

## Distributive Leadership Practice and Managerial Knowledge Sharing among Nurse Managers: A mediator for Innovative Work Behavior among Nurses

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### Abstract

Distributive leadership practice based mainly on engaging experiences, skills and knowledge of those who are expert in different functional levels, thus, encouraging professionals to utilize their acquired knowledge and skills to develop new ways of working creatively. **Aim:** The current study aimed to determine the level of distributive leadership practice and managerial knowledge sharing from the nurse managers' perspective and whether its relations to innovative work behavior of the nurses. **Design:** Descriptive, correlational research design was used. **Setting:** All inpatient units (39 units) in Benha Hospital, Qalubia Governorate, Egypt. **Subjects:** All the nurse managers (n=63) and a convenience sample of the nurses working at the selected inpatient units at the hospital (no=172). **Tools:** 3 tools used for data collection: Distributive leadership practices Questionnaire, Managerial Knowledge Sharing Questionnaire, and Innovative Work Behavior Inventory. **Results:** Total mean score of distributive leadership practices from the studied nurse managers' perspective was (92.37±19.25) with a percentage (68.4%), total mean score of studied nurse managers regarding their managerial knowledge sharing was (45.93±8.79) with a percentage (76.6%), while the innovative work behavior among the studied nurses had a total mean score of (50.36±3.01) and a percentage (85.4%). **Conclusion:** Distributive leadership practice and managerial knowledge sharing were at moderate level, while nurses' innovative work behavior was at high level. In addition; there was a highly significant positive correlation between distributive leadership practice and managerial knowledge sharing. Moreover, there was a highly significant positive correlation between managerial knowledge sharing and nurses' innovative work behavior, however, there was no significant correlation between distributive leadership practice and innovative work behavior among nurses. **Recommendations:** Providing nurse managers with opportunities to participate in a situated leadership practice and engage in action learning groups that incorporate the concept of distributed leadership. Leaders in the organizations should encourage employees to the generation and implementation of innovative ideas through enhancing distributive leadership practice and managerial Knowledge Sharing.

**Keywords:** Distributive leadership practice, innovative work behavior, managerial knowledge sharing, nurses, and nurse managers

### Introduction:

Distributed leadership (DL) shifted the focus from the attributes and behaviors of leaders compared to other leadership theories to a more systematic perspective, whereby leadership is conceived of as a collective social process emerging through the interactions of multiple actors (*De Brun et al., 2019*). DL has become one of the recognized plural leadership in which leadership responsibilities are shared among different individuals throughout the organization and beyond its boundaries over time to achieve effective organizational outcomes (*Pearce et al., 2018*).

DL based on the idea that the role of formal leaders is less about leading from the front but rather is focused on enabling others to lead. Therefore, it helps to empower the individuals through contributing their ideas and expand the collective knowledge of the group and organization. Furthermore, DL promotes and supports the idea that every individual has an opportunity to demonstrate leadership. Therefore, distributed leadership is a practice whereby leadership is examined and organised in a way that is inclusive of all staff in the organization, while DL is regarded as important in health and social care, particularly when change and improvement are required. It further provides a means by which an organization can develop incorporating the skills and abilities of all members of an organization in the pursuit of its goals (*Gunzel et al., 2018*).

Key principles of DL include that: it encourages self-direction rather than external control. When employees work together it is expected they pool their initiative and expertise, therefore; the resultant energy is greater than the sum of their individual actions. DL does not replace formal leadership but rather it is based on trust in the expertise of individuals rather than direct management or regulation. DL encourages staff at all levels to work together in planning for and achieving outcomes. This includes staff being a part of change, systems improvement and continuous quality improvement (*Dambaruskiene, 2018*). *Youngs, (2014)* described four types of organizational capital as requirements for developing DL as follows: *Human capital* - expertise, skills and knowledge. *Cultural capital*-directed toward cultural practices, *Social capital*- networked relations, relations of trust, membership of a group, collective identity, *Authoritative capital* - authority and power granted for a role and the expectations associated with this.

Additionally, *Marles, (2017)* concluded that hierarchically based leadership was needed to complement a distributed approach to avoid creating confusion of who had the authority, the possibility of mixed messages, and conflicting expectations and demands. This was based on the need for a leader to provide focus, and be able to provide practical support and expertise, and managerial influence. *Fu & Liu, (2018)*, identified four key considerations when deciding how to utilize DL theory in practice in health and aged care. These were: mobilize agents of change

toward developing DL. Tailor leadership governance structures. Ensure visibility and accessibility of the organizational strategic plan and make explicit how operations align with and contribute toward achieving strategic goals. Understand the importance of understanding the characteristics of team dynamics needed to enact DL.

DL based mainly on the concept of engaging experiences, skills and even knowledge of those who are expert in different functional levels, therefore; it can be said that DL responsibilities can act as a mediator for knowledge sharing which related to providing employees access to relevant information and using knowledge networks within organizations. Sharing knowledge and task information among individuals refers to the social interaction that involve the interchange of related knowledge, experiences, and skills either through the provision of task information, know-how, or feedback regarding a practice or performance (Obrenovic et al., 2020).

Knowledge sharing is enhanced by fostering a culture that encourages the sharing of information, based on the concept that knowledge is not conclusive and should be shared and updated to remain relevant. Knowledge sharing might necessitate developing guidelines, contributing to research committees, seminars, journal clubs, and newsletters to update research skills. Nurses may engage in knowledge sharing activities through informal ways such as chatting in the coffee room and canteen, sharing experiences during nurse meetings, and through communicating online outside of working hours. Generally, by engaging in the previous knowledge sharing activities, it is predictable that the nurses become more innovative in general (Li-Ying et al., 2016).

Soniewicki et al., (2019) concluded several benefits could be gained from knowledge sharing including: makes the organization's best problem-solving experiences reusable and in all future situations, enhances the intra and interdepartmental communication among employees, it enables better and faster decision making based on the actual experiences of the members in the organization. Also it generates new ideas; through sharing different skills and experiences, and helps in developing faster and more relevant solutions to the current assignments and supporting individuals in successfully achieving their tasks (Wang et al., 2016).

