
RESEARCH ARTICLE**The Development and Effectiveness of Leadership and Management Program for Enhancing the Nursing Managers Competency: A Quasi-Experimental Pre-Posttest Study****Amira Yahya Hamed Al-Nasri***Master of Nursing, Head of Nursing Services, South Sharqyah; Sultanate of Oman***Corresponding Author:** Amira Al-Nasri, **E-mail:** amoorah_81@hotmail.com

ABSTRACT

Nurse managers are vital in managing their workplace and providing high-quality, safe nursing care. Health organizations require qualified managers with leadership and management knowledge and skills to provide healthy work environments and enhance the outcomes related to staff nurses and patients. It is imperative to offer nursing managers an educational program about leadership and management competencies to ensure their readiness to accomplish their roles. Developing leadership and management competency intervention programs is critical to improving the nurse managers' competency and effectiveness and driving team and organizational performance. This study aimed to develop and evaluate the impact of a leadership and management competency intervention program among front- and second-line nurse managers. A quasi-experimental design with one group. The study involved 48 front-line and second-line nursing leaders from 25 health institutions, including hospitals and primary healthcare facilities. Self-assessment questionnaires on leadership competency and effectiveness, as well as a program satisfaction scale, were used. The data was analyzed using SPSS version 25 and represented in percentage, mean, and standard deviation. Statistical significance among variables was considered at a p-value less than 0.05. The research findings suggest that a leadership and management training program had a notable impact on the development of nurse managers. The difference between the nurses' pre-and post-test scores and managerial competency levels was statistically significant ($Z=-4.201$, $p<0.05$). Specifically, the mean score increased from 2.03 in the pre-test to 2.40 in the post-test, indicating a significant improvement. The improvement was particularly pronounced in operational succession planning, delegating roles, managing staff shortages, staff performance, conflict resolution, change process, and emotional intelligence and communication. Notably, competencies related to operational plan, key performance indicators and evidence-based practice were the same. It was observed that a relatively low percentage (33.3%) of the participants had previously undergone formal leadership training, suggesting a significant potential for further growth and improvement in nurse managers. The results of this study underscore the critical need for leadership competency intervention programs in healthcare settings. A program aimed at enhancing head nurses' leadership competencies resulted in increased leadership competence and effectiveness. It is therefore recommended that such programs be developed and implemented to equip head nurses with the necessary leadership skills to fulfil their management roles effectively and to support them in becoming proficient nurse leaders. The urgency and importance of this recommendation cannot be overstated, and adequate resources must be allocated to establish and sustain such programs.

KEYWORDS

Nurse managers, leadership development, nursing management, leadership effectiveness.

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1. Introduction

The leadership and management within the nursing profession exert a direct influence on the quality of healthcare delivered to patients, thereby significantly impacting patient outcomes (Parrima et al., 2022). The role of a nurse leader entails possessing a

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diverse range of competencies that can profoundly affect patients, staff, and the overall functioning of healthcare organizations (Munro & Hope, 2020). The term "leadership competency" encompasses the essential skills, knowledge, and attitude of nurse managers that enable them to oversee nursing teams in clinical care settings effectively (Julian et al., 2019). Healthcare organizations necessitate leaders who can adeptly address challenges and fulfill the organisation's strategic objectives (Munro & Hope, 2020). Nurse leaders assume pivotal responsibilities in planning, organising, regulating, and maintaining a secure working environment, ultimately influencing the well-being of nursing staff and patient outcomes (Ofei et al., 2020). Frontline and successor nurse leaders are responsible for making decisions regarding patient care and those that will impact the team and work operations (Elhada et al., 2022). The literature suggests that nurses' decisions are influenced by their education and work experience (Garcia et al., 2021; Parrima et al., 2022). Nurse leaders encounter challenges in fulfilling their work responsibilities if they do not receive adequate training and education, leading directly to decreased patient satisfaction, nurse satisfaction, and adverse patient outcomes (Munro & Hope, 2020; Parrima et al., 2022). Conversely, effective leadership can reduce patient mortality, medication errors, and adverse events in healthcare, including hospital-acquired infections (González-García et al., 2021; Alharbi, 2022). While robust nursing leadership may not directly impact patient safety outcomes, it indirectly influences them through empowerment and staff nurses' clinical leadership. The rapid and demanding changes in the healthcare working environment present a significant challenge in selecting and developing nursing leaders (Aly et al., 2023). Targeted educational interventions have been identified as effective in enhancing nursing leadership. Developing leadership skills is a vital focus for every nurse. Studies have indicated that leadership competency intervention programs for head nurses elevated their leadership competency and effectiveness (Aly et al., 2023; Xie et al., 2021). A quasi-experimental study in Egypt by Younes et al. (2019) demonstrated a highly statistically significant difference in total leadership knowledge among 40 nurse managers before, immediately after implementing the program, and three months following the program. Currently, the selection and appointment of nursing leaders in Oman are based on newly adapted succession planning. Many current leaders have attained managerial positions solely based on clinical experience, lacking structured leadership training in competencies such as human resources, change management, conflict resolution, quality, and safety management. Another significant challenge is the high retention of nursing leaders, potentially resulting in new leaders without proper training.

