ORIGINAL RESEARCH

The importance of increasing frontline nurses' leadership skills engaging in professional development programs

Christine Fardellone*[1], Jennifer Meyer[2], Launette Woolforde[3]

[1] *Center for Tobacco Control, Northwell Health, USA*
[2] *North Shore University Hospital, Northwell Health System, USA*
[3] *Institute for Nursing, Northwell Health System, USA*

Received: May 12, 2020 **Accepted:** June 9, 2020 **Online Published:** June 18, 2020
DOI: 10.5430/jnep.v10n9p80 **URL:** https://doi.org/10.5430/jnep.v10n9p80

ABSTRACT

Problem/Significance: Nurses may not be required to engage in professional development; however professional development has been identified as a factor to improve leadership competence, confidence, decision making, and clinical practice. Specifically, nurses who participate in professional development education improve their leadership characteristics. This study will evaluate the leadership behaviors of frontline nurses participating in professional development compared to those who were not.
Methods: A convenience sample of 248 staff nurses employed in the North East region of the United States responded to the descriptive observational study design. The subjective responses to the Leadership Practice Inventory® (LPI) and demographic variables were analyzed.
Results: Clinical ladder nurses scored higher on all subscales of the LPI than did nurses not on the clinical ladder. Unit-based clinical champions scored highest on the LPI regardless of the clinical ladder level or participation.
Conclusions: Professional development in the form of education, certification, preceptor programs, leadership development clinical ladder programs, and unit-based champions should be considered in order to improve patient outcomes.

Key Words: Professional development programs, Clinical ladder programs, Champion programs

1. INTRODUCTION

Nursing leadership development and growth can be achieved through professional development programs such as entry level practice requirements of a BSN, certifications, mentorships, preceptorships, involvement in public policy, competency training, clinical ladder programs, and unit-based champion programs. The 2010 Institute of Medicine's (IOM) report "The Future of Nursing: Leading Change, Advancing Health" highlights the need for nurse leaders to provide improved safety and quality outcomes for patients. This report emphasizes the critical role professional nurses must play and the tremendous impact nursing education and leadership development can have on the future of healthcare. Clinical staff nurses are the advocates for patients and are at the frontlines of care. Professional development must be supported for nurses in all areas of practice.[1–4]

A review of the literature found three systemic reviews analyzing relationships between leadership in nursing and patient outcomes. The IOM report also stressed the need for

*Correspondence: Christine Fardellone; Email: cfardell@northwell.edu; Address: Center for Tobacco Control, Northwell Health, USA.

strong nursing leadership to improve patient care. Findings in the reviews noted patient satisfaction was significantly associated with positive leadership behaviors, and a reduction in adverse events.[5,6] Nurses working in practice settings that support professional development and transformational leadership style provide outcomes of higher nurse job satisfaction, organizational commitment, team work, productivity, and effectiveness.[4,7–9]

Frontline nurses make decisions that are directly related to quality and efficient care. The frontline staff possesses technical knowledge and skills that assists with strategic choices and the patterns of service delivery. The frontline staff also has the opportunity to effectively communicate and support members of the interdisciplinary health care team and implement the best practice for improved patient care. The frontline staff advocates for patients and as a result the patient may experience optimal hospital care.[10] Frontline nurses provide valuable perspectives related to organizational and patient needs.[2,11]

The frontline nurses provide support, motivation, expertise, courage, commitment, and engagement when delivering care to patients.[10,12] The nurses effectively address quality issues and deliver evidence-based practice. The credible work of frontline staff nurses has resulted in a reduction of hospital acquired conditions.[12,13] Frontline nurses also improve the hospital experience for patients and families.[14]

Nursing professional development programs provide opportunities for continuous growth in practice. Nurses are exposed to effective communication skills, collaboration, shared decision making, coaching, mentoring, competency development, continuing education, and support. Professional development programs empower nursing leadership skills and enhance quality patient care and outcomes.[15,16]

