Effectiveness of Polarity Training Program on Nurse Managers' Performance

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Abstract

Background: More complexity, unpredictable outcomes, and the need to continuously manage friction between two or more seemingly opposing but interdependent ideals characterize the majority of leadership difficulties. Recognizing polarities and the importance of each pole to their solutions is something that leaders should do. **Aim:** To evaluate the effectiveness of the polarity training program on nurse managers' performance. **Subject and methods: Design**: A quasi-experimental design was utilized to conduct this study. **Setting**: This study was conducted at Kafr El-Dawar General Hospital which is affiliated with the Ministry of Health and Population (MOHP). **Sample**: A convenience sampling technique included the study subjects all head nurses and their assistants working in all the previously mentioned settings (n=42). Three tools were used throughout the study phases. Tool (I): Nurse Managers' knowledge about polarity management Questionnaire classified into two parts; Part 1: personal data sheet, Part 2: Nurses' knowledge regarding polarity management and polarity map application test. Tool (II): Polarity management practice checklist, and Tool III: Polarity Map Evaluation Observational Checklist. **Results:** Before participating in a polarity training program, the majority of nurse managers had low levels of practice and poor levels of knowledge in polarity management. The post-implementation polarity training program knowledge and behaviors of nurse managers about polarity management showed a significant improvement over pre-implementation in all items and the overall score. The knowledge and practices of nurse managers regarding polarity are positively enhanced by the polarity training program, in conclusion. It is suggested that orientation programs for recently appointed managers should incorporate polarity management awareness and that nursing managers' performance reviews should incorporate polarity management. Additionally, polarity management should be covered in the nursing administration course curriculum at Egyptian nursing faculties.

Keywords: Nurse managers' performance, Polarity management, Polarity training program.

Introduction:

In every place where there is life, there are polarities. Polarities have always been a component of every significant problem and choice that is made. It is impossible to solve these issues. Though they must be controlled, they never go away. In today's world, managing polarities and polarities themselves is essential. Nurse managers must possess the crucial ability to identify potential hazards and balance opposing poles of a polarity (Wesorick**, 2019**).

Acquiring the ability to distinguish between "problems to solve" and "polarities to manage" is one of the difficulties facing head nurses. The ability of head nurses to recognize and handle polarities aids in time and resource conservation, trust-building, the reduction of

change resistance, and the acceleration and sustainability of the larger mission (**Yohemas, 2020**). The key to handling paradoxes is maintained by polarity control. When polarities need reverting between two opposing yet interdependent states, it is necessary to recognize that there is a class of problems that cannot be "solved" forever. This is known as polarity management. When applied appropriately, polarity control can be a very effective strategy. In a continuously evolving healthcare setting, polarity management aids in the analysis and management of conflicting situations (**Wesorick, 2019**).

Polarity is a theoretical frame for dealing with complex challenges that offer nurse managers a new vision for how to deal with these professional issues rather than seeing the nursing shortage and the advancement of patient safety as insoluble problems that must be solved. Differentiating between issues that require resolution and polarities that require handling involves posing two queries: "Is the challenge persistent?" and "Do two poles have a mutually dependent relationship?" According to Johnson's differentiation approach, polarities need to be handled if two opposing concerns need to be kept in balance and if they are problems that cannot be solved easily or definitively. To do this, one must change their perspective such that they no longer focus just on poles simultaneously (**Welp, 2019**).

A vital role in health teams in hospitals, assisted living facilities, hospices, and smaller specialized medical practices is that of nurse managers. In addition to overseeing the other nurses in the unit, the nurse manager is in charge of all patient nursing care. This is a duty that calls for both advanced nursing practice and managerial skills. Management is the capacity to organize, staff, plan, lead, and control actions to accomplish goals. For managing all of life's polarities, the Polarity Management framework

and principles offer a useful collection of tools. According to **Greene (2021)**, polarities are persistent, chronic problems that cannot be avoided or resolved.

Managing polarity requires the following three steps: Understanding polarity and its functioning is the first step in being able to recognize it. To truly understand the substance of the positive and negative quadrants, the greater goal, and the biggest fear, we must first map the polarity, which entails labeling each pole and filling it in. To maintain each pole's strength, action must be taken to tap into the tension or energy that exists between them in the third phase (**Wesorick, 2019**). The polarity map needs to be enlarged to be seen. To manage polarities, one must be watchful and take deliberate action to maintain support for each pole concurrently across time, enabling them to achieve a goal that neither could do on its own. Our method of problem-solving caused us to view each pole as a problem that required fixing, and polarities make this approach ineffective. These inquiries will provide some clarification (**Taylor, 2019**).