Anecdotal evidence has indicated that nurses lack some competencies in leadership and management, as observed during audit visits. Studies regarding the development of managerial and leadership competencies through the implementation of training programs are scarce worldwide. To the author's knowledge, there is no interventional program for developing nursing managers' competencies in Oman. Hence, it is imperative to build leadership competency among head nurses through intervention programs and evaluate its relation to leadership effectiveness in nursing managers. Consequently, a competency-based leadership program for frontline and second-line leaders was developed and implemented in the South Sharqiyah governorate. There is a critical need to develop nursing managers' competencies to enhance head nurses' ability to acquire the skills, knowledge, and behaviors necessary for their leadership role, empowering them to lead their teams and manage their units effectively. The main objective of this study was to develop, implement, and evaluate the effectiveness of a competency-based program for frontline and second-line leaders.

Therefore, this study aimed to develop and evaluate the impact of a leadership and management competency interventional program among front- and second-line nurse managers.

This study sought to create and evaluate the effects of a program focused on enhancing leadership and management competencies among nurse managers, who play a vital role at the front-line and second-line levels. The goal was to assess how this intervention could positively impact their roles and responsibilities within the healthcare setting.

2. Methodology

The study employed a quasi-experimental design to investigate the impact of a leadership competency intervention program on the leadership effectiveness of head nurses and successors. Specifically, a single group of nurse managers was involved in the study. Pre-test and post-test methods were utilized to evaluate the effectiveness of the intervention program comprehensively.

2.1 Subjects:

In this study, a purposive sample of 48 nursing managers was selected. These managers held positions as first- and second-line managers in 25 health institutions, including hospitals, polyclinics, and health centers. The sample encompassed a variety of roles, including head of nursing, nursing supervisors, and nurse in-charges.

2.2 Tools of the study:

2.2.1 Demographic characteristics:

Some of the demographic data, such as age, nationality, gender, and years of experience, were considered.

Tool one: A self-assessment Leadership and Management Competency Scale was employed to evaluate the levels of nurse managers in various leadership and management competencies before and after the intervention. The researcher crafted this scale after conducting a thorough literature review (Aqtash et al., 2022; Mohamed Aly et al., 2023) and consists of five primary domains: Planning, Human Resources Management, Service Management, Leadership and Management Skills, and Communication. It encompasses 42 questions as subcategories and is based on Benner's theory. Participants were required to assess their competency level as novice (1), competent (2), or expert (3).

Tool two: Program effectiveness /satisfaction scale : A researcher developed this instrument to evaluate the efficacy and satisfaction of a program following an intervention. It comprises 26 questions, and responses are evaluated using a five-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5). Subsequently, the mean score of the instrument is computed and then converted into a percentage.

2.3 Data collection:

The data were acquired between January 2023 and January 2024. Questionnaires were administered online, using one format: leadership and management competencies, both prior to and subsequent to the educational intervention. Another format involving the program's effectiveness and satisfaction scale was employed in the present study following the educational program's implementation.