In support of the proposed study, one study found the leadership performance of nurses participating in career ladders that affect patient care. A group of 102 frontline nurses awarded clinical ladder status were pursued to complete a demographic questionnaire and the Leadership Practice Inventory® (LPI). The results noted 86% specialty certification rate, 24% enrollment in MSN continuing education, 90% participation as preceptors, and 37% reported previous leadership training. The frontline nurses scored higher in categories related to physically and emotionally caring for patients and lower in categories related to administrative challenges and changes in health care. The clinicians with more total years of registered nurse experience exhibited less leadership behaviors and level III clinical ladder nurses displayed more behaviors of an experienced mentor.[17] The behaviors most frequently reported include: "enable others to act, model the way, encourage the heart, challenge the process, and inspire a shared vision". As a follow-up, the significance of this study will evaluate the leadership styles of nurses participating in a clinical ladder program and nurses who choose not to participate. It will also evaluate if participation in a variety of professional development programs improve leadership styles and explore areas where changed leadership behaviors can enhance the nurses' professional practice. This study may also provide insight that professional development programs are imperative for continuous growth and optimal quality care for patients.

1.1 Professional Development Programs

The Magnet® Model recognizes health care organizations for quality patient care, empowerment, professional development and practice, and exemplary patient outcomes.[18] The Magnet® Model energizes and engages staff in decision making and advances nursing standards and practice at the unit level.[19] The Magnet® Model promotes accountability, collaboration, teamwork, and positive practice environments.[20]

1.1.1 *BSN and Certification*

Nurses employed at institutions who support BSN-prepared nurses and specialty certification experience decreased failure to rescue, mortality, hospital acquired infections, and falls.[11,13,21–23] Nurses who are better prepared to lead through advanced education have improved health care outcomes in their patients.[24]

1.1.2 *Preceptor Programs*

Frontline nurses who participate in preceptor programs create an environment which provides growth, well-being, and competence. Effective preceptors influence the healthcare team in a positive manner and may be beneficial in strategic decision making, due to their clinical experience. Preceptors have the opportunity to reflect on their leadership behaviors and supervise others during clinical practice.[2,11,25]

1.1.3 *Leadership Development*

Transformational leaders create a working environment that is stimulating, change oriented, supportive of follower's ideas and highly communicative.[26] Leaders listen and demonstrate respect by building a trusting and caring working relationship. Frontline nurses provide clinical care to patients, improve the care of the patient, and influence others in the process. Frontline nurses who participate in leadership development programs have reported joining committees, participating in continuing education and studies, publishing articles, and providing quality patient care.[6,27] Frontline nurses who care for patients function as change agents and advocates for patient issues. The competent clinical nurse

develops leadership styles and behaviors while conducting clinical practice.[11,12,28]

1.1.4 *Clinical Ladder Programs*

Clinical ladder programs support frontline nurses developing expertise and control over their practice. The nurse has an opportunity for growth and nursing professional development while providing direct care to the patient. The clinical ladder program is a vehicle for registered nurses to demonstrate growth in clinical practice and progress to RNI, RNII, and RNIII. The points accrued in the clinical ladder program require active participation in the five foci areas including: professional development, research and evidence-based practice, quality and safety, patient experience, and community service. Frontline nurses who choose to pursue advancement, do so based on interest in professional development, increased responsibility, and accountability.[20,29]

Health care organizations must remain competitive and promote professional development of the direct care workforce. Clinical ladder nurses are expert nurses who demonstrate increased satisfaction with employment. Nurses participating in ladder programs are often promoted to advanced leadership positions, education, and clinical specialty. The goal of the clinical ladder program is to advance clinical skill to expert level through education and professional development. This group of nurses can provide vision for changing nursing practice and developing hospital policies to provide safe and quality care for patients. Clinical ladder programs are a sustainable model for frontline nurses in their career advancement.[18,30]

1.1.5 *Champion Programs*

Unit-based champions are frontline nurses who act as leaders, mentors, and change agents to promote practice, based on scientific evidence and effective communication with other staff members. The goal of the champion is to disseminate new knowledge and advocate for patients to promote quality, safe patient care.[31] Champions are leaders who become experts in an area of nursing practice by educational and professional development. Champions are empowered to lead their patients to improved health care outcomes by communicating information with patients, family members, and the health care team.[13,32]

