Relationship between Magnet Hospital Forces and Patient Safety Culture Awareness among Nurse Managers'

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Abstract

Background: Magnet hospital is a hospital that successfully retained a high quality and satisfied nursing workforce in competitive markets. **Aim:** This study aimed at identifying the relationship between magnet hospital Forces and patient safety culture awareness among nurse managers. **Research design:** A descriptive, correlational design was used to conduct this study. **Setting:** The study was conducted at Al-Hussien University Hospital in Cairo governorate affiliated to Al-Azhar University. **Subjects:** All nurse managers working at the aforementioned study setting (50 nurse managers) were included in the study. **Tools of data collection:** Data were collected by using two tools, magnet hospital forces questionnaire and patient safety culture awareness questionnaire. **Results:** The main results of the study indicate that slightly more than half of studied nurse managers' had moderate level of perception about magnet hospital forces, while 18.0% of studied nurse managers' had low level of perception about magnet hospital forces. Moreover, the present study found that Slightly more than half of studied nurse managers' had high level of awareness about patient safety culture. **Conclusion:** There was a highly statistically significant relation between total nurse managers' perception about magnet hospital forces and total awareness about patient safety culture. **Recommendations:** Training sessions and open discussion should be organized to improve nurse managers' perception about magnet hospital forces and their awareness of patient safety culture.

Keywords: Magnet Hospital, Nurse Managers**,** Patient Safety Culture.

Introduction

One innovative approach to enhancing quality of care and patient safety is Magnet Recognition through the American Nurses Credentialing Center (ANCC). This prestigious designation is awarded to hospitals that achieve a high standard of excellence in professional nursing practice. For nurses, Magnet Recognition translates to ongoing training and career advancement, fostering greater independence. For patients, it signifies receiving care from nurses who are empowered to provide the very best. In simpler terms, Magnet hospitals are highly desirable institutions that attract both nurses and patients alike. The primary purpose of Magnet designation is to incentivize hospitals to recruit and retain top nurses; ultimately leading to improved patient care quality (**Ashrafizadeh et al., 2024**).

The label "magnet hospitals" originally was given to a group of United States hospitals that were able to successfully recruit and retain professional nurses during a national nursing shortage in the early 1980s. The Magnet Hospital Recognition Program, initiated by the American Nurses Credentialing Center in 1990, recognizes healthcare organizations for care quality, nursing practice innovation and nursing excellence. The Magnet program signifies to consumers the institution is of the highest caliber in terms of quality of care and staff by utilizing fourteen qualifying *((***Abuzied et al., 2022**).

Magnet hospital is defined as an organization that is capable of attracting and retaining well-qualified nurses and then continually preparing them to deliver quality care. It has been shown to exhibit organizational features that permit nurses to practice their knowledge and expertise entirely to deliver patient care. Magnet hospital is defined as the hospital which have the value of contribution of nurses, have educational

support for nurses within the facility, maintain high quality of patient care, has evidence based practice and leadership structure that encourage nursing input in patient care decisions . This designation represents the "gold standard" in nursing practice ***(Askari, et al. 2020).***

Magnet hospital is a hospital that successfully retained a high quality and satisfied nursing workforce in competitive markets at a time when nursing shortage is severs. It is a hospital where nursing delivers excellent patient outcomes, where nurses have a high level of job satisfaction, and where there is a low staff nurse turnover rate and appropriate grievance resolution. Magnet status is also said to indicate nurse managers and nursing staff involvement in data collection and decision-making in patient care delivery ***(Turnbach, et al., 2024).***

Magnet program forces are based on the American Nurses Credentialing Center ***(ANCC, 2016),*** it include fourteen forces to earn magnet recognition, it include: quality of nursing leadership, organization structure, management style, personnel policies and programs, professional models of care, quality of care, quality improvement, consultation and resources, nurse autonomy, community and the hospital, nurses as teachers, image of nursing, quality of interdisciplinary relationships, and professional development & scientific research. Magnet hospital certification has a reputation for being one solution to nurse recruitment and retention. It is a matter of priority for hospitals to identify and enhance the basic organizational social structures which promote the development and maintenance of magnetism ***(Abuzied et al., 2022).***

