Innovative Work Behavior and Its Relation to Knowledge Sharing among Nurses at Zagazig University Hospitals

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Abstract

Background: Hospitals are a knowledge-based environment due to speedily changing medical technologies and demanding knowledge and skillful capital. So, it requires a skillful nurse who is active and can be receptive to new ideas. Thus, knowledge sharing plays a remarkable role in innovation that creates a change in new knowledge and innovative behavior. **Aim of the study:** was to investigate the relationship between knowledge sharing and innovative work behavior among nurses at Zagazig University Hospitals. **Subjects and Methods: Research design:** A descriptive correlational research design. **Setting:** The study was conducted in all Zagazig University Hospitals, Asharqia, Egypt. **Subjects:** Two types of samples were utilized: 1) A stratified random sample of 375staff nurses and 2) A convenient sample of 100 head nurses who assess the level nurses' innovative work behavior **Tools of data collection:** Data were collected by using a knowledge sharing scale, innovative work behavior scale. **Results:** Indicated that 71.8 % of studied nurses had a moderate level of innovative work behavior. Additionally, (74.1 %) of studied nurses had ma oderate level of knowledge sharing. **Conclusion**: there was sa ignificant and direct association between knowledge sharing, nd innovative work behavior among nurses. Furthermore, nurses' knowledge sharing was a positive significant predictor of innovation work behavior among nurses. **Recommendations:** Nurse Managers should develop strategies to improve nurses' level of knowledge sharing and innovative work behavior. Also, staff nurses should learn how to work proactively, and make a difference at work for problem recognition and improve innovative behavior.

Keywords: Innovative work behavior, Knowledge sharing, Nurses.

Introduction:

Nurses play a perilous role in the health care organization and in making good patient care. Nurses spend many times interrelating with patients and talking with them. Nurses execute procedures, collaborate with clinicians and other healthcare providers, evaluate patients, and aid them address difficulties. So, nurses must be capable in the area of novelty to do so efficiently **(1).**

Creativity and innovation can be equated on numerous levels. First, in terms of outcomes, creativity means the creation of novel and valuable ideas, whereas innovation means the effective implementation of these ideas. In terms of the creative process, it is a stone for novelty, but innovation may or may not track the inspired process. In terms of agents, creativity is for the individual level, while novelty is for the general structural level **(2).**

Innovative performance was organized into three classes: structural features, work conservational principles, and Individual features. Structural features include advanced climate, technical justice, salary, learning association, prize equality, feedback on preceding innovative behavior, and management behavior. Work conservational principles include job-specific involvement, nursing involvement, subject certification, and team workplace relationship. Individual features include socio-demographic issues like age and education level; fussiness; nurses' inspiration; nurse risk-taking conduct; and individuals' litheness **(3)**.

Innovative Work Behavior (IWB) is partial by the lack of capitals and other influences at individual operative level such as denotation of work, boredom and individual growth. At a team level (IWB) is wedged by team procedures like support for innovation, visualization and task direction and external message. These factors are adjusted by

hospitals that will allow growth of nurse IWB [4]. Furthermore, IWB was unfair by co-worker funding, workplace pleasure, job pressure ; Management, workgroup, individual provenance; personality characters; job demand, reward justice [5].

Knowledge Sharing leads to inspiration and innovation that changes new work approaches, new actions, modifies in traditional means, and makes the hospital produce and complete better [6]. The implementation of information sharing may be different as structural style [7].

Knowledge starts from information which encompasses of positive facts and numbers. If data are planned within some situation, it becomes information, and with experiences, judgments and act, it finally converts to knowledge [8]. Knowledge is defined as an individual's involvement and thoughtful that can be interconnected and shared [9]. Also, in nursing, knowledge has been described as the community repetition of expressive that knowledge is created in the framework of a community and present in the form of usually shared languages. Hospitals change communication methods to improve knowledge among a group of persons. It also inspires others with comparable backgrounds and comforts to share their involvements. [10].

Innovation emerges when individuals exchange and associate their own knowledge with one another, knowledge sharing (KS) is critical for hospitals to enhance skills and capacities, increase costs, and stay competitive [11]. Knowledge exchange, such as information, practices, tactics, innovation, ideas, goals, insights, or expertise, is defined as the social contact through which knowledge, such as information, practices, tactics, innovation, ideas, goals, insights, or expertise, is exchanged among people, peers, or organizations through some form of communication [9].

