which it is able to measure the desired concept or dimension” (Erdoğan et al., 2015, p. 226). Factor analysis is the most frequently used method of testing construct validity (Harmancı & Yıldırım, 2012; Ya lıo lu, 2017). Factor analysis tests the integrity of the scale and ensures it is cleansed of unrelated variables (Esin, 2015). Factor analysis is conducted in two ways: exploratory and confirmatory (Evcı & Aylar, 2017; Hinkin et al., 1997; Ya lıo lu, 2017). CFA is “a type of analysis which is utilized by the

researcher for testing the structure developed based on a theory” (Erdoğan et al., 2015, p. 227). It is used to assess the factor structure quality by statistically testing the correlations between the elements and the scale in addition to the importance of the general model (Aytaç & Öngen, 2012; Hinkin et al., 1997; Ya lıo lu, 2017). It is a beneficial analysis for deductive studies. Since the Administrative Management theory of Henry Fayol was taken as the basis of the preparation of the scale items in this study, CFA was carried out as suggested to test the correlation of the subdimensions’ generated subject to theoretical knowledge. It is indicated in literature that CFA is used to verify a predetermined theoretical structure. It is also asserted a model can be identified based on the exploratory factor analysis result, but it may also be theoretically identified by the researcher and tested via CFA (Aytaç & Öngen, 2012; Çapık, 2014; Evcı & Aylar, 2017; Ya lıo lu, 2012). Cutoff values suggested by Schumacher and Lomax (2010), Çapık (2014), and Evcı and Aylar (2017) were considered for the assessment of the fit indices. When the goodness-of-fit index values were examined in the CFA analysis, the tested models were usable.

Conclusion

Based on results of the conducted validity and reliability analyses, the SEPSAN scale was proven as a valid and reliable measurement tool consisting of

a total of 41 items and 5 independent subscales (Planning, Organizing, Commanding, Coordinating, and Controlling) aimed at all steps of the management process. Due to the limited sample size of this study, however, it is suggested the validity and reliability of the SEPSAN scale be tested with a wider group.

Administrative competence requires knowledge, skills, and positive attitudes in management concepts and theories, management technology, and human relations. Administrators whose competencies are not at the desired level cause more time, effort, and money loss, and can even lead to the emergence of new problems. Each administrator position level requires a different set of managerial competencies. Data from the scale in this study can contribute to the development and strengthening of the needed roles and skills specific to each managerial process by measuring the self-perception of the fundamental competencies of administrative nurses at each level. Data will also assist in the selection or assignment of administrative nurses to administrative positions based on their current competencies. \$