Innovative work behavior is considered one of the fruitful benefits of knowledge sharing either for the managers themselves or for their subordinates. Innovation in nursing practice involves supporting professionals to generate and develop new ways of carrying out their assigned duties creatively based on their acquired knowledge and skills and drawing on technologies, systems, theories and associated partners/stakeholders that may further enhance and evaluate nursing practice (Ghazali & Amin, 2018). Additionally, innovative behavior in the context of nursing refers to developing unprecedented ideas and

putting effort to implement them with confidence, overcoming possible challenges to produce new procedures, treatment strategies, or policies for restoring and health promotion of patient or clients (Kim & Shin, 2015; Luke & Stephan, 2017). Innovative behavior worth exploration for its prospect to speed up the uptake of new practice and supporting nurse's use of research in practice and achieving better patient outcomes (Bunpin et al., 2016).

As noted by Kara, (2015), innovation occurs in order to meet a requirement/to fill a gap. By being innovative, nurses able to improve the quality and effectiveness of treatments and services as well improving the competitiveness and success of healthcare organizations. Afsaneh & Morteza, (2017) emphasized that innovative nurses are able to accept the new medical technology advancement, involve in identifying modern technology, are able to provide leadership in the development and dissemination of the new medical findings and work together as a team with other nurses. Thus, nurse innovation can be a good solution as they can encounter such changes and achieve its goals.

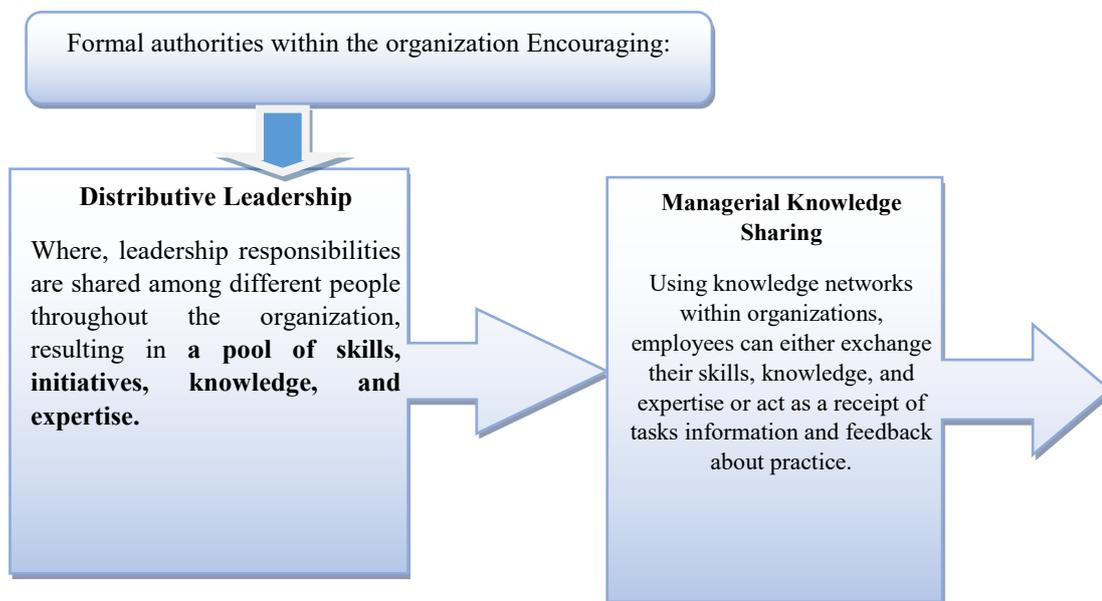
Innovation in the nursing practice plays an important role, in health promotion, disease prevention, identification of risk factors, maintenance, and management of the new information to be able to have qualified treatment methods and services findings. Moreover, the use of innovative strategies is among the key factors that directly enhance the quality of the services (Terzioglu, 2015). Nurses with a positive attitude toward developing new ideas can take part to improve and upgrade the capability of the existing healthcare system and develop a new treatment strategy for patients (Moreira et al., 2017).

Innovative behavior has eight key defining attributes including **Opportunity exploration:** includes activities such as discovery, search, creation, and running across the problems. **Idea generation:** involves recognizing the problem and developing creative solutions for these problems. **Idea search:** is based on searches of existing knowledge sources in the environment concerning diagnoses, symptoms, therapies, health-care procedures, and processes. **Idea communication:** in this stage, the employee communicates the idea to their managers. **Promotion of an idea:** where the employee has to convince the manager about the beneficial impact that the changes will have for the department and the further organizational effectiveness. **Idea championing:** includes anticipating problems and developing contingency plans, as well as obtaining funds and resources. **Application:** It involves making innovations a regular aspect of working processes, and it includes the emergence of new services or working practices. **Overcoming obstacles:** involves adopting the idea or implementation strategies till a product, service, or process has been enhanced (Asurakkody, & Shin, 2020).

#### Conceptual Framework:

Upon the previous literature, the authors claimed that the relationship among DL, managerial knowledge sharing, and innovative behavior of the staff is consecutive; which means, built on each other. When nurse managers themselves are encouraged and provided the opportunity to share their skills and experiences in leadership responsibilities. They are now able to share their knowledge up the hierarchy through engagement with institutional responsibility, informal leaders,

discipline and functional experts and down the hierarchy through guiding and coaching their staff who are eventually can be encouraged to share their ideas and suggestions, encourage people to look at problems from different perspectives, think outside the box when solving problems, encourage individuals to suggest novel ideas, and to find ideas in other fields that can be applied to their current problem or task.



***Proposed Conceptual framework of the relationship among the study variables.***

### Significance of the study:

Health care organizations are faced with different challenges that resulted in difficulty meeting the employee's expectations, additionally; the emergent issues posed may not be solved by a single leader on the top of the hierarchy as he/she may not have the constituents and information for making effective decisions regarding the raised problems or emergent change. Distributive leadership considers unprecedented leadership practice based on collaborative engagement of different knowledge, experience, and initiatives of the nursing leaders at different functional level (**Fu & Liu,2018**). The idea is not depending only sharing leadership responsibilities of those with different experience, however; there must be obligation among managers to share their knowledge, skills and experiences with their subordinates and make good use of that opportunity to act as a mediator for having inputs from their nurses, encouraging them to think creatively when solving problems. Therefore; it is imperative to adopt a leadership style where knowledge is shared and individuals are supported for more innovative behavior, ideas, and practices. Consequently, the aim of the current study is to determine the level of DL practice and managerial knowledge sharing form the nurse managers perspective and its relation to innovative work behavior of the nurses.