Studies of magnet hospitals illuminated the leadership characteristics and professional practice attributes of nurses within these organizations. Recent investigations within magnet hospitals document significant relationships between nursing and patient outcomes, including patient safety, mortality and patient satisfaction. Magnet recognition likely both identifies existing quality and stimulates further positive organizational behavior that improves patient outcomes ***(McCaughey, et al. 2020).***

The nurse manager is responsible for creating safe, healthy environment, which support the work of the health care team and contribute to patient engagement. The role is influential in creating a professional environment and fostering patient safety culture where interdisciplinary team members are able to contribute to optimal patient outcomes and grow professionally. Nurse Managers lead their unit staff by providing their vision for the unit's progress toward excellence ***(Registered Nursing org, 2021).***

Patient safety is defined as freedom for a patient from unnecessary harm or potential harm associated with healthcare. In other words, the safety culture of an organization acts as a guide as to how employees will behave in the work place. In order to advance patient safety in healthcare organizations, collaborative efforts must begin with an assessment of the current culture to identify the positive and negative perceptions and attitudes toward the safety environment and relationships that promote or hinder safe patient care ***(Lu, et al. 2022).***

Patient safety is stated as the fundamental principles of good patient care; this is supported by different research conclusions, which claimed that one out of ten patients is harmed while receiving hospital care. Patient safety incidents lead to unnecessary suffering and are a major cause of prolonged hospital stays. Patient safety is considered to be crucial to the maintenance of healthcare quality and has become a main concern for healthcare organizations around the world ***(WHO, 2023).***

Patient safety culture defined as the part of the organizational culture that expressed in the form of values, beliefs and attitudes of the organization's employees about the concept of safety *(Burke, 2014).* Patient safety culture composites of 12 dimensions which are communication openness, feedback and communication about error, frequency of events reported, handoff and transitions, management support for patient safety, non-punitive response to errors, organizational learning, overall perceptions of patient safety, staffing, supervisor expectations and actions promoting patient safety, teamwork across units and teamwork within units ***(*Said*, et al. 2020).***

Patient safety culture involves the development of a supportive and non-punitive environment where healthcare professionals

feel comfortable speaking up about potential risks or errors without fear of retribution. Patient safety culture reflects the extent to which healthcare organizations prioritize patient well-being by implementing evidence-based practices, fostering a blame-free environment, and actively involving patients in their care decisions. Patient safety culture refers to the overall mindset within healthcare settings that emphasizes proactive identification and mitigation of risks to patient safety through effective communication, collaboration, and continuous learning **(Hussein, et al., 2022).**

Significance of the study:

The work environment's that facilitate nurses to practice according to professional standards are more likely to support a culture of patient safety. When nurses find that their work environment provides the necessary information, support, access to opportunity and resources to accomplish their work, they are more likely to describe their professional practice environment in Magnet hospital terms. These conditions encourage a patient's-centered care approach which would support a strong patient's safety culture ***(El-Demerdash, et al. 2018).***

The magnet hospital components focus on transforming organizational culture through changes in structures, processes and outcomes that facilitate good working environment which have a great effect on patient safety, so study the relationship between fourteen forces of magnetism on patient safety culture awareness is very important. The results of this study can be used to improve patient safety culture at AL-Hussein University hospitals.

Aim Of This Study

This study aimed at identifying the relationship between magnet hospital forces and patient safety culture awareness among nurse managers.

Research Question

Is there a relationship between magnet hospital forces and patient safety culture awareness among nurse managers?

Subjects And Methods

The methodology followed in conducting this study was described under four main designs, as follow: technical, operational, administrative, and statistical designs.

I. Technical design

The technical design for this study included the details of the research design, setting of the study, the study subjects and tools of data collection.

Research design: A descriptive, correlational design was used in this study.

Setting: The study was conducted at Al-Hussien University Hospital in Cairo governorate affiliated to Al-Azhar University. Al-Hussien university hospital consists of (7) building, total bed capacity of the hospital (1600) beds, which include (50 departments) as medical department, surgical department, ICUs departments etc.

Subjects:

Study subjects consisted of all nurse managers working in different departments at the aforementioned study setting at the time of study. The total number was 50 nurse managers. Head nurses number is (40), nursing supervisor (5), deputy of nursing director (4) and (1) nursing director.

Tools of data collection:

The data of this study were collected through two tools namely: Magnet Hospital Forces questionnaire and Patient Safety Culture Awareness Questionnaire.

First tool: Magnet Hospital Forces questionnaire: it consisted of two parts.