2.4 Process of the program:

2.4.1 Phase one: pre-intervention

The authors tailored the self-assessment competency-based questionnaires and the program's content and structure through a comprehensive and systematic literature review. These adaptations were informed by the participants' learning needs and the performance and evaluation tools. The primary objective of the initial assessment was to gauge the leadership and management competencies of nursing leaders and identify educational and training requirements to develop the learning content and schedule for the learning sessions.

2.4.2 Phase two: implementing the intervention

A total of forty-eight nursing leaders and successors were enrolled in a comprehensive leadership and management competency-based education program. This program comprised six modules/workshops that delved into theoretical topics in nursing leadership and management competencies, focusing on emotional intelligence and conflict management. Four of the six modules were conducted in a traditional face-to-face format, while the remaining two were administered online. The teaching methods employed encompassed a variety of mediums, including PowerPoint presentations, video demonstrations, case scenarios, and interactive discussions, to ensure a comprehensive learning experience for the participants. The modules were presented to the participants over 12 months, with carefully spaced intervals to allow for absorption and application of the knowledge gained.

2.4.3 Phase three: Post intervention

A similar tool was used to assess the effectiveness of the program posttest and compare the level of competencies before and following the interventional program. A program effectiveness and satisfaction scale were used after the program was implemented.

2.5 Ethical considerations

The research study obtained official approval forms from the regional committee and the Institutional Review Board of the Ministry of Health, Sultanate of Oman, ensuring compliance with ethical and regulatory standards. To safeguard participant confidentiality, all personal information was handled strictly.

Furthermore, the participants were thoroughly briefed on the objectives and intended outcomes of the program, and verbal consent was obtained from each individual, affirming their voluntary participation and understanding of the study's purpose.

2.6 Statistical analysis:

The data from the study underwent analysis using the statistical software SPSS version 25. The data was represented in terms of percentage, mean, and standard deviation. Unpaired samples t and Z tests were employed to estimate the mean self-assessment scores of nurse leaders and successors before and after the leadership and management competency intervention program. Additionally, the Wilcoxon Signed Ranks test was utilized as an alternative to the unpaired samples test to compare the participants' average scores before and after the intervention due to the unsatisfactory fulfilment of assumptions needed for the paired samples test within the dataset. The study observed a 95% confidence level, with statistical significance set at a p-value below 0.05.

3. Results

The demographic survey questions yielded comprehensive insights into the participants of the Nurse Leaders study, totaling 48 individuals who have completed the pre-test and have been enrolled in to the educational program. Two participants withdrawn during the implementation of the program and have been excluded (post-test ; n=46). The participants' ages range from 30 to 51, with the largest cohort falling within the 35-39 age bracket (41.7%). The mean age is 37.9, with a standard deviation of 4.57. Predominantly, the study comprises Omani participants (87.5%), with non-Omanis representing 12.5% of the sample. The majority of participants are female (89.6%). Their aggregate years of working experience span from 9 to 27, indicating a cohort of seasoned professionals. All participants' total years of work experience is 16.32, with a standard deviation of 4.6. A minority of nurse leaders (33.3%) have previously participated in formal leadership training programs. The overall analysis revealed a statistically significant difference in the scores between the pre-training and post-training responses ($Z=-4.201$, $p<0.05$), with the mean scores showing an increase from 2.03 to 2.40. When assessing planning competencies, the study identified statistically significant improvements in succession planning ($Z=-4.398$, $p=0.000$) and the development of annual leave plans ($Z=-2.419$, $p=0.016$).

However, the development of operational plans did not show a significant difference ($Z=-1.715$, $p=0.086$). In the realm of human resource management competencies, the analysis highlighted substantial differences in competencies such as delegating roles ($p=0.000$), managing staff shortage ($p=0.026$), staff development ($p=0.006$), monitoring staff performance ($p=0.000$), and conflict resolution ($p=0.000$). At the same time, no significant improvements were observed in distributing staff effectively using duty rota ($p=0.137$).