Many factors influence knowledge-sharing practices, including human characteristics such as demographics (such as age and gender). Individual capabilities, on the other hand, relate to an individual's skills, knowledge, dedication, expertise, and talents as a way of achieving certain objectives. Individual capacities have been depicted as important factors of information exchange [12]. The information-sharing habit is also influenced by the features of groups and organizations [13].

Knowledge-sharing tools are used to make knowledge more accessible, improve communication, eliminate double documentation, and, in the long term, improve the quality of healthcare services. Knowledge sharing can take place in a variety of ways, including technological/information communication technologies and non-technological techniques [14]

The process of knowledge sharing is divided into two parts: donating and collecting. Knowledge donation: It refers to the readiness of health care professionals in organizations to give and share their knowledge with others through listening and talking to others in order to improve their self-awareness and solve problems more rapidly. The receiver of information must consult colleagues by watching, listening, or practicing from internal and external sources, as well as encourage them to share their intellectual capital [9].

Knowledge sharing boosts work performance, builds intellectual capital, improves individual and organizational competitiveness, and lowers operating expenses. Knowledge sharing that is properly implemented can lead to product innovation. Nurses can connect with other sources/ people and get fresh information, experience, and ideas that they would not have access to within the company while giving their knowledge [9].

Significance of the study:

Hospitals are facing many challenges such as personnel variety, nationwide and worldwide competition, innovations, new management, and globalization [15]. The collective knowledge generates boosts the nurse's innovative behavior, so failure to share knowledge may lead to Lack of innovation and decisions will be taken slower. So, organizations are now motivating their employees to generate and implement new ideas that may improve overall service quality and performance [16]. So, it is significant for a teaching hospital to understand the individual–

level characteristics such as knowledge sharing affecting the performance and innovation of nurses.

There is no scientific research in Egypt and limited studies internationally were done that studies the relation between innovative work behavior and knowledge sharing. Thus, the current study will be conducted to investigate the relation between innovative work behavior and knowledge sharing among nurses at Zagazig University Hospitals, by knowledge sharing can gain new information, experience and ideas. So, proper implementation of knowledge sharing can lead to effective innovation.

Aim of the study:

This study aims to assess the relationship between knowledge sharing and innovative work behavior among nurses at Zagazig University Hospitals.

Research questions:

1- What is the level of nurses' Innovative Work Behavior (IWB) at Zagazig University Hospitals?
2- What is the level of nurses' knowledge sharing at Zagazig University Hospitals?
3- Is there a relation between innovative work behavior and knowledge sharing among nurses at Zagazig University Hospitals?

Subjects and Methods:

Research design:

A descriptive correlational research design was used to achieve the objectives of the present study.

Study Setting:

The study was conducted at Zagazig University Hospitals, Asharqia, Egypt, (academic hospitals), which include two sectors. The total bed capacity of the hospitals is 2043 beds.

Study Subjects:

Two types of samples were utilized to collect data for the current study. The first one was a stratified random sample (n=375) from nurses working at Zagazig University Hospitals according to the following inclusion criteria: The available two categories of nurses were included (bachelor &technicians), both sexes, had at least one year of experience and agree to participate in the study. The second one was a convenient sample (n=100) of head nurses working at Zagazig University Hospitals at the time of data collection and agree to participate in the study.

Tools of the study:

Data for this study was collected using the following tools:

Tool 1: Innovative work behavior scale. De Jong and Den Hartog [17] developed it. It used to measure the level nurses' innovative work behavior. It composed of two parts: Part one: Personal and job characteristics of staff nurses, developed by the researchers to collect data about age, gender, years of experience, and educational qualification…etc. Part two: Innovative work behavior scale. It consists of 16-items grouped under 4 dimensions: (problem recognition, idea generation, idea promotion, idea application and innovation output).

Scoring system:

Items were rated on a 5-point response scale, ranging from "1= Never, 2 = Rarely, 3= sometimes, 4= Often, 5= Always". The total scores for each dimension of (problem recognition and idea promotion) range from (2-10), for each dimension of (idea generation and idea application) range from (3-15), and for innovation output range from (6-30). These scores were converted into pa ercent scores. The total level of innovative work behavior among nurses is considered: Low if the score is less than 50%. Moderate if the score range from 50% to 75%. High if the score is more than 75%.