Performance can be used to gauge how well a head nurse is doing their duties and obligations. The effectiveness of head nurses is crucial since it greatly influences the overall performance of nurses. Every day, head nurses interact with most members of the healthcare team. Head nurses should therefore set an example for their colleagues. If they are unable to inspire their colleagues, this could negatively affect head nurses' performance at work, making them want to quit the unit or cause them to work with reduced quality, low productivity, discontent, and other passive attitudes toward their jobs and organizations, like a drop in commitment (**Mazzarella & Gotzner, 2021**).

Controlling polarities and enhancing the performance of head nurses can help them save time and money, establish trust, lessen

resistance to change, and accomplish desired results more quickly and sustainably. Additionally, supports head nurses in developing their decision-making, discussion, negotiation, and persuasive skills. Managers' ability to handle conflict depends mostly on their capacity for stress management and teamwork (**Christensen et al., 2018**).

Significance of the Study:

By identifying and managing polarities, managers may speed up the accomplishment of the higher purpose, minimize wasting time and resources, and establish trust. Organizations that place greater emphasis on leadership development have a fantastic opportunity to teach new executives polarity management techniques. When it comes to ensuring safety, quality, satisfaction, cost-effectiveness, and improved nurse performance, polarity management in nursing and healthcare is becoming more and more complex, necessitating creative solutions (**Mazzarella & Gotzner, 2021**). As a result, nurse managers must receive training from healthcare companies to manage polarities that may enhance their knowledge and practices. So this study was conducted to evaluate the effectiveness of the polarity training program on nurse managers' performance.

Aim of the study

The current study aimed to evaluate the effectiveness of polarity training program on nurse managers' performance

Hypothesis:

H1: A polarity training program is expected to improve nurses' manager's knowledge after implementation rather than before implementation.

H2: A polarity training program is expected to improve nurses' managers' practice after implementation than before implementation.

H3: there was a correlation between nurses' managers' knowledge and their practice after the Polarity training program.

Subjects and Methods

Research design

A quasi-experimental design was utilized to conduct this study.

Setting:

This study was conducted at Kafr El-Dawar General Hospital which is affiliated with the Ministry of Health and Population (MOHP) with a bed capacity of 318 beds. This hospital is the second largest hospital at El- Beheira Governorate. Also, it is one of the hospitals that started serious steps to fulfill the requirements of the General Authority for Health Accreditation and Regulation (GAHAR). The study included all in-patient and intensive care units (N=21), namely:(1) medical units (n=5): medical, pediatric, obstetric and gynecology, hematemesis and urology units; (2) surgical units (n=6): general surgery (A and B), orthopedic, ears, nose and throat, neuro-surgery and vascular units; (3) Intensive Care Units (ICUs)(n=10) as follows: general ICU, pediatric, high risk, neuro-surgery, coronary (A and B), dialysis, toxicology, eclampsia and burn units.

Subjects:

A convenience sampling technique included the study subjects all head nurses and their assistants in all the previously mentioned settings (n=42) who are working at the previously mentioned units.

Tools of data collection:

The data needed for the study was collected using self –administered questionnaire, comprised of two tools;

Tool 1: Knowledge of polarity management among nurse managers: This questionnaire was created by the investigators. It was employed to gauge the nurse managers' familiarity with the polarity management aspect. This survey was divided into two sections:

Part 1: Asking six questions concerning the following personal information sheet: age, gender, years of experience, years of education, and attendance at polarity management training sessions.

Part (2): The researchers created a set of forty-three multiple-choice and true/false questions to gauge head nurses' knowledge of polarity management, drawing on their review of relevant literature (**Taie, 2020; Wesorick, 2019).** The questions are broken down into seven categories: polarity management (10 questions), polarity principles (6 questions), polarity outcomes (6 questions), polarity maps (9 questions), polarity definition and characteristics (6 questions), and using polarity maps (3 questions and its application).

Scoring system:
The answers from the nurse manager received a score of "zero" for "incorrect" and "1" for "correct." Their total knowledge level was 0–43, with three cutoff points: good (>75%), fair (60–75%), and bad (less than 60%).