Diving into service management competencies, the findings revealed substantial enhancements in managing risk in clinical settings ($Z=-2.619$, $p=0.009$), managing equipment ($Z=-3.18$, $p=0.001$), and change processes ($Z=-3.943$, $p=0.000$). Conversely, no significant differences were detected in disaster management ($Z=-1.703$, $p=0.088$) and key performance indicators ($Z=-1.515$, $p=0.130$). The study also demonstrated a noteworthy improvement in all facets related to leadership and managerial skills, including decision-making ($Z=-2.874$, $p=0.004$), problem-solving ($Z=-3.461$, $p=0.001$), emotional intelligence ($Z=-3.272$, $p=0.001$), and communication competencies. The analysis clearly indicated a significant difference in the overall scores between pre- and post-responses ($Z=-4.201$, $p<0.05$). The mean scores for the pre and post-periods were 2.03 and 2.40, respectively, reflecting a notable improvement after the intervention.

It is worth noting that the participants displayed commendable levels of overall leadership and management competency, with 39.6% expressing complete satisfaction, 39.6% indicating very high levels of satisfaction, and 16.7% reporting a moderate level of satisfaction. Interestingly, none of the participants reported feeling dissatisfied with the program, emphasizing the positive impact of the intervention. The Program satisfaction scale SSC showed a high level of participants satisfaction in most of its elements, as the total agreement level is (strongly agree, average score=4.5). The participants reported the least satisfaction level (agree) in the length of the course (average score=4.1), and the structure of the program (average score=4.2).

4. Discussion

Nursing leaders are critical in fostering a conducive work environment and engaging staff nurses in nursing care within healthcare settings (Alilyani et al., 2024). Therefore, the imperative need for proficient and effective nurse leaders to guide nurses in delivering high-quality, cost-effective nursing care that has a positive impact on patient and organizational outcomes cannot be overstated (Elhadad et al., 2022; Alilyani et al., 2024).

Nursing leaders must acquire core competencies in leadership and management before assuming roles as nurse managers through comprehensive educational training programs. Consequently, the present study sought to assess the influence of a leadership competency intervention program on the leadership effectiveness of head nurses. The study findings revealed that over half of the nurse leaders had yet to receive any form of leadership and management training before they participated in the current program, which is corroborated by Mostafa's study (2023).

This outcome may be attributed to the need for more structured programs on leadership and management, with many participants being relatively new to managerial positions. In alignment with this viewpoint, Kuraoka (2022) asserted that education and training for nurse managers enhance the success and performance of individuals, teams, and the organization. The findings also indicated a high level of satisfaction among the participants following the program's implementation. This can be attributed to the uptake of new knowledge and skills by nursing leaders and their successors through the leadership and management training program, resulting in increased confidence in applying acquired expertise in the clinical arena alongside their teams.

In the present study, no significant difference was found between the pre- and post-training inefficient running of human resources such as staff Rota, which is the same finding as Goktepe et al. (2018). The lack of any difference between pre-and post-training

test scores in this competency area may be explained by the fact that nurse managers commonly deal with this role daily and feel confident in their skills before the training program commences.

The study also found lower scores among nurse leaders, as there were no significant differences in the competencies related to staff distribution. This could be explained by the fact that nurse leaders are frequently faced with staff shortages, sick leaves, and turnover. Another explanation may be the need for more theoretical and practical in-depth training related to workforce management.

The study revealed that a designed educational program to develop leadership and management competencies improved the leadership competence of nursing leaders. Similar studies have supported these findings (Goktepe et al., 2018; Marath and Ramachandra, 2019; Younes et al., 2019; Kim and Lim, 2022; Mohamed Aly et al., 2023). A quasi-experimental study by Mohamed Aly et al. (2023) enrolled 90 head nurses in an educational program to develop their leadership competencies, revealing that head nurse leadership competency showed significant differences between pre- and post-test. The study confirmed that the leadership competency intervention program effectively enhanced the leadership effectiveness levels among head nurses (Bakr et al., 2020). The study observed that the mean score of nurse leaders' competency in delegation, change management, problem-solving, conflict resolution, and emotional intelligence was higher than in other aspects. Similar results were found in prior studies (Flatekval, 2017; Goktepe et al., 2018; Nghe et al., 2020; Aqtash et al., 2022; Mohamed Aly, 2023).