Tool II: Knowledge sharing scale. Van den Hooff and de Leeuw van Weenen's [18] developed it**.** It used to measure the level of knowledge sharing among nurses. It consists of 13-items grouped under two dimensions: (knowledge collecting and knowledge donating).

Scoring system:

Items were rated on a 5-point response scale, ranging from "1= strongly disagree, 2 = disagree, 3=Neutral, 4=agree, 5= strongly agree. The scores of each dimension were

summed and the total divided by numbers of items. The total scores for knowledge collecting ranged from (7-35) and for knowledge donating ranged from (6-30). These scores were converted into percent score. The total level of knowledge sharing among nurses considered: **Low** if the score less than 50%. **Moderate** if the score range from 50% to 75%. **High** if the score more than 75%.

Content Validity and Reliability:

The tools of the study were tested for the face and content validity that were achieved by five experts from the faculty of nursing at Zagazig University. According to their opinions, all recommended modifications were done. The tools of the study were tested for reliability using Cronbach's alpha. The value of tool (I) was 0.892. The value of tool (2) was 0.870.

Fieldwork:

Data was collected over two months. The time it took to complete the questionnaire sheet ranged from 15 to20minutes. Some participants' data were collected by the distribution of questionnaire sheets to the subjects, which were then returned to the researchers once completed.

Pilot study:

The pilot sample included 40 staff nurses and 10 head nurses (10% of the study sample) selected from the study setting. No modifications were done and the pilot sample was included in the main study sample.

Administration and Ethical considerations

The study was approved by the Research Ethics committee (REC) of the faculty of nursing, Zagazig University. The nurses were reassured that the information would be utilized anonymously and for research purposes only. Official letters were obtained from the dean of faculty of nursing at Zagazig University to the Chairman of the board of directors at Zagazig University Hospitals to request permission and cooperation for conducting this study, then oral official permission from the nursing director of each hospital and from the head nurse of each unit after explaining the nature and the aim of the work.

Statistical Analysis:

Data were organized, categorized, tabulated, and statistically analyzed by using the Statistical Package for the social sciences (SPSS, version 23.0), IBM Corp., Armonk, NY: USA. and STATA 16. Data were present using descriptive statistics in the form of the mean ± SD & (range), and qualitative data were expressed as absolute frequencies (number) & relative frequencies (percentage). Percent of categorical variables were compared using the Chi-square test. Pearson correlation coefficient was calculated to assess the relationship between various study variables, (+) sign indicate direct correlation & (-) sign indicate inverse correlation, also values near to 1 indicate strong correlation & values near 0 indicate weak correlation. And also, β (regression coefficients) & R square test for Multiple linear regression. All tests were two-sided. P-value < 0.05 was considered statistically significant, p and p-value ≥ 0.05 were considered statistically insignificant (NS).

Results

Table (1): shows that 75.5% of the staff nurses were females, (54.4%) of staff nurses had aged from 20 to less than 30 years old. Moreover, the majority of them (72%) were married, as regards to staff nurses' educational qualification, (45.1%) of them had technical institute of nursing. As regard experience, (54.4%) of staff nurses had experience from one to ten years of experience. Additionally, (20%) of staff nurses worked in New-Surgical Hospital.
According to head nurses, **(**93%) of the study sample were females, as well, (43%) of head nurses had aged from 30 to less than 40 years old. Moreover, most of the ad nurses (83%) were married, as regards the educational qualification, (99%) of head nurses had Bachelors's of nursing, and (43%) of head nurses had experience from 11 to 20 years of experience. Additionally, (14%) of head nurses worked in New-Surgical Hospital.

Figure (1): Shows that most of the nurses had a moderate level about all categories of Innovative Work Behavior.

Table (2): Shows that most of the head nurses reported that 71.8 % of staff nurses had

a moderate level of innovative work behavior, about 15.7% of them had a high level, while 12.5% of staff nurses had a low level, with mean± SD (45.9±8.8) and range from 29 scores to 65.

Figure (2): It was found that the majority of study sample had the a moderate level of knowledge sharing regarding the knowledge donating dimension (81.9%), and most of the study sample had a high level of knowledge sharing regarding the the knowledge collecting dimension (54.7%).

Table (3): Shows knowledge sharing level of nurses' staff, it was found that the majority of staff nurses had a moderate knowledge sharing level (74.1 %). However, 23.5% of them had a high knowledge sharing level, while 2.4% of them had the lowest level, with (mean± SD) (44.6±5.5) and ranging from 19 scores to 57.

