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Assessing and enhancing nurse managers' knowledge and skills in polarity management

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Abstract

Aim: The present study aimed to assess the effect of a training program on nurse managers' knowledge and skills in polarity management. **Materials and methods:** A quasi-experimental research design was used to conduct this study. The study was conducted at Menoufia University Hospital, and National Liver Institution, Egypt. Simple random sampling technique was used to select a group of (40) nurse managers. Two tools were used throughout the study phases. Tool1: Knowledge questionnaire about polarity management.Tool2: skill test including two parts (case studies and application of polarity map). **Results:** The majority of nurse managers had a knowledge deficit about polarity management and also had poor skills in polarity management before training. There was a significant improvement in all items and a total score of nurse managers' knowledge and skills of polarity management after awareness sessions than before. **Conclusion:** Training program was highly effective in improving nurse managers' knowledge and skills in polarity management.

Keywords: Polarity, Polarity management, Polarity map, Training program.

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1. Introduction

Today, the quick changes taking place within healthcare systems have increased the pressure from health care providers, professional entities and the general public for nurses to participate in continuing education programs [1]. Training programs have been common approaches organized by healthcare settings to teach health care professionals, especially nursing leaders, to improve their knowledge. These programs are centered on ways to improve practical learning and the transfer of such knowledge to practice [2]. Furthermore, Continuing training programs are an important mechanism to enhance the proficient of manpower in human resource management especially the competence and expertise of employees for their responsibilities.

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Training programs are systematic planning method to learn how to build or increase the knowledge, skills, and attitude for employees in organizations [3, 4].

One of the most challenges organizations and leaders face on a day-to-day basis is making what can look like impossible decisions. They are continually challenged with matters that are both inevitable and insoluble. These are termed as polarities. Trying to solve these issues by finding the right answer only makes things worse [5]. The more effective healthcare organizations are those that manage polarities well. Poorly managed polarities lead organizations and individuals to build the future they fear, while, well-managed polarities help them create a fruitful future. Thus, effective managers are those who are able to balance polarities like continuity and change, task focus and employee focus, assertiveness and care, control and empowerment, confidence and ignominy, efficiency and innovation and so on [6, 7].

There is no endpoint and no one solution to polarities. They represent interdependent alternatives and therefore rarely stand-alone. One pole needs the other to optimize the situation over time. The act of breathing offers a useful metaphor for polarities. The breathing process involves,

both, inhaling and exhaling. It is impossible to only inhale, and it is also impossible to only exhale. They are interdependent opposites. Breathing is an easy way to summarize how all polarities look, as well as how they all work [8].

The polarity management approach is intended to create a win-win outcome by detecting powers and flaws of the two opposites that occur within the paradox [10]. Polarity management can assist in simplifying the complexity without being simplistic, capitalizing on diversity without alienating the diverse groups, providing predictability and stability amidst accelerating change and converting resistance to change to a resource for sustainable, ongoing change-ability [11]. Communication skills in general and active listening skills, in particular, are among the most essential skills for managers to use polarity management [12]. Decision making, negotiation skills, persuasion and dialogue skills are also essential for successful polarity management [13, 14]. Also, managers' ability to address various polarities in health care is largely dependent on their abilities to manage stress and to work in teams [15].

In healthcare organizations, as in many other enterprises, there are anonymous numbers of polarities. Polarity management framework is a powerful resource for meeting this challenge. A polarity map is a tool Johnson developed in the 1970s to assist in the management of polarities. Values and fears are identified through the mapping process and improved to include action steps and metrics for successfully managing the polarity [8]. According to [16], there is a regular flow from the downside of one pole to the upside of the other. After moving into the upside of the opposite pole, the system will reach its limits and move toward the downside of that pole. This generates natural pressure to self-correct by moving to the upside of the original pole.

Four important steps are followed for configuring a polarity map. They are as following: Identify a key polarity, agree on names of the poles, brainstorm together the content for each quadrant, and agree on a higher purpose and deeper fear. Identify a key polarity: This is done through group discussion to generate a non-blaming depiction of opportunities and polarities present in any situation. Agree on names of the poles: Write the pole names on the map. Brainstorm together the content for each quadrant: Aim for four to eight entries in each quadrant. Pinpoint both upsides in the upper quadrants and both downsides in the lower. It is also very important to pinpoint oppositional values and fears. Agree on a higher purpose and deeper fear: This incorporates oppositional opinions and provides a reasonable argument for managing the tension between the two views [17].