However, this study's findings were incongruent with those of Mohamed Aly (2023), who found no significant differences in pre and post-test staff education. The present study's findings indicated that nurse managers became more confident, competent, knowledgeable, and skilful in utilizing leadership competencies after the educational intervention. Their management tasks included effecting changes in clinical areas, delegating nursing tasks, participating with nursing staff in decision-making to address workplace problems, implementing nursing policies and procedures, and measuring performance accordingly.

An exciting discovery was the lower scores received by participants in response to questions about health and nursing budgeting/financial processes, which aligns with the finding that nurse managers had insufficient skills and knowledge about budgeting/finance issues, as consistent with prior literature by Kang et al. (2012) and Bai et al. (2017). This may be attributed to nurse managers needing to be given direct responsibility regarding financial management and inadequate training in this area. The study also found that competencies related to evidence-based practice and the research process did not exhibit significant improvements post-intervention, aligning with the findings of other studies (Paarima et al., 2022; Mohamed Aly, 2023).

These results contradict a quasi-experimental study by Bakr and Mukhtar (2020), which enrolled 40 nursing managers in an evidence-based practice program and found significant differences in the participants' knowledge/skills, attitude, and practice concerning EBP. This discrepancy may be due to nurse managers not viewing evidence-based practice and research processes as primary roles and being occupied with managerial responsibilities. Additionally, the lack of comprehensive training in the leadership and management program could explain the absence of significant differences in other competencies, such as nursing plans, key performance indicators, and financial competencies. In addition, nurses have demonstrated the ability to provide good communication with staff, collaborative team and patient/family, which is similar findings of (Aqtash et al., 2022) .

5. Conclusion

The study's findings demonstrated that the introduction of a leadership and management program for front- and second-line nurse leaders substantially impacted the competency levels of the managers both before and after the program's implementation. The study highlighted a significant difference in the mean scores of pre- and post-intervention evaluations, particularly in change management, delegation, succession planning, and other relevant skills. Moreover, the results indicated that the nurse managers expressed high satisfaction with the implemented program.

With that being said, the present study encountered several limitations. Initially, challenges arose regarding participant attendance for all training modules. Additionally, two participants withdrew from the study due to their resignation from the nursing profession. The study's sample size was relatively small, intentionally targeting only first-line and second-line participants, rendering the results applicable solely to this specific cohort. The self-administered questionnaires may have been susceptible to response bias, given that responses were based on self-reported data. Moreover, particular competencies were only superficially covered in the program, necessitating further elaboration in the future. This insufficiency was primarily driven by time constraints and the program's constrained budget, which precluded comprehensive coverage of all areas. Nevertheless, leadership and management competency-based programs are critical in fostering the development of knowledge, skills, and attitudes essential for effective managerial performance. These programs are instrumental in empowering nurse managers to effectively oversee their teams, consequently enhancing the quality of nursing care and contributing to the future prosperity of the nursing profession. Thus, it is imperative to integrate such programs seamlessly into the orientation and ongoing training initiatives for nurse

managers. An essential component of this integration involves providing necessary resources and flexible schedules to ensure the active participation of nurse managers in these programs (Aly et al., 2023).