Tool II- Polarity management practice checklist:

The researchers designed it to evaluate head nurses' practices on polarity management based on a survey of related literature (**Kratzer, 2006; Johnson, 2019**).

Scoring system:
Logically distributed according to a Likert scale: (1) completed, (0) not completed. It was

122 points overall. The percentages representing the total scores were used. Good practice was defined as a score of at least 75% (>73 degrees). A score of 60% to 75% (=73 degrees) indicated an average practice level, while a score of less than 60% (>73 degrees) indicated a bad practice level.

Tool III: **Polarity Map Evaluation Observational Checklist.** The polarity map stages and handling of polarity issues were assessed by the nurse managers using this tool, which was created based on **Yohemas (2020)**, before, during, and two months following the intervention. To provide a score, the nurses' answers were divided into three categories: "completely done," "partially done," and "not done." The head nurses' practices were categorized into three levels based on a cutoff point system: high (>75%), moderate (60–75%), and low (<60%).

Preparatory phase

It comprised reading the material that was available on the study topic, creating and translating study aids, and creating a pamphlet for the training course.

Tools Validity and Reliability:
Five nursing administration specialists examined the content validity of the instruments. No changes were made in response to the criticism. The Cronbach's alpha coefficient was used to evaluate the reliabilities of the tools. The results of the tests indicated that tools I, II, and III had reliabilities of 0.784, 0.835, and 0.947, respectively. 79.6%, 84.6%, and 96% were the corresponding Content Validity Index results.

Pilot study

Before starting the actual data collection, pilot research was conducted on four randomly selected nurses, representing 10% of the study

sample, from various hospitals. The purpose of the pilot study was to check that the study tools were easy to grasp, dependable, and not too complicated. Included in the study was a pilot project.

Administrative design

The director of the nursing training center and the nursing director of Damanhour University Hospitals have been granted formal authority to gather data and carry out the training program.

Ethical considerations

Before beginning the research, ethical approval was acquired from the hospital authorities in the chosen setting as well as from the Damanhour Scientific Research Ethics Committee at the Faculty of Nursing. After describing the study's purpose to the nurse managers, oral agreement was obtained to participate in it. It was explained to the nurse managers by the researchers that participation in the study would be voluntary and that they might leave at any moment, for any reason. They were also guaranteed the privacy of their data.

Fieldwork

From mid-October 2023 until mid-January 2024, the researcher began data collection and training program implementation. Through four stages (assessment, planning, implementation, and evaluation phase), the researchers create a training program.

Assessment Phase:

Tools I and II (a two-part questionnaire on nurse managers' knowledge of polarity management and a polarity management practice checklist) were utilized by the researchers to evaluate the knowledge and practical skills of the nurse managers. Utilizing Tools III, the polarity map evaluation observational checklist was created.

Planning and developing a training program:

The following were included in the planning phase of the intervention, which was developed and implemented to assess the impact of the polarity training program on nurse managers' performance. These were developed based on the findings of the assessment phase, the needs assessment in this study through the use of a pre-test questionnaire, and a review of pertinent research.

Formulating training programobjectives

General objective: to develop nurse managers' performance at Sohag University Hospital about polarityapplication

Specific objective: by the end of this training program, **nurse managers** will beable to:

- Describe what polarity is.
- Enumerate the polarity's attributes.
- What does the polarity map mean?
- Showcase the handling of polarity.
- Describe the principles of polarity.
- Use polarity maps to illustrate how.
- Apply polarity maps.
- Discuss the results of polarity.

Implementation phase:

Four groups of nurse managers were formed, each with three nurse managers. Three hours were allotted for the educational intervention—one hour for each session or week—for each group. The nursing room in the nurse managers' work units served as the venue for the educational intervention. After they completed their required tasks, the sessions began during the morning shift. Lectures, group discussions, and actual work settings were all used by the researchers.

The researchers on the study sample, who were 42 nurse managers from various departments at Sohag University Hospital, carried out the program. Three groups of participants were formed. There were twenty individuals in the first group, and fifteen in the second and third. This was done to prevent a shortage of nurse supervisors, which could occur due to shift differences and if they all left the hospitals at the same time. The training program participants were split up into smaller groups. Participants in each group ranged from (n=6) to (n=7).