1.2 Theoretical Framework

Complexity theory is the conceptual framework used for this study. Complexity theory developed from work in the physical and social sciences. This model of leadership creates conditions that allow systems to evolve and change over time.[33] Health care organizations are complex systems of individuals interacting with the environment.[34] This group shares a common interest or issue related to health care outcomes.[35] The changing health care environment requires interactions with multiple systems related to the patient. Systems theory achieves a balance between short and long-term goals. Organizational and patient outcomes are dependent upon nurses who understand patient needs, and disease signs and symptoms. Nurses must also participate in interdisciplinary collaboration and communicate with the health care team to strategize how numerous systems will work together.[26]

2. METHOD

A selected sample of frontline registered nurses was utilized. The sample consisted of one group of frontline staff nurses surveyed one time. The study setting was a large tertiary care medical center part of the largest health system in the North East region of the United States with 865 beds. A total of 1,674 frontline nurses were employed at the institution. The study surveyed non-clinical ladder vs clinical ladder. The clinical ladder program offers the most rigorous opportunities for professional development participation. The clinical ladder program includes 22% of the frontline staff at the medical center. The unit-based champion program offers the staff nurse an opportunity to participate in a variety of activities promoting improved patient care. The champion program includes 47% of frontline nurses on inpatient units. Clinical ladder participation is not required for the unit-based champion role. Inclusion criterion was active employment at the medical center and staff nurse status. Exclusion criterion included registered nurses not classified as a staff nurse. All frontline staff was invited to participate.

2.1 Instruments

The study surveys used in this research were subjective; utilizing descriptive, cross-sectional and correlational methods. The demographic variables measured included: age, certification, education, employment status, ethnic background, gender, marital status, total years in current position, total years in the organization, and total years of registered nurse experience. In addition, participants were asked to respond to the following professional development variables: charge nurse experience, committee participation, participation in the clinical ladder program, participation in quality improvement projects, participation in the unit-based champion program, preceptor experience, and previous leadership training.

This study used the LPI self-report, which assesses leadership behaviors. The LPI is a 30 item Likert scaled assessment measuring frequency on a 10-point rating scale. The Leadership Practice Inventory® (LPI) developed by Kouzes & Posner[36] provides an understanding of leadership behaviors

and evaluates areas that require a change or modification in behavior or need additional development and support. The internal reliability of the LPI has ranged from 0.69 to 0.85 using alpha coefficient. Test retest reliability measured 0.93.[5,37] The LPI subscale alphas report: modeling the way 0.84, inspiring a shared vision 0.91, challenging the process 0.86, enabling others to act 0.91, and encouraging the heart 0.86. The Cronbach's alpha score reported for this study is 0.95.[38]

2.2 Statistical Analysis

A code method was developed for the study. All data was entered into Statistical Analysis System ® software Version 9.3 (SAS) by the researcher. Descriptive statistics (means and standard deviations for continuous variables; proportions for categorical variables) were calculated for the demographic data. Analysis of variance (ANOVA) was used to examine the association between the LPI scores of nurses not on the ladder vs. on the ladder. Pairwise comparisons were made within the ANOVA using Tukey's HSD test.

3. RESULTS

Thirty-six percent of the total frontline nurses expressed an interest in completing the survey. A total of 600 surveys were distributed. Two hundred eighty-two (47%) completed the survey. Missing data from the LPI survey was not included in the analysis, therefore the sample was reduced to 248 (41%). The age range was 22-67 years with a mean age of 42 years. Female (n = 229, 92%) and male respondents (n = 18, 7%) enrolled in the research study. One participant omitted gender. A total of 140 nurses not participating in the clinical ladder program completed the survey. The 108 participants who were in the clinical ladder program included 49 on level I, 31 on level II, and 28 on level III.

Table 1 summarizes the categorical demographic factor of highest level of education reported by the frontline nurses. These data exhibit the organization's commitment to BSN prepared nurses and continuing education professional development.