### Staff Innovative Behaviour:

Sharing task information or feedback about practice lead to generating novel ideas and putting effort to implement them with confidence, overcoming possible challenges to produce new procedures, treatment strategies, or policies for improving health care outcomes.

### Aim of work:

To determine the level of distributive leadership practice and managerial knowledge sharing form the nurse managers perspective and its relations to innovative work behavior of the nurses.

**Research Questions:**

1. What is the level of the distributive leadership practice from the nurse managers' perspective?
2. What is the level of managerial knowledge sharing from the nurse managers' perspective?
3. What is the level of innovative work behavior among the nurses?
4. Are there relations between distributive leadership practice, managerial knowledge sharing of nurse managers and innovative work behavior of nurses?

**Subjects and Methods**

**Design:** Descriptive, correlational research design was used.

**Setting:** All inpatient units (39 units) from medical, surgical departments and ophthalmology departments in Benha Hospital, Qalubia Governorate, Egypt.

- **Medical departments** which included 25 units divided into: (6) general medical units, pediatric (4 units), chest (2units),coronary care unit (3units),cardio-thoracic surgery(3units), neurological and psychiatric (2units), dermatology (1unit), ICU (1 unit),dialysis unit(1 unit), and rheumatic and rehabilitation (2units).
- **Surgical departments** which included 12 units orthopedic (2 units), female surgery(1 unit), obstetrics and gynecology(2 units), ear, nose,

throat (ENT)(1unit) , urology(2units), brain and nerves surgery(2units), emergency ICU (1unit), male surgery (1 unit).

- **Ophthalmology departments** including ophthalmology departments (2 units).

**Subjects:**

**First group:** consisted of all the nurse managers (n=63) from the above-mentioned setting.

**Second group :** Convenience sample of the nurses working at the selected inpatient units in above mentioned studied setting at the hospital (no=172) nurses out from (303) who had more than 2 years of experience, different genders and qualifications, and accepted to participate in the study.

**Data collection tools:** There were three tools used for data collection:

**Tool 1: Distributive Leadership Questionnaire:**

The tool was developed by the researcher using the benchmarks for DL (*Yukl et al.,2002; Jones et al., 2014*). The tool used to assess the level of the DL practice from the nurse managers perspective.

The tool had two parts:

**Part (1):** Demographic data of nurse managers including; age, gender, qualification, years of experiences, department, and if they assigned any leadership role outside their working units.

**Part (2):** Consisted of five domains: Engage, Enable, Enact, Assess and Emergent:

Domains	Original benchmarks items	Developed items by the researchers	Total
Engage	4 items	5 items	9 items
Enable	4 items	8 items	12 items
Enact	4 items	8 items	12 items
Assess	3 items	4 items	7 items
Emergent	3 items	6 items	9 items
<b>Total</b>	<b>18 items</b>	<b>31items</b>	<b>49 items</b>

**Scoring system of the tool:**

The nurse managers' responses on DL questionnaire were rated on three-point Likert scale (disagree=1), (neutral=2), and (agree=3). These scores were converted into percentage representing the level of DL practice in the hospital as follows: Low equal to 88 (<60%), moderate equal 88-110 (60%-75%), and high more than 110 point (>75%).

**Tool 2: Managerial Knowledge Sharing Questionnaire:**

It was adapted from *Wang and Noe (2010)*, modified and used by *Ahmed, (2018)*, then adopted by the researchers in the current study to assess knowledge sharing among nurse managers, their superiors and subordinates. It comprised of (20) items. These items were grouped under two dimensions as follows:

- Individual knowledge sharing (13 items).

- Organizational knowledge sharing knowledge sharing (7 items).

**Scoring system**

Nurse managers' responses were measured on a 5-point Likert scale ranging from "(Strongly agree=5), (agree=4), (Neutral=3), (Disagree=2), (Strongly disagree=1)". These scores of items were summed-up and total divided by number of the items, giving a mean score of the part. These scores were converted into a percent score, the knowledge sharing level was considered high if the percent score was >80%, moderate if the percent score was 60-80% and low if the percent score was less than< 60%. (*Wang and Noe 2010 ; Holste and Fields 2010*).

**Tool 3: Innovative Behavior Inventory:**

The tool originally developed by *Lukes & Stephan, (2017)*, modified and used by *Abd Elfattah,*

(2019), then adopted in the current study to assess innovative behavior among nurses. The tool composed of 23 items categorized under 7 dimensions as follows:

Items	Number
Idea generation	3 items
Idea search	3 items
Idea communication	4 items
Implementation and starting activities	3 items
Involving others	3 items
Overcoming obstacles	4 items
Innovation output	3 items
<b>Total</b>	<b>23 items</b>

#### Scoring system of the tool:

The responses of the nurses were rated on 5-point Likert scale (always, sometimes, often, rarely, and never) scored from 5 to 1 respectively. The total scores were converted into percentage. The score of 60% equal 69 point or higher indicated a high innovative behavior, while the scores less than 60% equal 69 point indicated low innovative behavior. (Abd Elfattah, 2019).

#### Validity of the tools:

Distributive leadership tool was examined for face and content validity through a jury of five experts in nursing management which are Professors in Nursing Administration from Faculty of Nursing (two professors from Tanta University, three Professor from Menoufia University) Based on this jury, some items were rephrased, then the tool was translated into Arabic to fit the study, finally the tool was back translated into English to ensure conformity of items after being translated. Validity of managerial knowledge sharing and innovative behavior tools were tested in the study by Ahmed, (2018) and Abd Elfattah, (2019).

#### Pilot Study:

Before actual data collection, pilot study conducted by the researchers by distributing questionnaires on 10% of each group of the study sample from different clinical areas was (23) 6 nurse managers and 17 nurses who were not included in the main study sample to ascertain clarity and applicability of the study tools and to determine obstacles that may be encountered during data collection.