Each group's curriculum was implemented over a single day. For each group, there were five sessions covering the course material. Except for the application session, which lasted two hours for each of the three groups, the program's overall duration was 7.30 hours. Four sessions were used to present the theoretical portion. The researchers presented their findings. The program's goal and orientation were completed at the start of the first session, and the participants were told of the session's time and location. A recap of the preceding session's contents was delivered at the beginning of each one. The following were the teaching methodologies or approaches that the researchers employed to assess the impact of the polarity training program on the performance of nurse managers: The researchers employed the following methods of instruction: discussion, brainstorming, lectures, and small-group discussions for the theoretical portion. During the program's implementation, the researchers employed a variety of instructional aids, such as a booklet, handouts given to each participant, PowerPoint, flip charts, pictures and drawings for illustrations, and videos. To teach the practical portions, the researchers employed the following methods: To help the participants recognize the correct ways before using them, the trainers demonstrate the techniques using drawings and photographs. The trainers then provide their commentary after each participant has shown his or her model. Case studies: This technique encourages participants (trainees) to make judgments by presenting them with descriptive scenarios. Applying knowledge and creating fresh concepts to handle a scenario or find a solution are the goals of the case method for trainees.

Practical training: Participants in the program (trainees) apply the theoretical knowledge they have learned during the conversation, making it a successful method. The program's participants are guaranteed access to a variety of knowledge and abilities, and the researchers who serve as trainers enable the group to put what they've learned into practice while working under their supervision.

Evaluation phase:

With the same pre-test format used before the start of the polarity training program implementation, the researchers utilized a post-test format immediately following the program's implementation to assess how well the program affected the performance of nurse managers.

Statistical design

Collected data were verified before computerized data entry and analysis by using a statistical software package for social sciences (IBM SPSS-22). Data were presented using descriptive statistics in the form of frequencies and percentages. Quantitative variables were presented in the form of means and standard deviation. Qualitative variables were compared using (the chi-square test) and (the ANOVA test). Using (Person Correlation) to examine the association between scores was considered a statistically significance difference (P <0.05).

Results:

Table (1): Displays that the vast majority were females **(92%)** and half of nurse managers were aged from **41 to 50** yrs. Regarding

educational qualifications among studied nurse managers**, it was observed that** three-quarters of them have a Bachelor's degree in nursing**,** and half of them (50%) had 11 to 15 years of experience.

Figure (1): Illustrates that the majority of the studied nurse managers (88%) do not attend any training program about polarity management**.**

Table (2): Depicts that there was an improvement and increase in the mean scores of all dimensions regarding the polarity management post-polarity training program with statistically significant differences as regards all polarity dimensions.

Figure (2) shows that no one of the studied nurse managers had a good level of knowledge in the pretest while post-polarity training program application, (71.42%) they had

a good level of knowledge

Table (3): shows that there were statistically significant differences in the nurse managers' polarity management practice at P (<0.001) pre & post-polarity training program.

Figure (3): Illustrates that there was an improvement in pre- polarity training program found that all nurse managers had a poor level of practice polarity management; compared to after the polarity training program found that less than one-third had moderate practice levels, and slightly less than three-fifths had high ability level to practice polarity management.

Figure (4): Demonstrates that there was an improvement in the ability level to apply the polarity map steps and manage polarity situations where, only ten percent had high practice polarity management, pre & post-polarity training program.

Table (1): The studied nurse managers' distribution regarding their data (no=42)

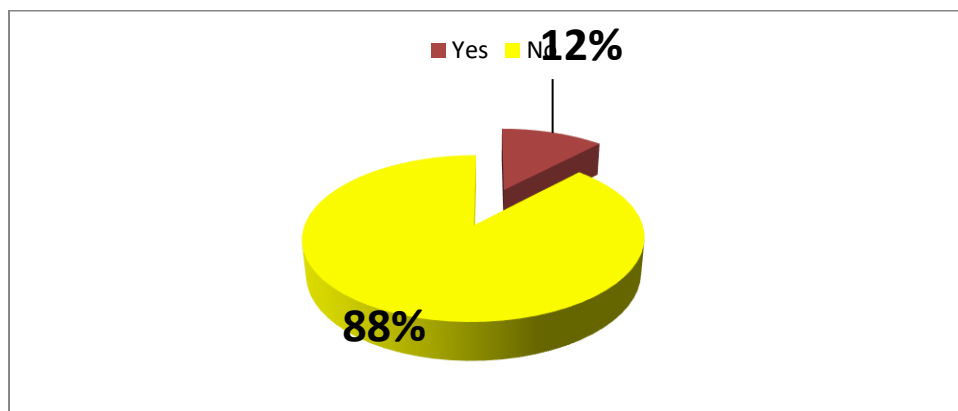| Personal data	Nurse managers(n=50)	
Age: (years)	**No.**	**%**
20 –<31	11	26.19
31 – <41	10	23.9
41 – 50 yrs.	21	**50.0**
Gender		
Male	3.36	8.0
Female	38.64	**92.0**
Years of experience:		
1– < 6	17.64	28.0
6 – < 11	3.36	8.0
11 – 15 yrs	21	**50.0**
Mean ± SD	1.56±0.83	
Educational Qualification		
Bachelor's degree in nursing	31.5	75%
Master's degree in nursing	6.3	15.0
Doctorate of nursing	4.2	10.0