Table (4): Shows that there was a significant and direct association between Innovation work behavior and knowledge sharing of nurses, at P-value= (0.02)

Figure (3): Scatter dot defines the positive correlation between knowledge sharing and innovative work behavior of nurses. It was showshownt when knowledge sharing level increases, the innovative work behavior level of nurses increases

Table (5): Shows that, there wastatisticalcal relation between innovation behavior level and personal and job characteristics of Staff nurses, at P-value > 0.05.

Table (6): Illustrates that there was no statistical relation between knowledge sharing Level and personal and job characteristics of Staff nurses, at P-value > 0.05.

Table (7): It was noticed that knowledge sharing was positive significant predictor of innovation work behavior among nurses.

Discussion

Nurses are important members of the healthcare workforce, and their attitudes are linked to patient health and safety [(19)]. As a result, today's businesses want nurses who can share information and lead their own work in order to reach corporate goals. Furthermore, health-care institutions have relied on continuous innovation to improve the effectiveness and affordability of services and treatment techniques. Organizational leaders recognize the need of motivating employees to innovate and share their expertise with coworkers in order to achieve long-term organizational success **[(20)].**

The aim of the study was to assess the relation between job crafting, knowledge sharing and innovative work behavior among nurses at Zagazig University Hospitals.

Innovative work behavior among nurses:

The findings of the present study revealed that the most of nurses had a moderate level about all categories of Innovative Work Behavior. The potential explanation for this result may be attributed to the fact that the innovative output focus on the service provided and the main work of nurses; so they are interested in enhancing these behaviors in their units so they can give innovative ideas. In addition, the organization gives their employees a space of freedom for innovation.

This reflects what was emphasized by Kamel and Aref **[(32)]** who aimed to assess staff nurses' perception toward organizational culture and its relation to their innovative work behavior at critical care units at Benha University Hospital, and found near half of the studied staff nurses usually identify opportunities to make a positive difference in work, department, and hospital or with the client. This is due to the creativity coming up with new ideas primarily depends on individuals and partly on the organization of an organization. The ability to create innovative solutions is dependent on the knowledge, and even more on the experience of individuals to apply the knowledge to solve the novel problem and generate new ideas.

Regarding the level of innovative work behaviors: the study results stated that the agreement's level of innovative work behavior overall was moderate. This might be due to the that the nurse manager provides a direction for development activities, encourages the staff nurses to be the best at the hospital, encourages them to

innovate to improve nursing care, advanced technologies and media, support new trends in care, and considers patients the cornerstone of nursing care.

The current study findings go in the same line with the study conducted by Diab, and Eldeeb**,** [22] who aim to investigate the effect of organizational support and knowledge sharing on innovative behavior among nurses. The study was conducted at University Hospitals in Menoufia Governorate, Egypt, and revealed that less than half of the study subjects perceived a moderate level of innovative behavior. Furthermore, This result is reinforced by the American Association of Critical-Care Nurses (AACN) [23] who pointed that nurses work in critical areas are creative, support lifelong learning, search for information anywhere, and long run become more innovative.

Conversely, the previous result goes in disagreement with the study conducted by Kamel and Aref [21]**,** who investigated the perception of staff nurses about organizational culture and its relationship to innovative work behaviors at critical care units, in Egypt, and pointed out that half of staff nurses, had a high level of innovative work behaviors. Additionally, Mahgoub etal [24] who conducted a study in Egypt about "the relationship between work environment and innovative behavior among staff nurses" at Beni-sueif university hospital and revealed that staff nurses have a high level of the agreement upon innovative behavior.

On the contrary, this result is not consistent with the study conducted by Ahmed, Ata, and Abd-Elhamid [25], who examined the relationship between leadership behaviors, organizational climate, and innovative work behaviors among nurses, at Zagazig University Hospitals, in Egypt, and revealed that slightly less than half (49.2%) of nurses had a high level of innovative work behavior. Another study conducted by Abd El Muksoud, Metwally, and Ata [26] who determine the relation between leadership behaviors, organizational commitment, and innovative work behavior among nurses at Belbeis general hospital and showed that slightly more than one third of staff nurses had a high level of innovative work behaviors.