The significance of the study

Managers' ability to detect and manage polarities enables them to save time and resources, build trust, reduce resistance to change, and accelerate achievement of the higher purpose [18]. There is great potential for organizations that choose to train new leaders to develop skills in polarity management. If training and development professionals respond with timely training interventions, it could have a positive impact on managers' effectiveness and subsequent organization performance. Little research in the area of polarities can be located, however. Information gathered from this study may offer a useful and positive application for managers struggling to be effective with increasingly complex organizations. So, this study was conducted to assess the effect of a training program on enhancing nurse managers' knowledge and skills in polarity management.

The aim of the Study

The present study aimed to assess the effect of a training program on enhancing nurse managers' knowledge and skills in polarity management.

Research hypotheses

H1. It was hypnotized that the majority of nurse managers have a knowledge deficit about polarity management.
H2. It was hypnotized that the majority of nurse managers are not skillful in using polarity management maps.
H3. It was hypnotized that the training program will be effective in enhancing managers' knowledge and skills in polarity management.

2. Materials and methods

Research design

A quasi-experimental design was used in conducting this study.

Study setting

The study was conducted at general departments and critical care units at Menoufia University Hospital and the National Liver Institution, Egypt. Menoufia University Hospital consists of four building including emergency building, the main hospital, the specialty hospital and the Oncology Institution.

Subjects

The study subjects consisted of one group of (40) nurse managers chosen randomly by simple random sampling technique. They were categorized as the following (7 supervisors and 33 head nurses).

Sample size:

40 nurse managers were randomly chosen from the total number of 89 nurse managers working at the previously mentioned setting.

Tools of data collection: Data were collected using two different tools:

Tool (I): Knowledge questionnaire about polarity management

This questionnaire was designed by the researchers after reviewing the relevant literature. It is a self-administered questionnaire, which was used to assess the selected managers' knowledge about polarity management. It included nine questions as the definition of polarity, the definition of polarity management and the difference between problem and polarity.

Scoring system: The knowledge questionnaire included nine questions and was assigned a total score of 18 marks. Then, each question was corrected by the researchers then signed as the following: 0 for an incorrect answer, 1 for incomplete answer, and 2 for a complete answer.

Tool (2): Skills test which consists of two different tests: practical test and polarity map application test

A) **The practical test aimed to assess nurse managers' ability to** differentiate between problems and polarities in health care. This was done by giving the subjects six situations and the researchers ask them to differentiate if these situations were problems or polarity. Then, the answers of the participants were signed 0= for a wrong answer and 1= for the right answer

B) **Polarity map application test:** include asking each group of nurse managers to set an example for polarity commonly faced by them and apply the steps of polarity mapping to manage this polarity.

Scoring system: this test was assigned a total **fo erocs**22 based on the steps of polarity mapping. The scores were distributed as follows:

Items	Scores
Ability to differentiate between problem and polarity	6 situations with 6 marks
Draw the map right	2 marks
Write the names of the two poles	2 marks
Write the greater purpose	2 marks
Write the deeper fear	2 marks
Right the upsides of the two poles	2 marks
Right the downsides of the two poles	2 marks
Write the action steps	2 marks
Write the early warning	2 marks
Total	22 marks

A score equal to or more than 85% was considered excellent in applying polarity management map. A score from 75% to less than 85% was considered good in skills of polarity management. A score from 50% to less than 75% was considered fair in skills of polarity management. A score of less than 50% was considered poor in applying polarity management map.

Validity and reliability of the tools:

Tools were tested for reliability using the Cronbach's alpha coefficient to measure the internal consistency of items of each tool. The overall Cronbach's alpha of knowledge and skills questionnaire about polarity management among nurse managers was 0.87 and the instrument had high construct validity (with a part-whole correlation of 0.91). Therefore, the two tools were reliable. A bilingual group of five Experts was selected to test the content and face validity of the tool. The tool was considered valid from the experts' perspective.

Pilot study

A pilot study was done after the development of the self-administered questionnaire and before starting the actual data collection. The aim of the pilot study was to test the clarity, relevance, applicability, and to estimate the time required to fill out the questionnaire. The questionnaire was administered to a sample of four managers who were not included in the main study sample. The time required for each manager to fill out the questionnaire was estimated to be 15-20 minutes. No modifications were done after the pilot study.