#### Reliability of the tools

The tools were tested to reliability by measuring their internal consistency using Cranach's alpha coefficient method. This turned to be ( $\alpha = 0.89$  for Distributive leadership questionnaire tool I; ( $\alpha = 0.93$ ) for managerial knowledge sharing questionnaire tool II and ( $\alpha = 0.72$ ) for innovative behavior inventory tool III. Thus indicated a high degree of reliability for the study tools.

#### Ethical consideration:

The authorization to conduct the current study was granted by securing a letter of approval to the director of the hospital and nursing director at which study was conducted. The participants were asked orally for their participation approval. The researchers clarified to the participants that their participation in the study was optional and they were able to withdraw from the study at any time. Additionally, research subjects' anonymity and confidentiality were secured by explaining to subjects that, no names on the questionnaires were written and all information was required for research purpose only.

#### Procedures of data collection:

A written official approval to conduct this research was obtained from the faculty dean of Nursing at Benha University that was taken and delivered to the director of Benha University Hospital, in order to obtain their agreement to conduct the study after explaining its purpose. Informed consents were obtained from selected nurse managers and nurses and the aim of the study was explained to them. The data collection started from the beginning of January (2021) to the end of March (2021) covering a period of three months. 3 days per week. Moreover, at this time, the questionnaires were distributed during nurse managers and nurses work hours (morning and afternoon shifts) and took 2-3 nurse managers and 5-6 nurses from each unit to avoid patient care interruption. Time needed to complete questionnaires sheet (15:20) minutes.

#### Data analysis:

A compatible personal computer was used to store and analyzed data. The Statistical Package for Social Studies (SPSS), version 25 was used. Descriptive statistics were applied such as Frequency, percentage distribution; mean and standard deviation. Correlation between variables was evaluated using Pearson's correlation coefficient ( $r$ ). Significance was adopted at  $p < 0.05$  for interpretation of results of tests of significance.

#### Results:

**Table 1:** illustrates frequency distribution of the studied nurse managers regarding their personal and job characteristics. As revealed from the table, more than two-fifth of the studied nurse managers (44.4%) their age were from 30<40 with mean  $\pm$ SD 32.97 $\pm$ 6.29, and (58.7%) working in medical departments. While, the highest percentages of studied nurse managers (88.9% & 76.2%) were females and single respectively. As regard to education qualifications (58.7% & 47.6%) had Bachelor degree with 6-10 years of experience respectively with mean  $\pm$ SD 9.25 $\pm$ 4.41 and (52.4%) of them didn't assign distributive leadership role outside their working.

**Table 2:** Shows that mean score of distributive leadership practice from the studied nurse managers perspective. As displayed in the table, the total mean score was (92.37 $\pm$ 19.25) with a percentage (68.4%) (moderate level) In addition, the highest mean percentage score was (74.2%) for "assess" dimension

and the lowest mean percentage score was (66.1%) for the " emergent " dimension.

**Figure 1:** presents the percentage level of distributive leadership practices from the studied nurse managers perspective. As displayed in the figure almost two fifth of the nurse managers (39.58%) reported that moderate level of distributive leadership practice was encouraged.

**Table 3:** illustrates the total mean score of managerial knowledge sharing from the studied nurse managers perspective. As revealed from the table the total mean score of managerial knowledge sharing among the studied nurse managers was (45.62±8.89) with a percentage (76.03%). (Moderate level). In addition, the highest mean percentage score was (78.5%) for " organizational knowledge sharing " dimension and the lowest mean percentage score was (74.68%) for " Individual knowledge sharing " dimension .

**Figure 2:** displays the percentage level of managerial knowledge sharing from the studied nurse managers perspective. As shown in the figure more than two fifth of nurse managers (44.4%) reported moderate level of managerial knowledge sharing.

**Table 4:** Shows that three quarter of the studied staff nurses (75%) their age were from 20 <30 with mean ±SD 29.62±8.15, and (68.6%) working in medical departments. While ,the highest percentages of studied staff nurses (74.4%) were females and equal marital

statuses (50%) .As regard to education qualifications (65.7 % & 45.9%) had technical institute with 6-10 years of experience respectively with mean ±SD 7.28±5.15.

**Table 5:** reveals that total mean score of studied nurses regarding their innovative work behavior was (50.37±3.01) with a percentage (76.31%). (High innovative work behavior). In addition, the highest mean percentage score was (81.33%) for "Idea generation" dimension and the lowest mean percentage score was (73.06%) for "overcoming obstacles "dimension.

**Figure 3:** shows the percentage level of innovative work behavior among the studied staff nurses as presented in the figure, less than half of staff nurses (47.7%) reported moderate level of innovative work behavior while ,(11.0%) had lowest level of innovative work behavior.

**Table 6:** displays the correlation between the studied variables among the studied subjects as shown in the table, there was a highly significant positive correlation between total distributive leadership practice and total managerial knowledge sharing at ( $P \leq 0.001$ ). In addition, there was a highly significant positive correlation between total managerial knowledge sharing and total nurse's innovative behavior at ( $P \leq 0.001$ ). .While, there is no statistically significant correlation between total distributive leadership practice and total nurses innovative behavior at ( $> 0.05$ ).