First part: personal and job characteristics sheet: It was intended to collect personal and job characteristics of the study subjects as (age, gender, marital status, job title and years of experience).

Second part: Magnet Hospital Forces questionnaire: This tool was used to assess the perception of nurse managers regarding magnet hospital forces. It was developed by ***(Mohamed, 2009),*** based on ***(Sheifert, 2006 and Jensen, 2005),*** and was modified by the researcher. It consisted of 136 items which grouped under 14 forces as follows:

1.Quality nursing leadership (27 items)
2.Organizational structure (13 items)
3.Management style (14 items)
4.Personnel policies and programs (14 items)
5.Professional models of care (11 items)
6.Quality of care (14 items)
7.Quality improvement (6 items)
8.Consultation and resources (6 items)
9.Autonomy (7 sub items)

10. Community and the hospital (9 items)
11. Nurses as teachers (6 items)
12. Image of nursing (7 items)
13. Interdisciplinary relationships (5 items)
14. Professional development (10 items)

Scoring system: the responses were checked on a 5 point likert scale from (strongly disagree, disagree, neutral, agree and strongly agree) 1 to 5, respectively. Reverse scoring was used for negatively stated items. The totals of each domain were calculated, and the sums of scores were converted into percent scores. For the categorical analysis of each force as well as for the total scale, a score of 66,6% or higher was considered as high level of magnet forces perception, a score from 33,3% to less than 66,6% was considered as moderate level of magnet forces perception, while scoring less than 33,3 considered low level of magnet forces perception ***(El-bialy &Abd-Elaal.2013).***

Second tool: Patient Safety Culture Awareness Questionnaire: This tool aimed to assess awareness of nurse mangers' regarding patient safety culture. This tool adopted from ***(Abd-Elhameid, 2018)*** based on the Hospital Survey on Patient Safety Culture (HSPSC) questionnaire developed by the Agency for Health Care Research and Quality ***(Agency for Health Care Research and Quality {AHRQ}, 2008)***. It included (12) dimensions with their 42 items as follows:

1.Teamwork within unit (4 items)
2.Supervisor/ manager expectation and actions promoting patient safety (4 items)
3.Organizational learning & continuous improvement (3 items)
4.Management support, for patient safety (3 items)
5.Overall perceptions of safety (4 items)
6.Feedback communication and about error (3 items)
7.Communication openness (3 items)
8.Frequency of event report (3 items)
9.Teamwork across hospital units (4 items)
10. Staffing (4 items)
11. Hospital handoffs and transitions (4 items)
12. Non punitive responses to error (3 items)

Scoring system: the responses were checked on a 5 point likert scale from (strongly disagree, disagree, neutral, agree and strongly agree), or in some dimensions, (never, rarely, sometimes, most of times and always) 1 to 5, respectively. Reverse scoring was used for negatively stated items. For each dimension and for the total scale, the scores are summed-up and the total divided by number of the items, giving a mean score for the awareness. These scores were converted into a percent score that was considered high awareness if the percent scores was 80% or more, and low awareness if less than 80% ***(Abd Elrazik, 2018).***

II. OPERATIONAL DESIGN

The operational design for this study included preparatory phase, pilot study, and the fieldwork.

A. Preparatory phase:

During this phase, the researcher reviewed the national, international, current and past related literature. This was done using textbooks and internet search for articles in scientific journals, and theses concerning the topic of the study. Based on this review, the researcher prepared the data collection tools, and started writing the literature review section. This phase started from the first of August to the end of October 2022.

Validity & reliability:

Tool validity

This phase lasted from the first to 30th of November 2022. After preparation of the preliminary forms of data collection tools, they were presented to a group of experts for face and content validation. Face validity was aimed at determining the extent to which the tools represent all facets of magnet hospital forces and patient safety culture. The content validity was conducted to determine whether the tools' items were clearing, relevant, and comprehensive. The jury group consisted of five professors in Nursing Administration departments of Faculties of Nursing: two from Ain Shams University, two from Cairo University, and one from Menoufyia University. The tools were finalized based on their opinions, mainly in the form of rephrasing some items.

Tool reliability

The reliability of the tools was tested by Cronbach's Alpha coefficient test for internal consistency to determine how strongly the items were related to each other and to the composite score. The reliability of the tools was high as shown below.