Fieldwork

Date collection and procedures

- An official approval letter was submitted to the Dean of the Nursing College to collect data before any attempt to collect data.
- After gaining the acceptance of the selected sample to participate in the study, the investigator explained the purpose and content of the knowledge questionnaire to managers.
- Data was collected upon two months started from 18th of November 2017 to 17th of February 2018.
- The appropriate time for data collection was determined according to the workload of each unit. Data were collected in the morning shift, and subjects fill in the questionnaire in the presence of the investigator to ascertain all questions were understood and answered.
- After analyzing the data of the knowledge questionnaire (pretest), the content of the program was prepared.
- The program lasted for one month. It consisted of four sessions (each session lasted for three hours), two educational sessions aimed at providing managers with knowledge about polarities and polarity management,

and the other two sessions aimed at developing managers' skills in polarity management through training on polarity mapping.

- At the first session, each participant was given a test including six situations to explore their attitude about polarity thinking, for example, they were asked wither centralized and decentralized decision making in healthcare organizations constitute a problem to be solved or a polarity to be managed.
- The study group was divided into four groups. Each group was required to select multiple polarities faced by them in the work setting and develop a polarity map for every two poles.
- Posttest including g the knowledge questionnaire and skills test was administered at the end of the last session of the program to assess improvement of nurse managers' knowledge and skills in polarity management.

Administrative and ethical aspects

- Written approval to conduct the study in the study setting was obtained from the medical and nursing director of Menoufia University Hospitals.
- The objectives and procedures of the study were explained to the selected sample of nurse managers and they were informed that their information will be treated with confidentiality.
- Informed consent was taken in order to protect subjects' rights. The respondents had the right to withdraw from the study at any point in time. The top-level managers refused to participate in the study due to their time constraints.

Limitations of the study

- Very few sources were found addressing the topic of the study especially published research in nursing management.
- Unfortunately, limited resources, including time and access necessitate that the scope of this study is limited in focus and size of the sample.

Statistical methods

- Results were collected, tabulated, statistically analyzed by IBM personal computer and statistical package SPSS version 22. Two types of statistics were done:
- Descriptive statistics: e.g. percentage (%), mean (x) and standard deviation (SD).Analytic statistics: Chi-square test ($\chi 2$) was used to study the association between two qualitative variables. Mann-Whitney test was used for comparison between two groups having quantitative variables not normally distributed. Spearman's correlation coefficient (rho) measures how variables or rank orders are related.

3. Results

Table no 1: Personal characteristics of the studied sample

(n=40)

Items	Nurse manager	
	Mean± SD	Range
Age (years)	41.43±6.49	30-57
Years of experience	17.28±5.31	10-28
Items	Nurse manager	
	No.	%
Job title Head nurse Nursing supervisors	33 7	82.5 17.5

Table (1): Presents personal characteristics of the studied sample. As illustrated in the table, the range of age among the studied personnel was 30-57years, and they have years of experiences ranging from 10-28 years. Also, this table revealed that the highest percentage of the study subjects (82.5%) were head nurses while only (17.5%) were nurse supervisors.

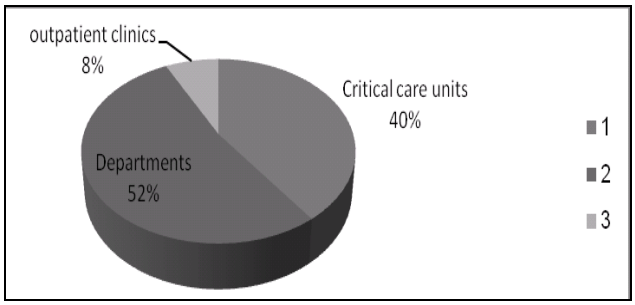

Figure no 1: Distribution of the studied sample among different units and departments (n=40)

Figure (1): Presents the distribution of the studied sample among different units and departments. As shown in the figure, the highest percentage of the studied sample (52%) were from general departments, while the lowest percentage of the studied sample (8%) were from outpatient clinics. Furthermore, the remainder of the studied sample (40%) was from the critical care units.

Table no 2: Comparison between nurse managers' knowledge about polarity management before and after awareness sessions.