Figure (1): The studied nurse managers distribution regarding their attendance of training program about polarity management (no=42)

Table (2): Differences between the studied nurse managers' knowledge mean scores about polarity management of pre & post-polarity training program (no=42)

| Knowledge polarity dimensions	Pre-polarity training program Mean ± SD	Post-polarity training program Mean ± SD	X2	P-value Pre-post test
- **Definition of polarity.**	2.88±1.22	5.33±0.55	19.22	0.001**
- **Polarity characteristics**	1.04±0.66	2.03±0.87	14.33	0.001**
- **Polarity maps.**	3.56±1.77	6.42±0.66	23.44	0.000**
- **Polarity management.**	4.29± 2.48	8.56± 0.87	15.45	0.001**
- **Polarity principles.**	2.58± 2.28	5.68± 0.33	8.22	0.001**
- **Polarity outcomes.**	2.31±1.74	5.52± 0.86	62.11	0.000**
- **Polarity maps using**	2.52±9.34	4.79±0.26	43.45	0.000**

*Statistically significant at ** P <0.01*
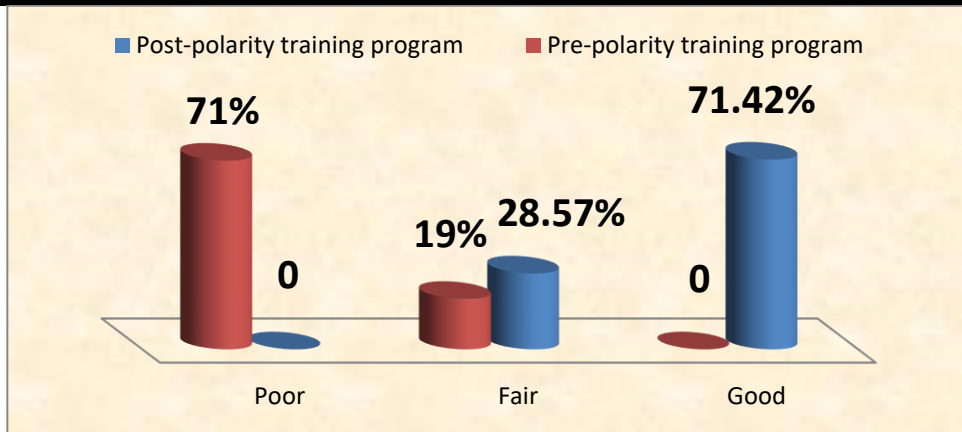
Figure (2): Total knowledge level about polarity management among the studied nurse managers pre & post-polarity training program (no=42)

Table (3): Differences between the studied nurse managers' polarity management practice scores pre & post-polarity training program (no=42)