Knowledge sharing among nurses:

Regarding to the second variable that was investigated in the present study, which was knowledge sharing. The present study findings indicated that the majority of nurses had a moderate level of knowledge sharing regarding knowledge donating dimension, and more than half of them had a high level of knowledge sharing regarding knowledge collecting dimension, which was the highest mean score of knowledge sharing dimensions.This might be due to that knowledge is considered as a source of power and reputation of nurses, so they collect knowledge within their community. Also, staff nurses may be reluctant to donate their knowledge for fear of losing their power and reputation.

The current study findings go in the same line with that of a study conducted by Kmieciak [27] who assess the effects of two types of trust on knowledge sharing (knowledge donating and knowledge collecting) and the impact of knowledge sharing on innovative work behavior and revealed that the majority had a high level of knowledge sharing regarding knowledge collecting dimension.

In the same line, another study conducted by Ahmed, Shahzad, Aslam, Bajwa, & Bahoo [28] who point towards the importance of collaborative culture in achieving higher employees' creativity through donation and collection of knowledge in the organization, also the study conducted by Van Den Hooff, and Hendrix [29] who focuses on individuals' attitudes towards knowledge sharing, these studies pointed out that the highest mean score was for knowledge collecting.

Conversely, these results are in disagreement with the study conducted by Gumus [30] who explored the effects of communication on knowledge sharing in an organization, and the study displayed that the knowledge donating is higher level than collecting.

Furthermore, the present study findings indicated that the agreement's level of knowledge sharing behavior overall among staff

nurses was moderate level. This might be due to that the creation of a favorable work environment and securing levels of trust among staff nurses and employer- staff nurse relationships and also nurses are convinced that doing so is useful; they have the feeling that they share their knowledge in an environment where doing so is appreciated and where their knowledge will actually be used.

The current study findings go in the same line with that of a study conducted by Diab and Eldeeb [22] who investigate the effect of organizational support and knowledge sharing on innovative behavior among nurses. The study conducted at University Hospitals in Menoufia Governorate, Egypt. The study illustrated that the majorities of the study subjects had a moderate level of knowledge sharing behavior and another study conducted by Yoo, Zhang and Yun [31] who stated that nurses perceived their level of knowledge distribution to be above average

Conversely, the previous study finding is in disagreement with the study conducted by Elasid etal [32] who investigated the relationship between organizational commitment and knowledge sharing among staff nurses. This study was conducted at Ain Shams University Hospital and Dar El-Shefa Hospital. The study showed that the majority of the staff nurses had high level of total knowledge sharing and another study conducted by Castaneda and Durán [33] who measured knowledge sharing behavior among participants and found workers had a high mean score of knowledge sharing behavior.

The Relationship between Knowledge Sharing and Innovative Work Behavior among Nurses

Regarding the correlations between the different study variables and the predicting effect of knowledge sharing on nurses' innovative work behaviors; the present study findings revealed that there was significant and direct correlation between knowledge sharing, and innovation work behavior among nurses., this result might be due to stimulate intrinsic motivation and use knowledge to influence nurses' innovative work behavior by providing resources and creating favorable work environment. Knowledge generation activities within an organization can produce to strategic resources and competences which permit organizations to perform better than others and to achieve higher favorable outcome so knowledge sharing plays a vital role because it is a nurse-specific behavior that facilitates innovation.

The current study findings go in the same respect with Supriyanto, Sujianto and Ekowati [34] who investigate the influence of spiritual leadership on innovative work behavior and the effect of knowledge sharing on job crafting. Furthermore, the roles of knowledge sharing as a mediator for the impact of spiritual leadership on innovative work behavior, and job crafting as a mediator for the relationship between variables, were also examined and another study conducted by Afsar, Masood & Umrani [35] who aimed to examine the effect of transformational leadership on an employee's innovative work behavior through job crafting, these studies found significant and positive correlation between innovative work behaviors, and knowledge sharing.

In the same context, these results are supported by Kim and Park [36] conducted study of employees in Korean organizations and demonstrated that employee knowledge sharing enhances their innovative work behavior. Also, in the same line with Li-Ying, Paunova & Egerod [37] who conducted a study about "knowledge sharing behavior and intensive care nurse innovation: the moderating role of control of care quality" and found that knowledge sharing among ICU nurses was positively associated with individual nurse innovation.