(n = 40)

Knowledge items	Before No (%)	After No (%)	χ^2	P-value
1. Definition of polarity: Complete Incomplete Incorrect	 0 (0.00) 0 (0.00) 40 (100.0)	 20 (50.0) 20 (50.0) 0 (0.00)	80.0	<0.001

Knowledge items	Before No (%)	After No (%)	χ^2	P-value
2. Definition of polarity management: Complete Incomplete Incorrect	0 (0.00) 5 (12.5) 35 (87.5)	25 (62.5) 15 (37.5) 0 (0.00)	65.0	<0.001
3. Difference between problem and polarity: Complete Incomplete Incorrect	0 (0.00) 11 (27.5) 29 (72.5)	32 (80.0) 8 (20.0) 0 (0.00)	61.47	<0.001
4. Benefits of polarity management: Complete Incomplete Incorrect	0(0.00) 3 (7.5) 37 (92.5)	11 (27.5) 29 (72.5) 0(0.00)	69.13	<0.001
5. Steps of polarity management: Complete Incomplete Incorrect	0(0.00) 7 (17.5) 33 (82.5)	3 (7.5) 22 (55.0) 15 (37.5)	17.51	<0.001
6. Obstacles for polarity management: Complete Incomplete Incorrect	0(0.00) 7 (17.50) 33 (82.50)	14 (35.0) 24 (24.0) 2 (5.0)	50.79	<0.001
7. critical skills required for polarity management: Complete Incomplete Incorrect	0(0.00) 3 (7.50) 37 (92.5)	15 (37.5) 25 (62.5) 0(0.00)	69.29	<0.001
8.Common examples of polarities: Complete Incomplete Incorrect	0 (0.00) 0 (0.00) 40 (100.0)	26 (65.5) 14 (35.5) 0 (0.00)	80.0	<0.001
9. Definition of polarity maps: Complete Incomplete Incorrect	0(0.00) 2 (5.00) 38 (95.5)	22 (55.0) 16 (40.0) 2 (5.0)	65.29	<0.001
Total knowledge	0.87±1.04	12.68±1.62	7.08*	<0.001

*Mann-Whitney test was used Significance level: $p < 0.05$

Table (2): Illustrates the comparison between nurse managers' knowledge about polarity management before and after awareness sessions. It is evident that the majority of the studied sample (100%, 87.5%, 72.5%, 92.5, 82.5%, 82.5%, 92.5%, 100%, 95.5% respectively) before awareness sessions lack knowledge about all items of polarity management. Furthermore, there was a significant improvement ($p<0.001$) in all items and a total score of nurse managers' knowledge about polarity management after awareness sessions than before.

Table no 3: Comparison between nurse managers' ability to differentiate between problem and polarity (practical test) before and after training sessions.

(n=40)

Practical situations	Before No (%)	After No (%)	χ^2	P-value
Situation1: True False	9 (22.5) 31 (77.5)	37 (92.5) 3 (7.5)	40.10	<0.001
Situation2: True False	3 (7.5) 37 (92.5)	37 (92.5) 3 (7.5)	57.80	<0.001
Situation3: True False	12 (30.0) 28 (70.0)	34 (85.0) 6 (15.0)	24.76	<0.001
Situation4: True False	3 (7.5) 37 (92.5)	35 (87.5) 5 (12.5)	51.33	<0.001
Situation5: True False	1 (2.5) 39 (97.5)	40 (100.0) 0	76.1	<0.001
Situation6: True False	8 (20.0) 32 (80.0)	31 (77.5) 9 (22.5)	26.47	<0.001
Total responses	0.90±0.87	5.35±0.92	7.84*	<0.001

*Mann-Whitney test was used Significance level: $p < 0.05$

Table (3): Presents comparison between nurse managers' ability to differentiate between problem and polarity before and after training sessions. As shown in the table, the majority of the study subjects (77.5%, 92.5%, 70.5%, 92.5%, 97.5% and 80% respectively) before training sessions were unable to differentiate between polarity and problem. Moreover, this ability was significantly improved after training sessions. Furthermore, there was a highly statistically significant difference between the nurse managers ability to differentiate between polarity and problem before and after training sessions ($p<0.001$).

Table no 4: Comparison between nurse managers' polarity management map application score before and after training sessions. (n=40)

Application score	Before No (%)	After No (%)	χ^2	P-value
Good & excellent Fair poor	0 0 40 (100.0)	20 (50.0) 20 (50.0) 0	80.00	<0.001

Poor= <50% Fair= 50-<75% Good =≥75 %-< 85% Excellent==≥85%

Table (4): Demonstrates comparison between nurse managers' polarity management map application score before and after training sessions. As noticed from the table, the entire studied sample had poor skills in applying a polarity map before training sessions while half of the studied sample was fair and the other half were good after training sessions. Also, this table revealed that there was a significant improvement in polarity management map application score of nurse managers' after training sessions than before($p<0.001$).