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References

- [1] Alharbi, A. (2022). *Leadership Practices of Nurse Managers in Saudi Arabian Hospitals: A Mixed-Methods Study* (Doctoral dissertation).
- [2] Aly, A. E. F. M., Moustafa El-Shanawany, S., Ghanem, M., Abd El Kader, E., & M Lotfy, W. (2023). Impact of Competency-Based Intervention on Leadership Effectiveness of Head Nurses in Teaching Hospitals. *Egyptian Journal of Health Care*, 14(2), 1042-1053.
- [3] Aliyyani, B., Althobaiti, E., Al-Talhi, M., Almalki, T., Alharthy, T., Alnefaie, M., ... & Abuzaid, A. (2024). Nursing experience and leadership skills among staff nurses and intern nursing students in Saudi Arabia: a mixed methods study. *BMC nursing*, 23(1), 87.
- [4] Aqtash,S.,Alnusair,H., Alnajdat,R., Fonbuena,S.,(2022) Evaluation of the Impact of an Education Program on Self-Reported Leadership and Management Competence Among Nurse Managers. SAGE open nurse, 2022 Jun 16:8:2377960822110645.doi: 10.1177/23779608221106450. eCollection 2022 Jan-Dec.#
- [5] Bakr, A. O. M., & Mukhtar, H. F. (2020). The Impact of an Evidence-Based Practice (EBP) Educational Program on the Nursing Managers' Professional Knowledge/Skills, Attitude, and Practice: Quasi-Experimental Study. *Int J Nurs Health Care Res*, 3, 1181.
- [6] Bai, Y., Gu, C., Chen, Q., Xiao, J., Liu, D., & Tang, S. (2017). The challenges that head nurses confront on financial management today: A qualitative study. *International journal of nursing sciences*, 4(2), 122-127.
- [7] CHIU C. M., H. T., HU, Y. C., CHEN, H. L., LEE, P. H., & CHANG, W. Y. (2012). Comparisons of self-ratings on managerial competencies, research capability, time management, executive power, workload, and work stress among nurse administrators. *Journal of nursing management*, 20(7), 938-947.
- [8] Elhadad, A. E., Sleem, W., & Ahmed, M. (2022). Association Between Leadership Competency, Quality of Work and Readiness For Change Among Head Nurses. *Mansoura Nursing Journal*, 9(1), 189-200.
- [9] Flatekval, A. M. (2017). The Implementation of a Leadership Development Program and Its Impact on Nurse Managers Self-Reported Competency Levels.
- [10] González-García, A., Pinto-Carral, A., Pérez-González, S., & Marqués-Sánchez, P. (2021). Nurse managers' competencies: A scoping review. *Journal of Nursing Management*, 29(6), 1410-1419.
- [11] Goktepe, N., Turkmen, E., Badir, A., Hayta, O., Yakar, H. K., & Buyukgonenc, L. A. (2018). Development of managerial competencies for first-level nurse managers in Turkey. *International Journal of Caring Sciences*, 11(2), 1096-1103.
- [12] Julian, J. F. E., Manalo, C. B., & Estiva, E. A. (2019). Using Images to Elicit Leadership and Management in Nursing Praxis: A Photovoice Research.
- [13] Kim, S., & Lim, J. Y. (2022). Development and evaluation of the "high-up" program for enhancing the nursing-management competency of mid-career hospital nurses: a quasi-experimental study. *International Journal of Environmental Research and Public Health*, 19(7), 4392.
- [14] Kuraoka, Y. (2022). Effects of a learning programme for nurse managers to connect their experience: A quasi-experimental study. *Journal of Nursing Management*, 30(5), 1188-1195.
- [15] Munro, C. L., & Hope, A. A. (2020). Healthy work environment: resolutions for 2020. *American Journal of Critical Care*, 29(1), 4-6.
- [16] Mostafa, B. (2023) The Effect of Leadership Program on Leadership Practice among Nurse Managers. International Journal of Novel Research in Healthcare and Nursing. Vol. 6, Issue 3, pp: (470-477), Month: September - December 2019, Available at: www.noveltyjournals.com
- [17] Marath, U., R. (2016) Developing leadership practices of head nurses. *Elixir Nursing* 94 (2016), 39936-39944.
- [18] Nghe, M., Hart, J., Ferry, S., Hutchins, L., & Lebet, R. (2020). Developing leadership competencies in midlevel nurse leaders: An innovative approach. *JONA: The Journal of Nursing Administration*, 50(9), 481-488.
- [19] Ofei, A. M. A., Paarima, Y., & Barnes, T. (2020). Exploring the management competencies of nurse managers in the Greater Accra Region, Ghana. *International Journal of Africa Nursing Sciences*, 13, 100248.
- [20] Paarima, Y., Kwashie, A. A., Asamani, J. A., & Ofei, A. M. A. (2022). Leadership competencies of first-line nurse managers: a quantitative study. *Leadership in Health services*, 35(3), 338-354.
- [21] Xie, J., Ding, S., Zhang, X., & Li, X. (2021). Impact of a patient safety leadership program on head nurses and clinical nurses: a quasi-experimental study. *Revista Latino-Americana de Enfermagem*, 29, e3478.
- [22] Younes, B., Adam S., H (2019). *International Journal of Novel Research in Healthcare and Nursing* 6(3) (470-477), Month: September - December 2019, Available at: www.noveltyjournals.com