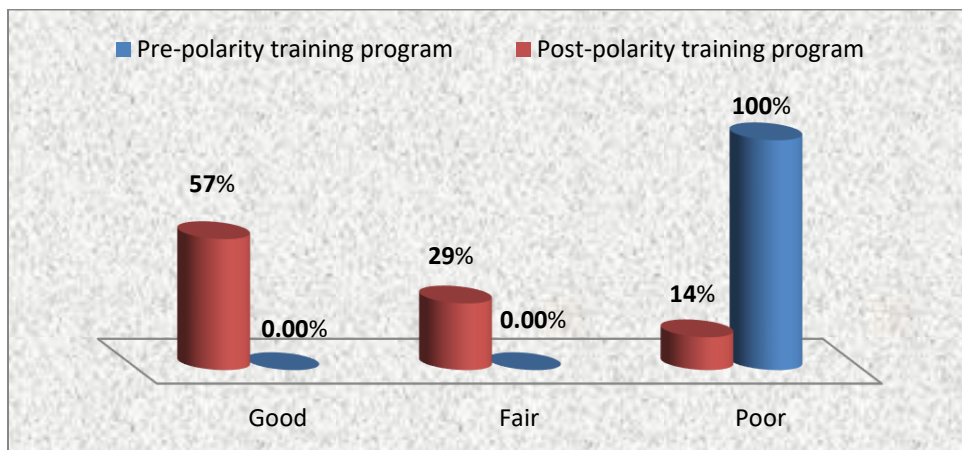| Polarity management practice	Pre-polarity training program		Post-polarity training program		P-value
	No	**%**	**No**	**%**	
Low	42	100.0	0	0.0	
Moderate	0	0.0	28	66.6	<0.001*
High	0	0.0	14	33.4	
Total mean score	30.43 ± 12.6		77.22 ± 9.3		

*Statistically significant at ** P <0.01*

Figure (3): Total polarity management practice level among the studied nurse managers pre & post-polarity training program (no=42)
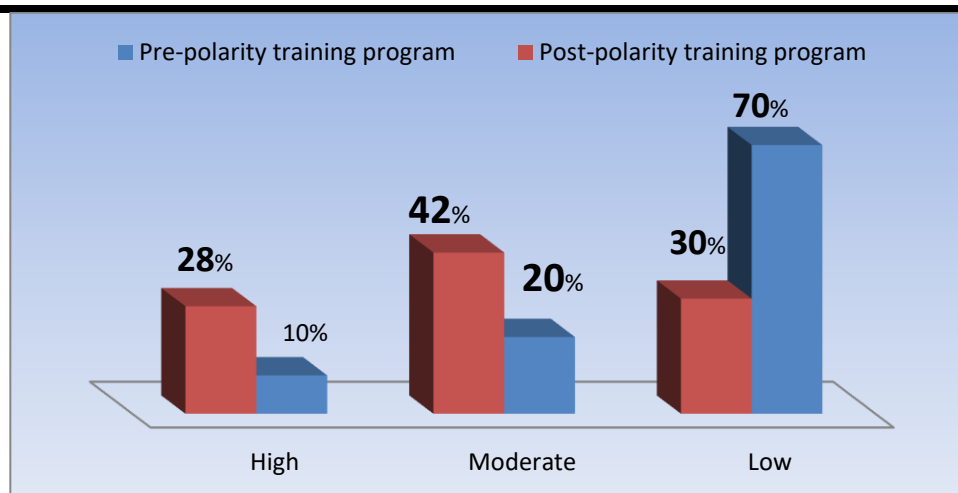
Figure (4): Total ability level to apply the polarity map steps and manage polarity situations (polarity map evaluation) among the studied nurse managers pre & post-polarity training program (no=42)

Discussion:

Among the many inevitable workplace polarity concerns that impact workflows, particularly, nurse managers are those of first-line nursing leaders. In critical care units, nurse supervisors deal with a variety of contradictions, including the need to maintain an effective level of urgency. When it comes to cost containment and quality management training, HNs need to be able to see things from fresh perspectives, like polarizations. Nurse managers can accomplish organizational goals with the help of polarity management skills. To shift from "I am right, and you are wrong" to "we are both right," polarity thinking encourages the use of "both-and" constructs. Our conventional problem-solving methods are enhanced by this way of thinking **(Val & Kathy, 2019)**. Therefore, this study was conducted to evaluate the effectiveness of the polarity training program on nurse managers' performance.

According to the current study, half of the investigated nurse managers are between the ages of 41 and 50, the majority is female, and three-quarters hold a bachelor's degree in nursing. The current study's conclusions showed that most nurse managers under investigation had never attended a polarity management training course. The researchers believe that this could be the reason why nurse supervisors don't know enough about polarity management. This may have something to do with the continuing education department's exclusive concentration on offering workshops and training programs that enhance the technical skills of nursing staff—administrative skills were overlooked, and management as a concept was just recently employed. It was also indicated that they had never created any polarity maps previously.