Table 1. Categorical demographic factors

Variable	Not on ladder (n = 140)	on Ladder (n = 108)
BSN	86.0%	97%
MSN	11.5%	13.9%

Table 2 summarizes the categorical demographic factors of professional development program participation. Of the sample (n = 248), 186 (75%) hold specialty certification, 185 (75%) precept other nurses, 95 (38%) report previous leadership training and 60 (24%) participate in the unit-based champion program.

Table 2. Categorical demographics

Variable	Not on Ladder (n = 140)	On Ladder (n = 108)
Clinical ladder	56%	44%
Certification	67.6%	85.8%
Preceptor Experience	68.4%	90.9%
Leadership Training	34.5%	44.3%
Champion Program	14.4%	38.9%

Table 3 summarizes the LPI sample subscale results. In each of the six categories one study participant awarded the top score of ten. The behaviors most frequently selected were "enable others to act, model the way, encourage the heart, challenge the process, and inspire a shared vision". Enable others to act was selected most frequently with the smallest standard deviation and inspire a shared vision had the largest variation in the response as noted by the largest standard deviation. Seventy five percent scored lower than the results noted in the upper quartile. Twenty five percent scored lower than the results noted in the lower quartile.

Table 3. Summary of LPI

Variable	n	Mean	Std Dev	Median	Lower Quartile	Upper Quartile	Minimum	Maximum
Model	248	47.78	7.68	49.00	44.00	54.00	22.00	60.00
Inspire	248	42.10	11.26	44.00	36.00	50.00	7.00	60.00
Challenge	248	43.39	10.07	45.00	37.00	50.00	17.00	60.00
Enable	248	49.80	6.22	50.00	46.00	54.00	29.00	60.00
Encourage	248	46.76	9.09	49.00	43.00	53.00	16.00	60.00

Table 4 summarizes the LPI subscale results reported for nurses not on the clinical ladder and level I, level II, and level III of the clinical ladder. LPI scores did not differ significantly according to ladder level, however there was a notable difference in the mean scores for the nurses who are not on the ladder vs. nurses on the ladder.

Table 4. Nurses LPI scores

Subscale	Not on ladder (n = 140)	Level I (n = 49)	Level II (n = 31)	Level III (n = 28)
Model the Way	48.2	49.6	49.7	49.8
Inspire	42.4	46.6	44.6	45.8
Challenge	43.7	46.2	46.0	47.1
Enable	49.9	51.3	50.8	51.4
Encourage	46.6	50.3	48.9	48.5

Table 5 reports an association between professional development participation in the champion program and each LPI subscale. There was a significant effect on champion in all cases. Champion scored higher than non-champion. Even though other professional development programs improve leadership behaviors, significant results were not reported.

Table 5. LPI subscale and professional development

Subscale	Champion (n = 60)		*p*-value
	Yes	No	
	Least Square Mean	Least Square Mean	
Model	51.54 (0.97)	47.14 (0.69)	.0002
Inspire	48.26 (1.40)	41.19 (1.00)	< .0001
Challenge	48.71 (1.26)	42.79 (0.90)	.0001
Enable	52.23 (0.80)	49.50 (0.57)	.0046
Encourage	50.85 (1.15)	46.33 (0.82)	.0011

4. Discussion

The findings reported the nurses' highest mean response was "enable others to act". This behavior empowers frontline nurses to provide outstanding quality patient care and make extra efforts to ensure a difference in a patient's outcome. The second highest average response "model the way" permits nurses to share clear values with patients and other health care providers. The third highest average response "encourage the heart" identifies the input of the team, and results in feelings of community and togetherness. The fourth mean response "challenge the process" identifies strategies to improve from lessons learned and experience. The lowest mean response "inspire a shared vision" invites the health care team to share vision, possibilities for change and improvement, and create a path for others to follow.[36] As noted in Abraham,[27] Fardellone,[17] George,[39] and Laut[6] frontline nurses' leadership qualities may transform with training, development, and support when they are aware of the areas that require improvement.