Table (I): Reliability for the study tools:

Scale	N of Items	Cronbach's alpha
Magnet hospital forces	136	0.997
Patient safety culture	42	0.996

B. **Pilot Study:**

Upon developing the data collection tools, a pilot study was conducted to examine the applicability of the study, and the clarity of tools language and their suitability for application. It helped in identifying any potential obstacles or problems that might be encountered during the period of data collection. It also served to estimate the time needed to complete the questionnaires by each participant. The pilot study was carried out on 10% of the study sample which represent (5) nurse managers. The data obtained from the pilot study was analyzed. The time needed for filling the form was about 10 minutes for each of the magnet hospital forces and patient safety questionnaire, i.e. a total of 20-25 minutes. Since no modifications were needed in the data collection tools, these 5 head nurses were included in the main study sample. The pilot study was conducted during the month of December 2022.

C. Field Work

This phase conducted during the month of January2023.The researcher met with all nurse managers to explain the purpose and nature of the study and get their oral consents to participate. Then, they were given the data collection forms along with instructions in how to fill it. The researcher was present during the form filling to respond to any queries. The filled forms were handed back to the researcher to check for completeness.

III. ADMINISTRATIVE DESIGN

Before any attempt to collect data, an official approval to conduct the study was obtained from general manager and nursing directors of Al-Hussien University Hospital for Research and Treatment. This was achieved through letter clarifying the aim of the study and its procedures. Moreover, the researcher met with them to explain the aim of the study, and to arrange for the time of data collection and program implementation to gain their approval and cooperation.

Ethical Considerations

The study protocol was approved by the Scientific Research Ethics Committee of the Faculty of Nursing, Ain Shams University. The researcher clarified the aim of the study and its procedures to all nurse managers, along with their rights to accept or refuse. Oral informed consents were obtained from each participant. They were reassured about the anonymity and confidentiality of any obtained information. The study implementation could not lead to any harmful effect on participants.

IV. STATISTICAL DESIGN

Data entry and statistical analysis were done using SPSS 23.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. Cronbach alpha coefficients were calculated to assess the reliability of the scales used through their internal consistency. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the independent predictors of the magnet forces, and safety culture scores, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

Results

Table (1): The study sample consisted of 50 nurses whose age ranged between 30 and 50 years with mean age 40.40 ± 6.919, most of them (96.0%& 90.0%) were female and married respectively. This table also illustrated that, 80.0% of studied nurses were head nurse and 54.0% of them had bachelor education. Their years of

experience ranged between 3 and 30 years with mean ± SD 19.38 ± 8.843 year. Also, almost all of them didn't have previous training program about magnet hospital or patient safety.

Table (2): reveals that nurse managers' perception about all forces of magnet hospital forces was mostly moderate. As evidenced by that only 24.0%, 20.0% & 26.0% of nurse managers' had a moderate perception regarding quality nursing leadership, organizational structure and nurses as teachers respectively.

Figure (1) illustrates that 18.0% of studied nurse managers' had low level of perception about magnet hospital forces, whenever 52% of studied nurse managers' have moderate level of perception.

Table (3): reveals that a wide variation in nurse managers' awareness of patient safety culture dimensions, the highest responses was teamwork within unit & teamwork across units dimensions (74.0%) (70.0%) respectively. while the lowest dimension was staffing only (18.0%).

Figure (2): Reveals that 52.0% of studied nurse managers' had high level of awareness about patient safety culture whenever 48.0% of studied nurse managers' had low level of awareness about patient safety culture

Table (4): Reveals that there was a highly statistically significant difference between nurse managers' total perception about magnet hospital forces and total awareness about patients' safety culture ($p<0.001$**).

Table (1): Distribution of the studied nurse managers regarding to their socio-demographic data (n=50).

Socio-demographic data	No.	%
Age/ years		
30- 35	14	28.0
>35-40	16	32.0
>40	20	40.0
Mean ±SD	**40.40 ± 6.919**	
Sex		
Male	2	4.0
Female	48	96.0
Marital status		
Married	45	90.0
Not-married	5	10.0
Job title		
Nursing Director	1	2.0
Deputy of nursing director	4	8.0
Nursing supervisor	5	10.0
Head nurse	40	80.0
Educational level		
Secondary school diploma	20	40.0
Bachelor	27	54.0
master degree	2	4.0
PHD	1	2.0
Years of experience		
<10	11	22.0
10-15	12	240
>15-20	8	16.0
>20	19	38.0
Mean ±SD	**19.38 ± 8.843**	

Table (2): Distribution of the studied nurse managers' perception about all parts of Magnet Hospital Forces (n=50).