Appendix

Tables one: Description of sociodemographic characteristics of the participant's (n=48).

Variables	Categories	Frequency (N=48)	Percentage (%)
Age	30-34	17	35.4
	35-39	20	41.7
	40-44	8	16.7
	45-49	2	4.2
	50-55	1	2.1
Nationality	Non-Omani	6	12.5
	Omani	42	87.5
Gender	Female	43	89.6
	Male	5	10.4
Total years of working experience	5-9	6	12.5
	10-14	14	29.2
	15-19	19	39.6
	20-24	7	14.6
	25-30	2	4.2
Current designation	Head of Nursing/supervisor	6	12.5
	Nurse-in charge	23	47.9
	Senior staff nurse	19	39.6
Have you attended any type of training on leadership and management previously? (pre-program)	No	32	66.7
	Yes	16	33.3
My knowledge and skills in leadership & management (pre-program)	Excellent	4	8.3
	Fair	7	14.6
	good	16	33.3
	Poor	2	4.2
	Very good	19	39.6
How satisfied or dissatisfied are you with Leadership & management program? (post-program)	Completely satisfied	19	39.6
	Somewhat satisfied	8	16.7
	Very satisfied	19	39.6

Table two: Comparison of Nurse Manager's pre-and post- leadership and management competency self-assessment scores (n=48).

Factor	Sub-factor Leadership and management Competencies	Pre test (N=48)		Post test (N=46)		Z	(2- tailed) P-value
		Mean	SD	Mean	SD		
Planning	Operational plan	1.77	0.592	2.00	0.667	-1.715	0.086
	Strategic thinking	1.85	0.618	2.11	0.674	-2.078	0.038
	Annual leaves plan	2.29	0.617	2.61	0.537	-2.419	0.016
	Succession planning	1.69	0.624	2.39	0.493	-4.398	0.000
	SWOT analysis	1.63	0.640	2.28	0.621	-4.284	0.000
Human resources management	Duty Rota	2.46	0.651	2.63	0.488	-1.486	0.137
	Distribute staff (skill mix, patient staff ratio)	2.56	0.580	2.61	0.537	-0.393	0.694
	Delegates roles	2.06	0.665	2.63	0.488	-3.846	0.000
	Manages staff shortage	2.40	0.676	2.65	0.566	-2.233	0.026
	Staff development /training activities	2.13	0.606	2.48	0.547	-2.731	0.006
	Staff performance	1.94	0.665	2.50	0.506	-3.888	0.000
	Conflict resolution	1.81	0.704	2.52	0.586	-4.044	0.000
Service management	Nursing models	1.90	0.627	2.17	0.529	-2.272	0.023
	Emergency/disaster Management	2.15	0.618	2.35	0.640	-1.703	0.088
	Change management	1.79	0.713	2.41	0.580	-3.943	0.000
	Key performance indicators	1.69	0.624	1.89	0.767	-1.515	0.130
	Payment/financial issues	1.79	0.683	2.02	0.649	-1.847	0.065
	Patient safety measures/programs	2.06	0.598	2.37	0.532	-2.48	0.013
	Risk management	2.06	0.665	2.37	0.488	-2.619	0.009
	Root cause analysis	1.52	0.583	2.20	0.542	-4.559	0.000
	Equipment's management	1.88	0.640	2.26	0.575	-3.18	0.001
	Evidence-based practice	1.92	0.710	1.98	0.614	-0.468	0.640
	Research process	1.79	0.683	2.02	0.649	-1.847	0.065
	Stress management	2.27	0.536	2.54	0.504	-2.711	0.007
	Seeks opportunities to learn and develop	2.19	0.607	2.54	0.585	-3.266	0.001
	Respecting other people's culture, beliefs, and abilities	2.38	0.640	2.61	0.493	-2.134	0.033
	Oriented job description/ requirements	2.25	0.668	2.57	0.544	-2.541	0.011
Ethical dilemmas	2.04	0.713	2.43	0.583	-2.786	0.005	