As in the Heuston & Wolf,[40] Houser,[5] Mc-Neese-Smith,[41] and Spicer[42] studies, the results of this investigation also demonstrated that nurses who participated in professional development programs scored higher on the LPI. The leadership practices developed by Kouzes and Posner[36] are a set of skills that can be tested, studied, and educated. Developing new professional development programs and improving the current agendas may result in enhanced patient experiences, which benefit the nurse, the health care organization, and the consumer.[43] Nurses must continue to manage change in the organizational setting while improving health care for the patients and families.[44]

Health Systems may apply the results of this study to support professional development and enhance the leadership styles and decision-making tactics of frontline caregivers in all areas of practice, especially as years of experience increase. This study also reported that champion nurses scored highest on the LPI regardless of clinical ladder participation. Champion nurses represent frontline care leaders and this group of staff members influence organizational decisions which will affect the patient experience and overall care delivery.

5. Conclusion

Health Systems need to develop strategies for frontline nurses to remain dedicated and engaged in providing exceptional patient care. Utilizing the experience of the professional clinicians may change approaches that are financially efficient and provide optimization for patient care. Formal preparation of frontline nurses is necessary to continue progress in changing care models, quality, and patient safety.[24,45] A critical goal for organizations and the health care industry should in-

clude understanding how nurses formulate decisions related to patient care.

Frontline nurses who advocate for their patients display leadership characteristics through the nursing care and treatments provided for the patients. Professional development programs including education, health promotion, and critical thinking strategies improve and innovate the nurse's ability to provide optimal patient care. In alignment with the Magnet® Model, this study illustrated that health care organizations must provide empowerment, professional development, and professional practice for the frontline staff and utilize the knowledge of frontline nurses.[43] Professional development of frontline nurses may result in clinical practice that decreases patient mortality, improves the health care work environment, and supports exemplary nursing practice.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

REFERENCES

[1] Institute of Medicine. The future of nursing: Leading change, advancing health. Washington, DC: The National Academies Press; 2010.

[2] Mason DE, Keepnews D, Holmberg J, et al. The representation of health professionals on governing boards of health care organizations in New York City. Journal of Urban Health. 2013; 90(5): 888-901. PMid:23192386 https://doi.org/10.1007/s11524-012-9772-9

[3] Mason AM, Sibiya MN, Nkosi ZZ. Mixed method development of a leadership framework for generation y bedside nurses. Global Journal of Health Science. 2020; 12(1): 124-138. https://doi.org/10.5539/gjhs.v12n1p124

[4] Wong CA, Cummings GG. The relationship between nursing leadership and patient outcomes: A systemic review. Journal of Nursing Management. 2007; 15: 508-521. PMid:17576249 https://doi.org/10.1111/j.1365-2834.2007.00723.x

[5] Houser J. A model for evaluating the context of nursing care delivery. Journal of Nursing Administration. 2003; 33(1): 39-47. PMid:12544624 https://doi.org/10.1097/00005110-200301000-00008

[6] Laut R, Wiknik A, LaCroix KM, et al. Leading the nurse within: Developing confident leadership skills for new graduates. The Journal of Continuing Education in Nursing. 2018; 49(8): 356-359. PMid:30053306 https://doi.org/10.3928/00220124-20180718-06

[7] Cummings GG, Macgregor T, Davey M, et al. Leadership styles and outcome patterns for nursing workforce environment: A systematic review. International Journal of Nursing Studies. 2009; 47: 363-385. PMid:19781702 https://doi.org/10.1016/j.ijnurstu.2009.08.006

[8] Grossman SC, Valiga TM. The new leadership challenge: Creating the future of nursing (5th ed). Philadelphia: F.A. Davis; 2017.