Items	Low		Moderate		High	
	No.	%	No.	%	No.	%
Quality nursing leadership	9	18.0	12	**24.0**	29	58.0
Organizational structure	15	**30.0**	10	**20.0**	25	50.0
Management style	10	20.0	25	50.0	15	30.0
Personnel policies and programs	14	28.0	26	52.0	10	20.0
Professional models of care	10	20.0	20	40.0	20	40.0
Quality of care	14	28.0	26	52.0	10	20.0
Care quality improvement	9	18.0	21	42.0	20	40.0
Consultation and resources	8	16.0	17	34.0	25	50.0
Autonomy	11	22.0	33	66.0	6	12.0
Community and the hospital	7	14.0	38	76.0	5	10.0
Nurses as teachers	7	14.0	13	**26.0**	30	60.0
Image of nursing	9	18.0	31	62.0	10	20.0
Interdisciplinary relationships	10	20.0	25	50.0	15	30.0
Professional development	9	18.0	21	42.0	20	40.0
Total	9	18.0	31	62.0	10	20.0

*** * Highly statistically significance p≤ 0.001** ***statistically significance p≤ 0.05**

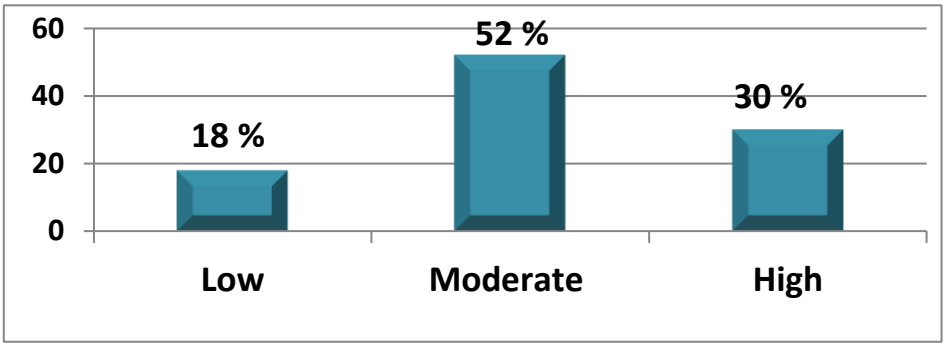

Figure (1): Percentage distribution of the studied nurse managers regarding their total level of perception about magnet hospital forces (n=50).

Table (3): Distribution of the studied nurse managers' regarding their awareness about all parts of patient safety culture (n=50).

Dimensions	Low		High	
	No.	%	No.	%
Teamwork within unit	13	26.0	37	**74.0**
Supervisor/Manager Expectations & Actions Promoting Patient Safety	20	40.0	30	60.0
Organizational Learning-Continuous Improvement	24	48.0	26	52.0
Management Support for Patient Safety	23	46.0	27	54.0
Overall Perceptions of Patient Safety	30	60.0	20	40.0
Feedback & Communication About Error	24	48.0	26	52.0
Communication Openness	26	52.0	24	48.0
Frequency of Events Reported	24	48.0	26	52.0
Teamwork Across Units	15	30.0	35	**70.0**
Staffing	41	82.0	**9**	**18.0**
Hand off & Transition	25	50.0	25	50.0
Non-punitive Response to Errors	26	52.0	24	48.0
Total	24	48.0	26	52.0