**Table (1):** Percentage distribution of studied nurse managers regarding their personal and job characteristics (n=63)

Personal and job characteristics	No	%
<b>Age(year)</b>		
From 25 < 30	23	36.5
From 30 <40	28	44.4
≥40	12	19.0
<b>Min –Max</b>	24-48	
<b>Mean ±SD</b>	32.97±6.29	
<b>Departments</b>		
Medical	37	58.7
Surgical	26	41.3
<b>Gender</b>		
Female	56	88.9
Male	7	11.1
<b>Marital status</b>		
Single	48	76.2
Married	15	23.8
<b>Educational qualifications</b>		
Associate Degree in Nursing	14	22.2
Bachelor degree	37	58.7
Master/Doctoral degree	12	19.0
<b>Years of experience</b>		
>2-5	6	9.5
6-10	30	47.6
11-20	17	27.0
>20	10	15.9
<b>Min-max</b>	1-24	
<b>Mean ±SD</b>	9.25±4.41	
<b>Do you distribution leadership role out of unit role</b>		
Yes	30	47.6
No	33	52.4

**Table (2):** Mean score of distributive leadership practices from the studied nurse managers perspective (n=63)

Distributive leadership practices dimensions	Max	Mean	±SD	Mean score
Engage	24.00	15.94	±4.77	66.40
Enable	33.00	21.71	±5.35	65.80
Enact	33.00	22.73	±5.78	68.88
Assess	21.00	15.59	±3.93	74.23
Emergent	24.00	15.87	±4.88	66.14
<b>Total</b>	<b>135.00</b>	<b>92.37</b>	<b>±19.25</b>	<b>68.40</b>

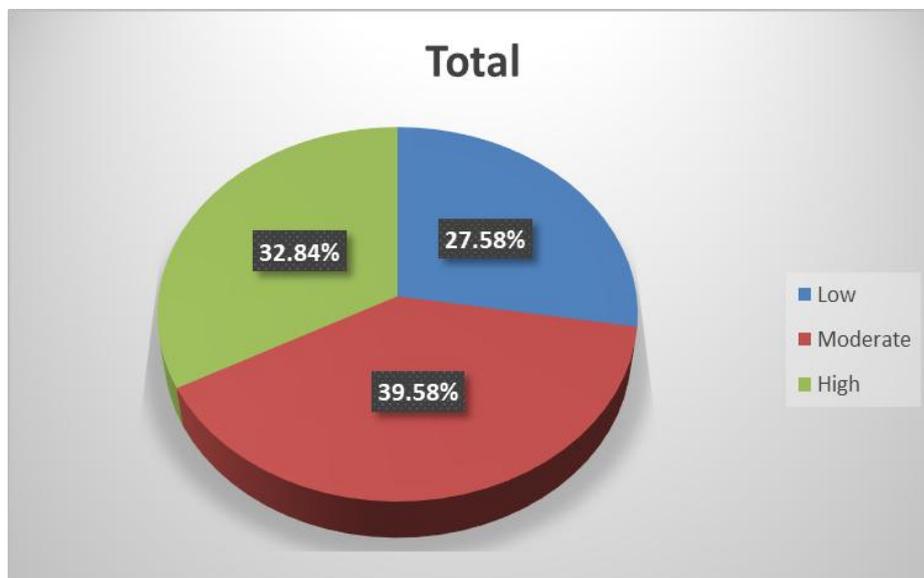


Figure (1): percentage level of distributive leadership practice from the studied nurse managers perspective.

Table (3): Total mean score of managerial knowledge sharing from the studied nurse managers perspective (n=63)

knowledge sharing dimensions	Max	Mean	±SD	% score	Ranking
Individual knowledge sharing	39.00	29.13	±5.89	74.68	2
Organizational knowledge sharing	21.00	16.49	±3.54	78.53	1
<b>Total</b>	<b>60.00</b>	<b>45.62</b>	<b>±8.89</b>	<b>76.03</b>	

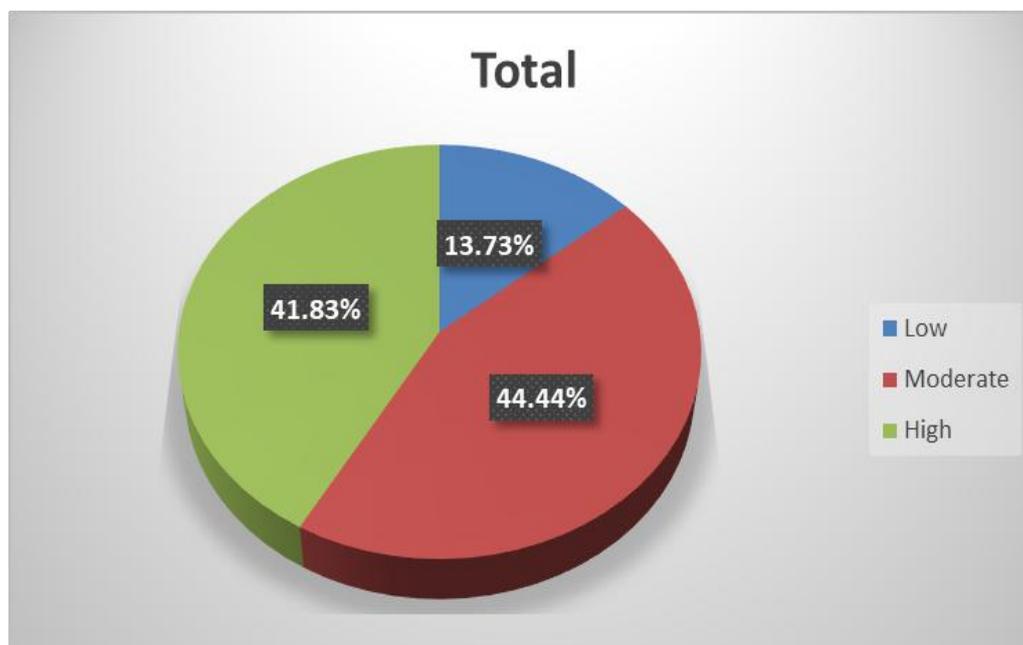


Figure (2): Percentage level of managerial knowledge sharing from the studied nurse managers perspective (n=63)

**Table (4):** Percentage distribution of studied staff nurses regarding their personal and job characteristic (n=172)

Personal and job characteristic	No	%
<b>Age(year)</b>		
From 20 <30	129	75.0
From 30 <40	15	8.7
≥40	28	16.3
Min –Max	20-56	
Mean ±SD	29.62±8.15	
<b>Department</b>		
Medical	118	68.6
Surgical	54	31.4
<b>Gender</b>		
Female	128	74.4
Male	44	25.6
<b>Marital status</b>		
Single	86	50.0
Married	86	50.0
<b>Education qualifications</b>		
Diploma in Nursing	33	19.2
Associate Degree in Nursing	113	65.7
Bachelor Degree	26	15.1
<b>Years of experience</b>		
>2-5	52	30.2
6-10	79	45.9
11-20	14	8.1
>20	27	15.7
Min-Max	1-28	
Mean ±SD	7.28±5.15	