[9] Kane RL, Shamliyan TA, Mueller M, et al. The association of registered nurse staffing levels and patient outcomes systematic review and meta-analysis. Medical Care. 2007; 45(12): 1195-1204. PMid:18007170 https://doi.org/10.1097/MLR.0b013e3181468ca3

[10] Daly J, Jackson D, Mannix J, et al. The importance of clinical leadership in the hospital setting. Dovepress. 2014; 4(5): 75-83. https://doi.org/10.2147/JHL.S46161

[11] Hassmiller SB. Nurses leading change to advance health. Journal for Nurses in Professional Development. 2018; 49-50. PMid:29298232 https://doi.org/10.1097/NND.0000000000000416

[12] Sherman RO. Leadership influence and power. Nurse Leader. 2018; 16(1): 6-7. https://doi.org/10.1016/j.mnl.2017.10.003

[13] Scanlon KA, Woolforde L. Igniting change through an empowered frontline: A unique improvement approach centered on staff engagement, empowerment, and professional development. Nurse Leader. 2016; 14(1): 38-46. https://doi.org/10.1016/j.mnl.2015.11.007

[14] Needleman J, Hassmiller S. The role of nurses in improving hospital quality and efficiency: Real world results. Health Affairs. 2009; 28(4): w625-w633. PMid:19525289 https://doi.org/10.1377/hlthaff.28.4.w625

[15] Price S, Reichert C. The importance of continuing professional development to career satisfaction and patient care: Meeting the needs of novice to mid- to late-career nurses throughout their career span. Administrative Sciences. 2017; 7(17): 1-13. https://doi.org/10.3390/admsci7020017

[16] Brunt BA, Bogdan BA. Nursing professional development (npd) leadership. StatPearls Publishing 2020; 1-4. Available from: https://wwwncbi.nlm.nih.gov/boks/NBK519064

[17] Fardellone C, Musil CM, Smith E, et al. Leadership behaviors of frontline staff nurses. Journal of Continuing Education in Nursing. 2014; 45(11): 506-513. PMid:25347089 https://doi.org/10.3928/00220124-20141023-05

[18] Scott EC. Educational preparation to strengthen nursing leadership. North Carolina Medical Journal. 2011; 72(4): 269-299.

[19] Lewis L. Optimizing all licensed staff Magnet standards require an all-bsn/rn staff in hospital setting by 2020: Truth or myth? Journal of Nursing Administration. 2015; (45)5: 237-238. PMid:25906129 https://doi.org/10.1097/NNA.0000000000000191

[20] Siller J, Dolansky MA, Clavelle JT, et al. Shared governance and work engagement in emergency nurses. Journal of Emergency Nurses. 2016; 42(4): 325-330. PMid:26972369 https://doi.org/10.1016/j.jen.2016.01.002

[21] Aiken LH, Cimiotti JP, Sloane DM, et al. Effects of nurse staffing and nurse education on patient deaths in hospitals with different nurse work environments. Medical Care. 2011; 49: 1047-1053. PMid:21945978 https://doi.org/10.1097/MLR.0b013e3182330b6e

[22] Boyle DK, Cramer E, Potter C, et al. The relationship between direct-care RN specialty certification and surgical patient outcomes. AORN Journal. 2014; 100: 511-528. PMid:25443121 https://doi.org/10.1016/j.aorn.2014.04.018

[23] Kendall-Gallagher D, Aiken LH, Sloane DM, et al. Nurse specialty certification, inpatient mortality, and failure to rescue. Journal of Nursing Scholarship. 2011; 43: 188-194. PMid:21605323 https://doi.org/10.1111/j.1547-5069.2011.01391.x

[24] Aiken LH, Clarke SP, Sloane DM, et al. Effects of hospital care environment on patient mortality and nursing outcomes. Journal

of Nursing Administration. 2008; 38(5): 223-229. PMid:18469615 https://doi.org/10.1097/01.NNA.0000312773.42352.d7

[25] Tomajan K. Advocating for nurses on nursing. The Online Journal of Issues in Nursing. 2012; 17(1): 1-9.

[26] Klainberg M, Dirschel KM. Today's nursing leader: Managing succeeding, excelling. Studbury, MA: Jones and Bartlett; 2010.