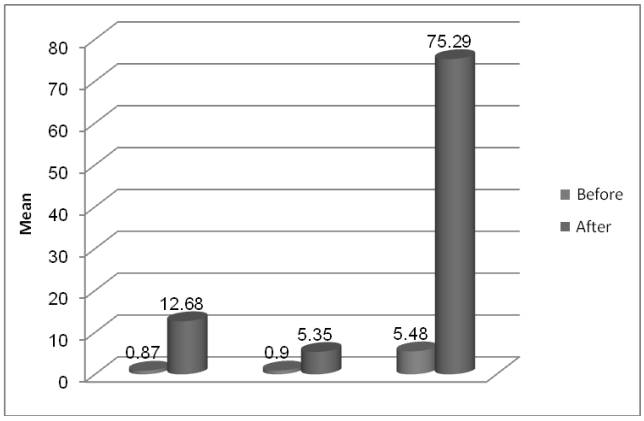

Figure no 2: Comparison of Nurse Managers ' Mean Score of the knowledge test, Practical Test and Application Test before and after Training Program (n=40)

Figure (2): Show a comparison of nurse managers ' mean score of the knowledge test, practical test and application test before and after the training program. As shown in the figure, the scores of the knowledge test, practical test and application test of nurse managers were markedly improved after the training program as compared to before.

Table no 5: Correlation between nurse managers' total knowledge, total practice, and percentage of polarity map application scores and age and years of experience before and after awareness sessions.

Total score	Age (years) rho (P-value)		Years of experience Rho (P-value)	
Total knowledge before	-0.19	0.232	-0.24	0.134
Total knowledge after	-0.15	0.364	-0.15	0.351
Total practical score before	0.14	0.395	0.10	0.540
Total practical after	0.37	0.021	0.28	0.085
Percent application before	0.02	0.908	0.11	0.512
Percent application after	-0.15	0.346	-0.08	0.616

rho: Spearman' correlation coefficient Significant $p < 0.05$

Table (5): Demonstrates correlation between nurse managers' total knowledge, total practice, and percentage of polarity map application scores and age and years of experience before and after awareness sessions. This table showed that there was a significant positive correlation between age and a total practical score of nurse managers' after training sessions ($p<0.05$). Otherwise, there were no correlations between age and years of experience and each of knowledge and application either before or after training sessions ($p>0.05$).

Table no 6: Comparison between nurse managers' total skills on polarity management before and after training sessions.

skill score	Before No (%)	After No (%)	χ^2	P-value
Good &excellent Fair Poor	0 0 40 (100.0)	31 (77.5) 9 (22.5) 0	80.00	<0.001

Poor= ≤50% Fair= 51-75% Good & excellent=>75%

Table (6): Presents comparison between nurse managers' total skills on polarity management before and after training sessions**.** As shown in this table, all studied sample had poor skills in polarity management before training sessions. Moreover, there was a significant improvement in nurse managers' total skills after training sessions than before as nearly more than two-thirds of the studied managers had good and excellent skills in polarity management.

4. Discussion

If nurse managers and supervisors are trained to apply polarity management, this could have a positive influence on managers' decisions effectiveness and subsequent organization performance [19]. The test of first level intelligence is the ability to load two conflicting ideas in mind at the same time and still preserve the capacity to function. Polarity thinking is a skill that allows nurses managers to achieve this goal. The attribute of polarity thinking is about "both-and" and invites a move away from "I am right, and you are wrong" thinking to "we are both right." This type of thinking complements our traditional problem solving (either-or) thinking [20].

Therefore, the aim of the study was to assess the effect of a training program on enhancing nurse managers' knowledge and skills in polarity management. Firstly, take a look at the personal characteristic data of the study subjects. The present study included 40 nurse managers from different levels and units from Menofia University Hospital, Egypt. Also, the study subjects included nurse supervisors and head nurses while the top level managers refused to participate in the study rationalizing their rejection as they don't have enough time to participate in the training program.

The current study also revealed that all of the study subjects were female. This may be attributed to the fact that for a long time all of nursing graduate students were female and males were recently included. Moreover, all of the study subjects were never included in any management development program. This is somehow related to that the department of continuing education at Menofia University Hospital focuses only on providing training programs and workshops that improve the technical practice of nursing personnel while the administrative skills were ignored. The study findings also showed that the range of age among the study subjects is 30-57 years old and have experience range from 10-28 years.

The present study had three hypotheses. The first hypothesis was that the majority of nurse managers have a knowledge deficit about polarity management. This hypothesis was true according to the study results as all studied sample lack knowledge about all items of polarity and its management before awareness sessions.