According to the study's findings, all polarity dimensions showed statistically significant differences, and there was an improvement and an increase in the mean scores of these dimensions related to polarity management following a polarity training program. According to the researchers, it validated the beneficial impact of implementing a polarity training program. The results of **Taie's (2020)** study, "Designing and validating

protocol for managing polarities in healthcare," are consistent with these findings. Taie's study found that managers' knowledge of polarity management differed significantly before and after awareness sessions and that none of the studied samples knew everything about polarity. The current study's findings of **Rushdy et al., (2021)** revealed that a wholly planned sample had little knowledge about all polarity management items beforehand the educational sessions.

Less than 75% of the nurse managers in the study demonstrated a high degree of proficiency in the use of the post-polarity training program, according to the study's findings. From the perspective of the researchers, it validated the positive influence and efficacy of polarity training program execution. This could be explained by the participants' eagerness to learn, which paid off in the form of newfound understanding and techniques for managing polarity at work. These results align with those of **Abo Gad & El Demerdash (2020)**, who showed that nurse managers' knowledge and abilities improved following program implementation, proving the usefulness of the training program.

The results demonstrated that the nurse managers' practices for managing polarity before and after the polarity training session differed statistically significantly. The success of the polarity training program, which enhances knowledge and is frequently linked to improved practices, was seen by the researchers as evidence of this. This conclusion is consistent with **Amal & Rehab's (2018)** finding that an effective manager needs to discern if the circumstance they are faced with represents a problem that needs to be resolved or if it is a persistent polarity that needs to be managed over time.

Pre-polarity training program results showed that all nurse managers had low levels of polarity management practice; post-polarity training program results showed that less than one-third of nurse managers had moderate levels of practice, and slightly less than three-fifths had high levels of ability. Before the implementation of a polarity training program, the researchers believed that knowledge was deficient regarding the concepts, methods, and roles associated with managing polarity and creating polarity maps.

The results showed that there was an improvement in the degree of proficiency in applying the polarity map stages and handling polarity issues, with only 10% demonstrating high practice polarity management before and following the polarity training session. According to **Sushil (2018)**, maintaining open lines of communication, forming alliances, developing team members, and balancing paradoxes are only a few of the critical knowledge and skill sets needed to implement some important polarity management principles. Leaders in the healthcare industry should therefore modify their coaching approach. This might have happened as a result of going to the polarity training course, where researchers showed pictures and let head nurses create their polarity maps. The improvement in the understanding of nurse managers encouraged them to use their polarity mapping abilities.

Several decisions made in organizations were found to be challenging to resolve by **Kowalski (2019), Faller and Gogek (2019), Alabdulkareem et al. (2018), and Bozer and Jones (2018).** This was especially true when it came to budget and time constraints, as well as the appropriateness of each option for the given circumstance and various poles that existed. The effective leader must adopt a new strategy and adopt a polarity thinking attitude to activate the completeness of the observed polarities. **Johnson's (1996)** model, however, provides a tool for conjecturing polarities and creating action steps to simplify this process. Therefore,

nurse managers can benefit from the clear, uncomplicated concept of polarity management in addressing workplace polarities.

Conclusion:

According to the study findings, it was concluded that the polarity training program has a positive effect in improving nurse managers' knowledge and practices regarding polarity. The knowledge and practices of managers about polarity management were significantly different before and after the training program was implemented.

Recommendations:

Based on the study, the following recommendations are suggested:

- Orientation programs for recently appointed managers must incorporate awareness of crisis management.

- When evaluating nurse managers' performance, neutrality management ought to be considered.

- Polarity management should be covered in the nursing administration course curriculum at Egyptian nursing faculties.

- The use of polarity management maps should be encouraged by organizational culture.

- To enhance their polarization abilities, nurse managers in their units should practice polarity mapping.

- It is recommended that Nurse Managers prioritize their communication with their nurses by keeping lines of communication open and forming collaborative partnerships to resolve conflicts that arise in the workplace.

- Nurse managers must acknowledge the accomplishments of their staff members, help them develop professionally, and provide them with the feedback they need.

- To generalize the idea and application of polarity management, more research in various healthcare settings must be done.

References:

- **Abo Gad, R. & El Demerdash, S. (2020):** An educational program about nursing managers' transformational leadership, conflict management styles, and decision-making effectiveness, *Journal of Nursing and Health Science*, 3(3), Pp. 42-56.

- **Alabdulkareem, T., Almahmoud, H., Al-Tahan, S., Javad, M. Al Hatlani, & L. Rahwan, A. (2018):** "Etiology and clinical characteristics of pediatric acute pancreatitis in Saudi Arabia: a 20-year experience from a single tertiary center," *International journal of pediatrics & adolescent medicine*, vol. 5, no. 1,pp. 13–17.