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References

- American Association of Colleges of Nursing (AACN). (2007). *The education and role of the clinical nurse leader* [white paper].
- Aytaç M., & Öngen B. (2012). Examining the construct validity of the new environmental paradigm scale with confirmatory factor analysis. *Journal of Statisticians*, 5, 14-22.
- Baykal, Ü., & ve Türkmen, E. (2014). *Nursing services management*. Academy Publications.
- Boateng, G.O., Neilands, T.B., Frongillo, E.A., Melgar-Quinonez, H.R., & Young, S.L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Front. Public Health*, 6, 149. <https://doi.org/10.3389/fpubh.2018.00149>
- Büyükoztürk, Ş., Kılıç Çakmak E., Akgün, Ö.E., Karadeniz Ş. Demirel, F. (2016). *Bilimsel araştırma yöntemleri* [Scientific research methods]. Pegem Academy Publications.
- Carey, M.P., & Forsyth, A.D. (2009). *Teaching tip sheet: Self-efficacy*. <https://www.apa.org/pi/aids/resources/education/self-efficacy>
- Carpenter, S. (2018). Ten steps in scale development and reporting: A guide for researchers. *Communication Methods and Measures*, 12(1), 25-44. <https://doi.org/10.1080/19312458.2017.1396583>
- Çapık, C. (2014). Review: Use of confirmatory factor analysis in validity and reliability studies. *Anatolian Journal of Nursing and Health Sciences*, 17, 3.
- Çetinkaya M., & Özutku H. (2010). An empirical study on the determination of managerial competencies that top managers should have. *Dumlupınar University Journal of Social Sciences*, 26. <https://dergipark.org.tr/pub/dpusbe/issue/4768/65587>
- Cziraki K., Read, E., Spence Laschinger, H.K., & Wong, C. (2018). Nurses' leadership self-efficacy, motivation, and career aspirations. *Leadership in Health Services*, 31(1), 47-61. <https://doi.org/10.1108/LHS-02-2017-0003>
- Davis, L.L. (1992). Instrument review: Getting the most from a panel of experts. *Applied Nursing Research*, 5(4), 194-197. [https://doi.org/10.1016/S0897-1897\(05\)80008-4](https://doi.org/10.1016/S0897-1897(05)80008-4)
- Ellez, M. (2011). Features of measuring tools. In scientific research methods. In A. Tannögen (Ed.), *Scientific research methods* (2nd ed.). Anı Publishing.
- Erdogan, S., Nahcivan, N., & Esin, N. (2015). *Research process, practice and critical in nursing* [Original work published in Turkish]. Nobel Medicine Bookstores.
- Esin, M.N. (2015). Research in nursing. Data collection methods and tools, reliability and validity of data collection tools (pp. 1993-233) [Original work published in Turkish]. Nobel Medicine Bookstores.
- Evcı, N., & Aylar, F. (2017). Review: Use of confirmatory factor analysis in scale development studies [Original work published in Turkish]. Nobel Medicine Bookstores. *Journal of Social Sciences*, 4(10), 389-412.
- Gilmartin, M.J., & Nokes, K. (2015). A self-efficacy scale for clinical nurse leaders: Results of a pilot study. *Nursing Economic\$*, 33(3), 133-143.
- Harmancı, A.K., & Yıldırım, A. (2012). Developing nurses' perception scale regarding privatization. *Journal of Research and Development in Nursing*, 2, 1-16.
- Herdman, E.A. (2012). Leadership and management: All theory no practice? *Journal of Education and Research in Nursing*, 9(1), 3-9.
- Hinkin, T.R., Tracey, J.B., & Enz, C.A. (1997). Scale construction: Developing reliable and valid measurement instruments. *Journal of Hospitality & Tourism Research*, 21(1), 100-120. <https://doi.org/10.1177/109634809702100108>
- Karagöz, Y. (2015). *SPSS 22 applied biostatistics medicine, pharmacy, dentistry and health sciences*. Nobel Publications.
- Karasar, N. (2011). *Scientific research methods* (22nd ed.). Nobel Publishing.
- Kline, P. (1979). *Psychometrics and psychology*. Academic Press.
- Koçel, T. (2014). *Business management*. Beta Publishing.
- Luszczynska, A., Scholz, U., & Schwarzer, R. (2005). The general self-efficacy scale: Multicultural validation studies. *The Journal of Psychology*, 139(5), 439-457.
- Nazari, R., Vanaki, Z., Kermanshahi, S.M., & Hajzadeh, E. (2018). The meaning of managerial competency of ICU head nurses in Iran: A phenomenological study. *Iranian Journal of Nursing and Midwifery Research*, 23(5), 363-370.
- Pillay, R. (2008). Managerial competencies of hospital managers in South Africa: A survey of managers in the public and private sectors. *Human Resources for Health*, 6, 4. <https://doi.org/10.1186/1478-4491-6-4>
- Rousson, V., Gasser, T., & Seifert, B. (2002). Assessing intrarater, interrater and test-retest reliability of continuous measurements. *Statistics in Medicine*, 21(22), 3431-3446. <https://doi.org/10.1002/sim.1253>
- Schumacker, R.E., & Lomax, R.G. (2010). *A beginner's guide to structural equation modeling* (3rd ed.). Routledge Taylor & Francis Group.
- Sönmez, V., & Alacapınar, F.G. (2011). *Illustrated scientific research methods* (p. 384). Memoir Publishing.
- Tay, L., & Jebb, A. (2017). Scale development. In S. Rogelberg (Ed), *The SAGE encyclopedia of industrial and organizational psychology* (2nd ed.). Sage.
- Tezbaşaran, A.A. (2008). *Likert type scale preparation guide*. Mersin.
- Van Dyk, J., Siedlecki, S.L., & Fitzpatrick, J.J. (2016). Frontline nurse managers' confidence and self-efficacy. *Nursing Management*, 24(4), 533-539. <https://doi.org/10.1111/jonm.12355>
- Vliet, V. (2011). *Five functions of management (Fayol)*. <https://www.toolshero.com/management/five-functions-of-management/>
- Yaşlıoğlu, M.M. (2017). Factor analysis and validity in social sciences: Using exploratory and confirmatory factor analysis. *Journal of Istanbul University Faculty of Business Administration*, 46, 74-85.
- Yurdugül, H. (2005). *Measurement theory and reliability coefficients*. <http://yunus.hacettepe.edu.tr/~yurdugul/3/indir/Guvenirlik.pdf>

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