Also, the current study hypnotized that the training program will be effective in enhancing managers' knowledge and skills in polarity management. This hypothesis was true according to the study results as the findings of the present study revealed that there is a highly statistically significant difference between the mean score of nurse managers' knowledge throughout the study phases (Pre, and post-training). Moreover, there is a significant improvement in all items and a total score of nurse managers' knowledge about polarity management after awareness sessions than before as (P = <0.001). This finding are in the same line with results of [21]who conducted a study titled "Designing and validating protocol for managing polarities in healthcare" who revealed that all of the studied sample before awareness sessions lack knowledge about all items of polarity and that there was a highly significant difference between managers' knowledge about polarity management before and after awareness sessions.

In the same line, these findings are consistent with the results of [22] who conducted a study to evaluate the effects of training on the knowledge and attitudes of nurses with regard to pain management. Their results showed that the training program has a positive impact on knowledge and attitudes. However, the results of a study conducted by [23]on the effects of training interventions on the knowledge of pain contradict the result of this study hence indicating a negative relationship between training programs and knowledge level among nursing staff.

In healthcare organizations as in many other enterprises, there are anonymous numbers of polarities. The present study revealed that the entire studied sample was not aware of common examples of polarities faced by managers in healthcare. This result was not in the same line with a study conducted by [8]about both and thinking in organizational leadership "a grounded theory study". The studied sample stated many examples of polarities commonly faced by them in health care as providing direction to the team and delivering coaching services to internal clients. Other examples stated are balancing work and personal life, rest and activity, emphasis on outcomes and results and improving quality or containing costs.

From the researchers' point of view, it is important for the nurse managers to be able to differentiate between polarity and problem and this point of view was in the same line with [18] who stated that effective manager requires proficiency in discriminating and integrating multiple interdependent perspectives through “both/and” thinking, as well as skillful problem solving with “either/or” thinking.

The results of the present study revealed that there was a significant improvement in the score of all items and a total score of nurse managers' application test which focus on nurse managers ability to differentiate between polarity and problem solving" after training sessions than before. Also, there was a highly statistically significant difference between the total mean score of managers' application test before and after training sessions ($p<0.001$). This result also is consistent with [21] whose results revealed that the entire studied sample was not aware of the difference between problem and polarity before awareness sessions and the majority of the sample became completely aware of this difference after training.

Polarity map provides a powerful resource for managing multiple polarities in life. The present study hypnotized that the majority of nurse managers are not skillful in using polarity management maps. This hypothesis was also true according to the present study results. The results of the present study clarified that the entire studied sample had poor skills in applying a polarity map before training sessions. Furthermore, there was a significant improvement in the score of polarity map application test for nurse managers' after training. This result was in the same line with [24] who stated that the program of professional development help in improving the skills of nurses and midwifery unit managers. The results of the present study are also in the same line with [19] who conduct a study titled "Managing polarity, paradox, and dilemma during leader transition" they stated that training and development professionals are valued in polarity thinking for transitioning leaders and can respond with timely training interventions, it also, have a positive impact on new leader effectiveness and subsequent organization performance.

Moreover, the present study showed that there was a significant positive correlation between age and a total score of a practical test of nurse managers' after training sessions. This result was consistency with [25] who studied the knowledge perception and practice of nursing students towards the care of older patients. They concluded that there was a statistically significant association between practice and perception and age category 20–25.

Conclusion

According to the study results, it was concluded that there was a highly statistically significant ($p<0.001$) difference between managers' knowledge and skills about polarity

management before and after the training program. Also, There was a significant positive correlation between age and total practice of polarity by nurse managers' after training sessions ($p<0.05$). Otherwise, there were no correlations between age and years of experience and each of knowledge, and skills either before or after awareness sessions ($p>0.05$).

Recommendations

Based on the findings of the present study, the following could be recommended:

1) Healthcare settings should focus on emending the concept of polarity in their cultures.
2) Polarity management training program should be an essential program for training all nurse managers throughout the three management levels.
3) When selecting nurse managers, it is important to focus on their skills rather than their ages.
4) Polarity management components should be an essential element in the orientation programs for new managers and in performance evaluation for all managers.
5) Polarity management should be included in the curriculum of nursing administration course in faculties of nursing all over Egypt.
6) Further studies need to be conducted to assess nurse manager's perception toward polarity thinking in healthcare.
7) Additional studies in diverse healthcare settings are highly recommended to propagate the concept and practice of polarity management.

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