*** * Highly statistically significance p≤ 0.001** ***statistically significance p≤ 0.05**

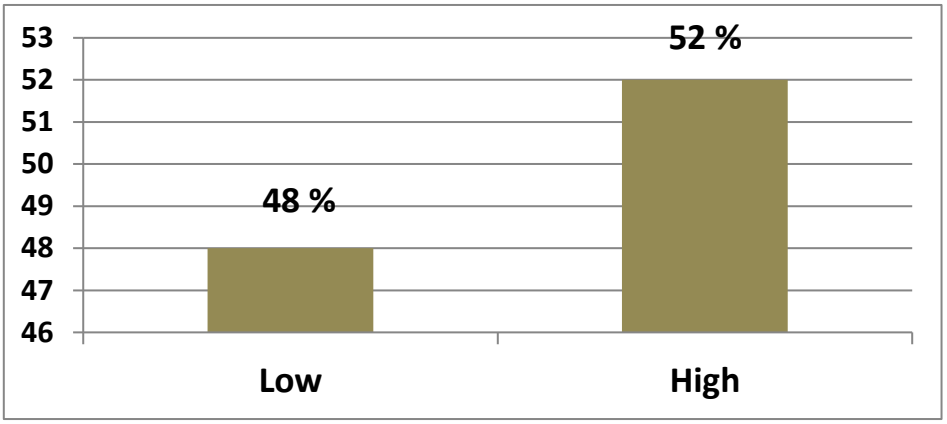

Figure (2): Percentage distribution of the studied nurse managers' regarding their total level of awareness about patient safety culture (n=50).

Table (4): Correlation between total nurses' mangers' perception about magnet hospital forces and total nurses' manager awareness about patient safety culture (n=50).

Scale	Total awareness about patient safety culture	
Total perception about magnet hospital forces	R	0.697
	p- value	0.000**

Discussion

Magnet hospitals demonstrate organizational attributes that provide nurses with the organizational support needed to fully realize and provide high-quality patient care when compared to non-Magnet hospitals. Magnet hospital status serves as an example of excellence, quality patient outcomes, and best practices so diligently sought in today's competitive healthcare environment. Hence, hospital type can be used as one way of understanding how nurse manager leadership traits and nurse clinical autonomy function **(El-Khateeb et al., 2022).**

Magnet hospitals have been recognized for their positive work environments that support nurse managers in delivering high-quality care of patients. One of the key components of a Magnet hospital is its focus on creating a culture of safety and quality care. This emphasis on patient safety culture is directly related to the Magnet hospitals forces, as these forces promote a culture of excellence, collaboration, and continuous improvement ***(Abuzied et al., 2022).***

Concerning nurse managers' perception about level of magnet hospital forces, the present study revealed that, more than half of nurse managers' had moderate level of perception about magnet hospital forces. This finding may be due to majority of nurse mangers' had bachelor degree in nursing that make them more understanding and oriented by the magnetism forces, and oriented that the process of achieving the magnet hospital designation becomes a roadmap for improving the quality of care in hospitals. Also, this finding may be due to nurse managers' have supported from leaders. In line with this result, **Mansour (2017)** who mentioned that the majority of head nurses have moderate level of magnetism.

Also, this study contradicted with **Gheith & Zakaria (2022)** who concluded that, high perception regarding total magnetism score of forces level among nurse managers'. This difference between two studies finding may be due to different settings and cultures.

Regarding nurse managers' total awareness level of patient safety culture, the present study revealed that more than half of the studied nurse managers' have high level of awareness about patient safety culture**.** This result in line with, **Abd Elrazik (2018),** who studied "Nurses' Awareness on Patient Safety Culture in Dar-El Shefa Hospital" and

indicated that The majority of the nurses had a positive total score of patient safety culture.

Moreover, the present study found that there were high statistical significant relation between total nurse managers' perception about magnet hospital forces and total nurse managers' awareness about patient safety culture; this may be due to nurse mangers' in hospitals are empowered to speak up about safety concerns, participate in quality improvement initiatives, and take an active role in improving patient outcomes.

This findings were in the same line with **Mohamed et al., (2018)** who found that there were positive correlations between all forces of magnetism and patient safety culture at Suez Canal University Hospitals. Also in the same line with, **Kvist et al., (2013)** who found that magnet work environment promotes patient safety. Also **Kutney-Lee et al., (2015)** found that magnet status results in significant improvements in nursing workplace and consequently patient safety. Finally, **Elsayed & Mohmoud, (2016)** reported that there is a strong positive correlation between total magnetism and patient safety culture. Contrary, **Trinkoff et al., (2010)** found that there is no significant different score in patient safety culture between nurses working in non-magnet and magnet hospitals.

Conclusion

In the light of the current study findings, it can be concluded that, there were high statistical significant relation between total nurse managers' perception about magnet hospital forces and total awareness about patient safety culture.

Recommendations

- Training sessions and open discussion organizing to improve nurse managers' awareness of patient safety culture.
- Providing In-service training programs for enhancing nurse managers' perception of magnet hospital forces.

Further studies are suggested:

- The relationship between magnet hospital forces and innovative work behavior among nurse managers'.

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