**Table (5):** Total mean score of innovative work behavior among the studied nurses (n=172)

Innovative work behavior dimensions	Max	Mean	±SD	%score	Ranking
Idea generation	9.00	7.32	±0.86	81.33	7
Idea search	9.00	6.87	±0.90	76.29	5
Idea communication	12.00	9.46	±0.95	78.83	6
Implementation starting activities	9.00	6.68	±1.21	74.22	3
Involving others	9.00	6.62	±0.74	73.58	2
Overcoming obstacles	9.00	6.58	±1.09	73.06	1
Innovation outputs	9.00	6.84	±0.74	76.03	4
<b>Total</b>	<b>66.00</b>	<b>50.37</b>	<b>±3.01</b>	<b>76.31</b>	

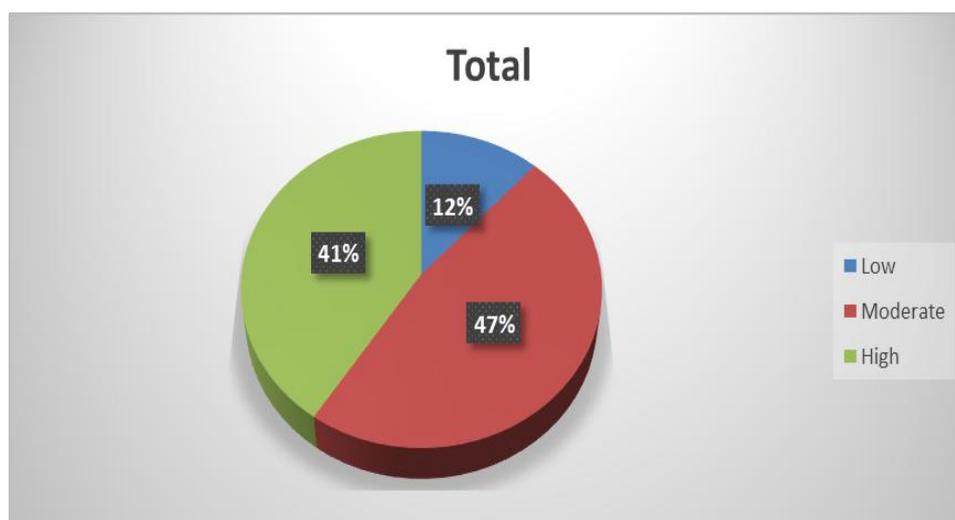
**Figure (3):** Percentage level of innovative work behavior among studied nurses (n=172)

Table (6): Correlation between the studied variables among the studied subjects

Variables		Total Total Total distributive leadership practice	Total Total Total managerial knowledge sharing	Total nurses Total innovative work behavior
Total distributive leadership practice	r	1	.474	.127
	p		.000**	.321
Total managerial knowledge sharing	r	.474	1	.302**
	p	.000**		.000**
Total nurses innovative behavior	r	.127	.302**	1
	p	.321	.000**	

\*\*A highly statistical significant difference ( $P \leq 0.001$ ), > 0.05 none statistically difference significant

## Discussion

The interest of applying (DL) within healthcare has started recently, which is now widely acknowledged to be the responsibility of everyone within the organization, and a distributed culture of leadership is encouraged throughout the organization. By moving personnel in and out of leadership positions, an organization can tap the leadership potential that exists in individual leaders should be selected based on what attributes, behaviors, experience, knowledge, skills, and the potential they bring to the table on propitious occasions (Unterrainer et al., 2017).

Therefore, the aim of the current study was to determine the level of distributive leadership practice and managerial knowledge sharing from the nurse managers perspective and its relations to innovative behavior of the nurses.

The current study findings were interpreted in the light of the research questions as follows: The first research question stated about the level of the DL practice from the nurse managers' perspective. The results in the current study indicated that; The total mean score of DL practice from the studied nurse managers perspective was (92.36±19.24) with a percentage more than two third (Moderate level). **The current findings might be justified** according to Heikka et al.,(2019) who noted that the level of DL requires consideration as it is not just sharing of tasks in an organization, but involves a kind of collaboration that necessitates deeper levels of interaction between individuals working through shared goals. However, there is a difficulty to work through a shared vision and strategies. Also, individuals' skills, attitudes, and interests in the development and the ability to lead a team were pivotal. Therefore, it is paramount to help members of the organizations to understand the meaning of DL through meaningful professional learning, and development and developing a workplace environment that encourages mutual reflection for achieving shared visions.

Additionally, Barattucci et al., (2020) concluded that; DL cannot be simply thought of as an alternate for individual leadership, however rather as an important supplement that facilitates and encompasses both individual and collective dimensions. DL is neither guarantee of improved performance, nor a remedy for

success; on the contrary, much based on how the leadership is distributed and the intentions of active involvement of the individuals. In the same line; West et al.,(2015) claimed that healthcare organizations are very hierarchical organizations and operate within classic 'command and control' models of leadership.

Moreover, De Brún et al., (2019) found that implementation and sustainability of DL practice without organizational resources, support, or commitment is risky to succeeded. Thus, it seems for such collectivistic approaches to be implemented successfully, there is a necessity to work through and within the relevant hierarchies to first get support for implementation.

In contrast, the findings of Halttunen, (2016) revealed that leadership was enforced based on the principles of DL where the staff and the day-care centre director cooperatively took the responsibility for their organization. Moreover; the relationship between the director and the staff was interactive and there was a willingness to share the tasks and duties of the director. Also, Jonsson et al., (2016) stated that DL involves three leadership behavior, (task-oriented, relationship-oriented, and change-oriented) which are appropriate for application to different organizational settings and appear at various levels of an organization. The DL also includes interactions both among and between the leaders and employees without formal leadership roles. Consequently, DL allows for and may encourage emergent, spontaneous, bottom-up initiatives.

As regard to the second research question about the level of managerial knowledge sharing from the nurse managers perspectives; the present study findings showed that, total mean score of studied nurse managers regarding their managerial knowledge sharing was (45.93±8.79) with a percentage more than tree quarter had (Moderate level). In addition, the highest mean percentage score and ranking for "organizational knowledge sharing " dimension and the lowest mean percentage score with low ranking for " Individual knowledge sharing " dimension.