[27] Abraham PJ. Developing nurse leaders: A program enhancing staff nurse leadership skills and professionalism. Nursing Administration Quarterly. 2011; 35(40): 306-312. PMid:21900815 https://doi.org/10.1097/NAQ.0b013e31822ecc6e

[28] Valentine SO. Nursing leadership and the new nurse. 2002. Available from: http://www.lun.nursing.arizona.edu/articles/Fall%202002/Valentine.htm

[29] Northwell Health. 2019. Available from: https://vportal.northwell.edu/cvpn/aHR0cHM6Ly9pbnRyYW5ldC5ub3J0aHdlbGwuZWR1/nursing/Practice/Clinical%20Ladder%20Program%20Version%204%20Files/Clinical%20Ladder%20Program%20V.4.pdf

[30] Drenkard K, Swartwout E. Effectiveness of a clinical ladder program. Journal of Nursing Administration. 2005; 22(11): 502-506. PMid:16282828 https://doi.org/10.1097/00005110-200511000-00007

[31] Berquist-Beringer S, Derganc K, Dunton N. Embracing the use of skin champions. Nursing Management. 2009; 40(12): 19-24. PMid:19966546 https://doi.org/10.1097/01.NUMA.0000365465.01722.4b

[32] Agrell-Kann M. Improving quality outcomes using a champion model for ancillary nursing staff. The Journal of Continuing Education in Nursing. 2015; 46(12): 539-541. PMid:26641149 https://doi.org/10.3928/00220124-20151112-03

[33] Chaffee MW, McNeil MM. A model of nursing as a complex adaptive system. Nursing Outlook. 2007; 55: 232-241. PMid:17950117 https://doi.org/10.1016/j.outlook.2007.04.003

[34] Hast AS, DiGioia AM, Thompson D, et al. Utilizing complexity science to drive practice change throughout patient- and family-centered care. Journal of Nursing Administration. 2013; 43(1): 44-49. PMid:23232179 https://doi.org/10.1097/NNA.0b013e31827860db

[35] Center for Study of Health Management. Applying complexity science to health and health care. 2003. Available from: http://www.carlsonschool.umn.edu/Assets/1126pdf

[36] Kouzes JM, Posner BZ. The Leadership Practice Inventory Self. (4th ed). San Francisco, CA; Pfeiffer; 2012.

[37] Patrick A, Laschinger HW, Wong C, et al. Developing and testing a new measure of staff clinical leadership: The clinical leadership survey. Journal of Nursing Management. 2011; 19(4): 449-460. PMid:21569142 https://doi.org/10.1111/j.1365-2834.2011.01238.x

[38] Posner BZ. Leadership Practice Inventory (LPI) data analysis. 2010. Available from: https://media.wiley.com/assets2260/07/LPIDataAnalysisSept2010.pdf

[39] George V, Burke LJ, Rogers B, et al. Developing staff nurse shared leadership behavior in professional nursing practice. Nursing Administration Quarterly. 2002; 26(3): 44-59. https://doi.org/10.1097/00006216-200204000-00008

[40] Heuston MM, Wolf GA. Transformational skills of successful nurse managers. Journal of Nursing Administration. 2011; 41(6): 248-251. PMid:21610478 https://doi.org/10.1097/NNA.0b013e31821c4620

[41] McNeese-Smith D. The influence of managerial behaviors on nurses' job satisfaction, productivity, and commitment. Journal of Nursing Administration. 1997; 27(9): 47-55. PMid:9300015 https://doi.org/10.1097/00005110-199709000-00011

[42] Spicer JG, Guo Y, Liu H, et al. Collaborative nursing leadership project in the People's Republic of China. International Nursing Reviews. 2010; 57(2): 180-187. PMid:20579152 https://doi.org/10.1111/j.1466-7657.2009.00769.x

[43] American Nurses Credentialing Center. Magnet® recognition program overview teaching tips 2011. Available from: www.nursecredentialing.org/Documents/Magnet/MagTeachTips.pdf

[44] Cummings G. New knowledge and evidence for better leadership. Nursing Leadership. 2010; 23(3): 18-20. PMid:24947298 https://doi.org/10.12927/cjnl.2010.21938

[45] Luzinski C. An innovative environment where empowered nurses flourish. Journal of Nursing Administration. 2012; 42(1): 3-4. PMid:22157373 https://doi.org/10.1097/NNA.0b013e31823c16fc