- **Amal, R. G., & A. Rehab, (2018):** "Assessing and enhancing nurse managers' knowledge and skills in polarity management," *International Journal of Nursing Research*, vol. 4, no. 3, http://innovationalpublishers.com.

- **Arab, M., Shirzadi, F., Sabzvari, S., Jahani, Y., Rostami, M., Ebrahimi,M., Ghanbarzehi, N., Balouchi, A. (2019):** Effects of training programs on knowledge and attitudes of nurses about postoperative pain. Der Pharmacia Lettre; 8(4):108-11.

- **Bozer, G., & Jones, R. (2018):** "Understanding the factors that determine workplace coaching effectiveness: a systematic literature review," *European Journal of Work & Organizational Psychology*, vol. 27,no. 3, pp. 342–361,.

- **Christensen, B. Wilson, S., & Edelman, L. (2018):** "Can I relate? A review and guide for nurse managers in leading generations," *Journal of Nursing Management*, vol. 26, no. 6, pp. 689–695.

- **Faller, M. & Gogek, J. (2019):** "Break from the past: survey suggests modern leadership styles needed for millennial nurses," *NurseLeader*, vol. 17, no. 2, pp. 135–140.

- **Greene, M. (2021):** "Collaborative governance in public education through democratic management of polarities," *ProQuest Dissertations Publishing Doctoral Thesis, College of Social and Behavioral Science, Walden*

University, vol. 33, p. 34, https://scholarworks.waldenu.edu/dissertations/11077.

- **Johnson, A. (1996):** Polarity Management: Identifying and Managing Unsolvable Problems, HRD Press Co, Amherst, MA, USA, 1st edition, https://www.amazon.com/Polarity-Management-Identifying-Managing-Unsolvable-ebook/dp/B005MSO9Z2.

- **Kowalski, K. (2019):** "Differentiating mentoring from coaching and precepting," *The Journal of Continuing Education in Nursing*, vol. 50, no. 11, pp. 493-494.

- **Kratzer, J., Leenders, R., & van Engelen, J. (2006):** Team Polarity and Creative Performance in Innovation Teams. Creativity and Innovation Management. 15(1): 96. http://dx.doi.org/10.1111/j.1467-8691.2006.00372.x

- **Mazzarella, A., & Gotzner, N. (2021):** "The polarity asymmetry of negative strengthening: dissociating adjectival polarity from face-threatening potential," *Glossa: A Journal of General Linguistics*, vol. 6, no. 1, p. 3.

- **Rushdy, F., Shawkat, N., & Elsaied, Y. (2021):** "Effect of educational training program about polarity management on nurse managers' knowledge and skills," *Egyptian Journal of Health Care*, vol. 12, no. 1, p. 2.

- **Sushil, S. (2018):** "Incorporating polarity of relationships in ISM and TISM for theory building in information and organization management," *International Journal of Information Management*, vol. 43, no. 3, pp. 38–51.

- **Taie, E. (2020):** Designing and validating protocol for managing polarities in healthcare Clinical Nursing Studies, Vol. 2, No. 3. www.sciedupress.com/cns

- **Taylor, M. (2019):** Student Achievement Reforms in California's Public Schools: A Polarity Management Theory Perspective, Pro Quest Dissertations Publishing Doctoral Thesis. Alliant International University, Alhambra, CA, USA.

- **Val, U., & Kathy, O. (2013):** Managing Polarities "Getting from Either to and".

- **Welp, M. (2019):** Polarity mapping worksheet. Equal Voice.

- **Wesorick, A., & Shaha, S. (2019):** "Guiding health care transformation: a next-generation, diagnostic remediation tool for leveraging polarities," *Nursing Outlook*, vol. 63, no. 6, pp. 691–702.

- **Wesorick, B. (2019):** "Polarity thinking: an essential skill for those leading inter-professional integration," *Journal of Inter-professional Healthcare*, vol. 1, no. 1, p. 3, https://www.gvsu.edu/wesorick/publications-8.htm.

- **Yohemas, S. (2020):** "Revolutionizing through polarity management," Pro Quest Dissertations Publishing Master Thesis, Faculty of Social and Applied Sciences, Royal Roads University, Victoria, Canada.