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	Ethics standards	2.25	0.601	2.72	0.455	-4.009	0.000
Leadership and management skills	Coaching	1.94	0.697	2.30	0.553	-2.615	0.009
	Decision making	2.00	0.684	2.37	0.488	-2.874	0.004
	Problem solving	1.96	0.713	2.41	0.541	-3.461	0.001
	Clinical leadership	1.96	0.683	2.41	0.498	-3.528	0.000
	Emotional intelligence	2.04	0.713	2.39	0.537	-3.272	0.001
	Self-awareness identity	2.08	0.679	2.46	0.504	-2.666	0.008
	Team work	2.15	0.618	2.48	0.547	-2.785	0.005
	Innovation	2.04	0.713	2.37	0.572	-2.745	0.006
Communication	Build effective communication with the staff	2.33	0.630	N/A	N/A	-2.449	0.014
	build collaborative/ productive relationships with other teams	2.38	0.606	2.59	0.498	-3.273	0.001
	Assert views in non-threatening, non-judgmental way	2.10	0.555	2.70	0.465	-3.157	0.002
	Provide effective communication with patients/family	2.21	0.549	2.48	0.505	-3.266	0.001
	Serve as a resource to community taking into consideration community needs and perspectives	2.06	0.639	2.50	0.506	-3.439	0.001

***SD =standard deviation.**

Table three: The effectiveness of the program, post-program (n=46).

The item	Program satisfaction scale SSC	Average score	Agreement level
1	The leadership program improved my competency in leadership and management	4.577777778	Strongly agree
2	The program content was explained well by the organizers	4.6	Strongly agree
3	The program objectives were up to my expectation	4.466666667	Strongly agree
4	The length of the course was adequate	4.177777778	Agree
5	The structure of the program (phases method over one year) was effective to grab the content of the program.	4.2	Agree
6	The educational methods were well suited	4.511111111	Strongly agree
7	The training method was used enabled us to take an active part in training	4.466666667	Strongly agree
8	The content was up to date & evidence based	4.511111111	Strongly agree
9	The training program enabled me to share professional experiences with colleagues	4.533333333	Strongly agree
10	The training program was useful for my personal development	4.622222222	Strongly agree
11	The program provided various methods of presentations and activities	4.6	Strongly agree
12	The training program was interactive and engaging	4.488888889	Strongly agree
13	The quality of this training session was high	4.444444444	Strongly agree
14	The program schedule was flexible	4.333333333	Strongly agree
15	The teaching materials (audio-visual) were useful	4.444444444	Strongly agree
16	The trainer language was understood	4.6	Strongly agree
17	The level of trainers/speakers was high, which demonstrated expertise in the subject	4.644444444	Strongly agree
18	The program has provided good proportion of theoretical knowledge	4.533333333	Strongly agree
19	The training program enabled me to integrate the learned topic into clinical areas	4.555555556	Strongly agree
20	The discussion/questions during the program stimulated my critical thinking	4.444444444	Strongly agree
21	The pre/post self- assessment competency accurately assessed what I have learned in this course	4.466666667	Strongly agree
22	I have created changes after attending this training program	4.577777778	Strongly agree
23	I would recommend this course to a colleague.	4.6	Strongly agree
24	The program increased personal self-growth over time after training.	4.555555556	Strongly agree
25	The leadership program raised my awareness about leadership roles and responsibilities	4.622222222	Strongly agree
26	Total	4.511111111	Strongly agree