The previous results could be justified that knowledge sharing is enhanced by fostering a culture that encourages the sharing of information, based on the concept that knowledge is not irrevocable and should be shared and updated to remain relevant. level

of knowledge sharing can be differed by characteristics of the organization and nature of working environment.

In agreement with the current study findings **Diab & Eldeeb,(2020)** who found that more than half of nurses had a moderate level of knowledge sharing behavior. Additionally; **Asemahagn,(2014)** reported that only half of the nurses actually shared their knowledge and experiences with their colleagues and the majority of health professionals acknowledged the importance of knowledge-sharing practice in their hospitals. Also, **Mather & Cummings, (2017)** emphasized the importance of the supervisors' roles regarding developing healthcare communities where people have the opportunity to ask questions and discuss information related to their healthcare problems and concerns. Additionally, **Dammaj et al., (2016)** concluded that the modern challenges facing hospitals imply that the healthcare sector requires more efficient and effective approaches towards information and knowledge management. Moreover, the success of any organization to a great extent depends on knowledge-sharing.

In the same line, **Kim et al, (2015)**, concluded that knowledge sharing of individuals might be facilitated by the supervisor's cooperative and ethical behavior. Moreover, the supervisors should provide the necessary resources in order to encourage knowledge-sharing by employees. Furthermore, the findings of **Shehab, et al., (2019)** provide an important insight that the knowledge-sharing behavior of nursing supervisors could be improved by improving their ability to share knowledge.

In contradiction of these findings **Ahmed, (2018)** found that more than three-quarters of nurses had a high level of sharing knowledge. Also, **Li-ying, et al., (2016)** stated that there was an increasing pressure on ICU nurses to provide high-quality care, which may be achieved through better communication and increased knowledge sharing.

According to the current study findings; organizational knowledge sharing had high mean percentage score more than three quarter than individual knowledge sharing with a mean percentage score less than tree quarter .According to the researchers' point of view; knowledge sharing practice at the organizational level occurs most frequently where the structure is centralized and hierarchical rather than knowledge sharing at the individual level that requires a flexible, decentralized organizational structure represented in DL roles and responsibilities. In the same vein, **Pai & Tsai, (2016)** who found that; to secure knowledge sharing practices; it is necessary to create an organizational environment that emphasizes mutual interest, trust, and openness. Moreover, the organizational structure should be designed to promote flexibility as a means of encouraging collaboration and sharing within and across organizational boundaries and stakeholders.

With reference to nurses' innovative work behavior, the results of the current study revealed that the studied nurses had (high innovative behavior) with

total mean score ( $50.36\pm 3.01$ ) and a percentage more than four fifth While, the study by **Abd Elfattah, (2019)** results revealed that more than half of nurses had high agreement upon innovative work behavior. This result was in contrast with **Jung & Yoon, (2018)** whose study showed a moderate level of innovative behavior. Also, **Diab & Eldeeb, (2020)** revealed that the highest percentage of study subjects had perceived a moderate level of innovation behavior. These findings may be regarded to the personal characteristics of nurses that support innovative behavior beside organizational characteristics that provide the employees the opportunity to show their innovative abilities and inspire them to high levels of creativity.

Consequently, **Abo Gad, (2018)** recommended that it is paramount for the organizations to create a positive work practice environment represented in; supportive management, openness to novel ideas, and promoting thinking to enhance nursing staff innovative behavior. Additionally, **Xerri & Reid, (2018)** claimed that; despite the importance of innovations, nurses were reluctant to implement innovations in clinical practice because nurses were more concerned about their service performance rather than to perform beyond their routine. In addition, the absence of innovative behavior among nurses was due to limited knowledge and skills regarding information technology thus causing resistance. Moreover, **Asurakkody & Shin, (2018)** recommended that nursing leaders are responsible for encouraging the nurses to practice with higher levels of innovation.

Regarding the ranking of innovative work behavior dimensions; the highest mean percentage score was more than four fifth for the "Idea generation" dimension and the lowest mean percentage score was less than three quarter for the "overcoming obstacles "dimension. That result was in contrast with the study conducted by **Abd Elfattah, (2019)** indicated that the innovation outputs dimension had the highest mean score as perceived by nurses. Moreover, the study conducted by **kamel & Aref, (2017)** found that idea championing and idea implementation was the highest mean score among innovative behavior dimensions. The current study results could be justified as the organization provide their employees with the opportunity for innovation and encourage them to communicate their innovative ideas. On the other hand, overcoming obstacles had the lowest mean score among innovative work behavior dimensions. This result could be explained with that most employees can give great innovative ideas but had no plans for implementation of these ideas and don't take the appropriate measures to put these ideas into action.

In the light of the proposed conceptual framework that defined the nature of the relationship among study variables as follow when nurse managers themselves are provided the opportunity to share their skills and experiences in leadership responsibilities, they are now able to share their knowledge up the hierarchy and down the hierarchy through guiding and coaching their staff who in turn are encouraged to share their ideas and

suggestions, look at problems from different perspectives, think outside the box when solving problems, suggest novel ideas, and to find ideas in other fields that can be applied to their current problem or task.

The current study finding supported this conceptual framework as there was a highly significant positive correlation between total DL practice and total managerial knowledge sharing. Moreover, there was a highly significant positive correlation between total managerial knowledge sharing and total nurses innovative behaviour.

In the same line; *Bozoğlu, (2016)* claimed that DL can be a great opportunity to start an organizational change process based on a distributed perspective that increased collaboration, communication, and interaction among the staff. From that perspective, leadership teams who are collected based on their knowledge, expertise in different functional areas and interest accelerated the transformation process within the organization. These leadership teams must not function as means of delegation but should be given autonomy, responsibility, and accountability for their actions in order to maximize the potential creativity and staff involvement.

According to *Salmon et al., (2020)*; DL approaches enabled a sharing of resources and knowledge between services and sectors and supporting new partnerships that were necessary for resourcing this new integrated approach to care. Also, *Günzel-Jensen et al., (2018)* identified the requirements for DL including; Individuals work together to gather their initiative and expertise to produce outcomes that are greater than the sum on their own individual actions. Also, leadership tasks are shared based on numerous, distinct, and relevant perspectives.

In the same line, *Kim & Park, (2017)* concluded that individual knowledge sharing directly affected individual innovative behaviors. This result was congruent with *Asurakkody & Kim (2020)* who found a strong correlation between knowledge sharing behavior and innovative work behavior. Also, *Wang & Hu (2020)* claimed that knowledge sharing was a mediator between collaborative innovation and organizational performance, moreover; *Belso & Diez (2018)* firmed that employees' involvement in knowledge networks increases their innovative capacity. In addition, *Podrug et al., (2017)* noted that knowledge sharing increased innovative capability. Moreover, *Hu & Zhao (2016)* recognized that there was a positive effect of knowledge sharing behavior on the innovative work behavior of individuals.

In the same line with *Li-Ying et al., (2016)* who found that sharing knowledge among nurses was positively correlated to individual nurse innovation. Furthermore, *Kim & Park, (2017)* found that in the general hospital knowledge sharing at the organizational level impacted nurses' innovative behaviors. *Mannan et al., (2017)* concluded that the generated ideas could be supported through knowledge sharing behavior which promoted the exchange of co-workers' and

experts' clarifications, validations, and feedback. The previous supporting results could be justified inconsistent with *Vandavasi et al., (2020)* who suggested that sharing knowledge among the workers predisposed them to adopt behaviors that permit them to learn and helps them acquire new skills for innovation. Additionally, *Fayyaz et al., (2021)* indicated that employees think creatively once they are involved in knowledge donating and knowledge collecting activities, which leads to the creation of novel ideas, superior products/services, and novelty in operational methods.

These findings contrast those in *Kang & Lee, (2017)* who found no relation between knowledge sharing and innovative behavior. Also, *Zhao et al., (2021)* concluded that there was no direct impact of sharing knowledge on organizational innovation.

According to the correlation between DL and innovative work behavior, the current study conceptual framework displayed this relation indirectly and proposed DL as a mediator for sharing the knowledge which may consequently boost innovation among nurses. however, the current study results showed that there was no significant correlation between DL and innovative work behavior among nurses.

This result could be justified that; sometimes managers did not have enough time to facilitate knowledge sharing and stimulate innovative ideas however, they were obligated to act according to certain policy, rules and regulations which later disseminated to their staff and asking them to act according to these rules and limit their opportunity and autonomy to develop innovative ideas and skills. Therefore, DL could boost innovative work behavior of the staff only under certain conditions when keeping individuals acting autonomously according to their pace.

In the same vein; the study findings of *Li-Ying et al., (2016)* indicated that acting according to strict guidelines and care protocols in Intensive Care Units was not only weakened the innovation behavior but actually inverts the positive relationship between knowledge sharing and innovation. The utilization of guidelines threatens the autonomy and experience-based thinking of health care professionals. Also; knowledge sharing was related to innovation, but only under certain conditions. Therefore, the current study results of highly innovative work behavior could be related to other factors than DL among nurse managers.

The current findings supported by *Weng et al., (2015)* who translated the positive effects of knowledge sharing on innovative work behavior in a way that shared knowledge and experiences are employed to make progressive improvements of the current processes and operations rather than launching boundary-breaking initiatives and trying out new approaches in care provision. Moreover, *Bouwman et al., (2019)* concluded that; in order to stimulate positive outcomes and innovative behavior among workers in the organizations, managers may benefit from training in DL strategies, to better manage groups with common objectives and goals, add roles and responsibilities,

empower assistant leaders, design group models with clear role definitions, increase the number of assistant leaders, and coach and facilitate teams to work in a democratic way.

On contrary, *Jönsson et al., (2016)* revealed that there was a significant relationship between DL Agency and innovative behavior. In addition; *Ottson, et al.,(2017)* concluded that encouraging employees to participate in leading tasks, relations and change in workplaces would strengthen innovation at the workplace. Moreover, *Jönsson et al., (2021)* found that empowering leadership and work self-efficacy were positively related to distributing leadership, which, in turn, was also related to more innovation. The results may imply that nursing managers can boost workplace innovative behavior through adopting an empowering leadership style that supports nurses' self-efficacy and distributes leadership tasks.

The last study results finding contradicted by *Çoban & Atasoy,(2020)* who recognized that DL impacted organizational innovativeness through teacher collaboration. Also, concluded that when school principals displayed DL behavior, they could develop a supportive and collaborative climate that encouraged teachers to develop new ideas for teaching, to be open to change, improved their problem-solving strategies, and created an exchanging atmosphere where they shared their practices with each other.

### Conclusion:

The current study concluded that distributive leadership practices was at moderate level from the nurse managers' perspective. In addition, managerial knowledge sharing according to nurse managers' perspective was at moderate level, where; the highest ranking was for "organizational knowledge sharing" and low ranking was for "Individual knowledge sharing" dimension. As regard to nurses' innovative behavior, the studied nurses had high innovative behavior. Also, the current study finding revealed that there was a highly significant positive correlation between total distributive leadership practice and total managerial knowledge sharing. Moreover, there was a highly significant positive correlation between total managerial knowledge sharing and total nurses innovative behavior, however, there was no significant correlation between DL and innovative work behavior among nurses.

### Recommendations:

- Providing nurse managers with opportunities participate to in a situated DL and engaged in action learning groups that incorporate the concept of distributed leadership.
- Health care organization should develop a culture in which all the actors of the system are eager to participate in leadership activities then recognized and appreciated for their achievements in leadership roles.

- Conducting training program for the nursing personnel about distributive leadership practice and its effect on knowledge management.
- Leaders in the organizations should encourage employees to the generation and implementation of innovative ideas through enhancing distributive leadership practice and managerial knowledge sharing.
- Further research is recommended to determine factors affecting staff innovative work behaviors and how distributive leadership can boost innovative behavior of subordinates.
- Further research is recommended to explore under what conditions managers are willing and able to share in leadership of health services, particularly when the incentives to do so remain ambiguous.

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