This result is in the same line with Diab and Eldeeb [22] who aim to investigate the effect of organizational support and knowledge sharing on innovative behavior among nurses. The study conducted at University Hospitals in Menoufia Governorate, Egypt and confirmed a statistically significant positive correlation between nurses' perceived innovative behavior and their knowledge sharing behavior. Also, Asurakkody and Kim [20] who aim to investigate the effects of knowledge sharing behavior on innovative work behavior among nurses:

Mediating role of Self-leadership and found a close correlation between knowledge sharing behavior and innovative work.

In contrast to this result was Yeşil & Hırlak [38] who identify barriers and their impact on knowledge sharing and individual innovation behavior and showed that there was no link found in this study between knowledge sharing and individual innovation behavior.

Our data revealed that the actual predictors for nurses' innovative work behavior in the hospital sector was knowledge sharing, that nurses' knowledge sharing level was positive significant predictor of innovation work behavior among nurses. These results might be due to that health care organization provides the support for learning activities and opportunities for collaboration and knowledge sharing among nurses that helps nurses to develop alternative solutions to existing problems and generate innovative ideas.

The current study findings go in the same respect with Supriyanto etal [34] who aimed to investigate the influence of spiritual leadership on innovative work behavior and the effect of knowledge sharing on job crafting and indicated significance of relationship between knowledge sharing and job crafting score in presence of innovation work behavior that knowledge sharing mediates the impact of spiritual leadership on innovative work behavior. Otherwise, Kim and Park [39] found that organizational knowledge sharing affected nurses' innovative behaviors at general hospitals. Additionally, Radaelli, Lettieri, Mura & Spiller [40] who revealed a direct and unmediated link between knowledge sharing behaviors and innovative work behavior and also, they reported that sharing knowledge enhances innovative work practices.

On the other hand, this result is in disagreement with Zhou, & Uhlaner [41] who examines the relationship between knowledge management (KM) (in terms of external acquisition and internal sharing) and innovation behavior and found that internal knowledge sharing does not play a main role in fostering innovativeness.

The relationship between studied nurses' personal and job characteristics as regards the different study variables

The current study results showed that there were no relation between knowledge sharing, and innovative work behavior and personal and job characteristics of nurses. This result is matching with Abd El Fattah [41] who aimed to measure the relationship between innovation behavior levels and TIGER-based informatics competencies among critical care nurses in a Critical Care Unit at an International Private Hospital in Egypt and showed that there was no correlation between nurses' sex and level of innovative work behaviors. As well**,** Demirel & Turan [42] who aimed to evaluate the relationship between individualized care (IC) perceptions and innovativeness and determined that there was no statistically significant difference in terms of age, gender, or marital status relating to the individual innovativeness.

This result is in the same respect with Abd El Muksoud etal [26] who determine the relation between leadership behaviors, organizational commitment, and innovative work behavior among nurses at Belbeis general hospital and showed that there was no correlation between nurses' age and their level of innovative work behaviors.

On the other hand, this result is in disagreement with McHugh and Lake [43] who highlight that clinical nursing expertise are fundamental to quality of care. An individual nurse’s education and years of expertise influence his or her level of expertise improving quality healthcare delivery. Another study conducted by Geyter, & Dirix [44] who examine whether personality has an influence on the relation between job crafting and quality of care and found there is a small positive correlation between job crafting and level of education. The higher educated health care providers are, the more likely they are to do job crafting and thus to restructure their job.

Furthermore, these results maladjusted with Elasid etal [32] who identify the relationship between organizational commitment and

knowledge sharing among staff nurses and higher nursing qualification has significant influences on nurses' knowledge sharing. Additionally, the study conducted by Arif, Zubair& Manzoor [58] who found a significant difference across sex as female study participants reflected the more innovative work behavior as compared with male study participants.

Conclusion

The current study main findings concluded that, most of nurses had a moderate level of innovative work behavior. While, more than two third of the studied nurses had moderate level of knowledge sharing. there was a significant direct association between knowledge sharing, and innovative work behavior among nurses. Furthermore, there was knowledge sharing was positive significant predictor of innovation work behavior among nurses.

Recommendations

Based on results of the current study, the following recommendation was suggested:

The nurse manager and authorities should:

- Identify the facilitators and barriers of knowledge sharing and innovative work behavior among nurses in all levels.
- Provide numerous chances and time for education, training programs to promote knowledge sharing and innovative work behavior among nurses that promote positive work motivation and create a positive, supportive,, and warm environment where nurses can be more engaged in innovative work behavior.
- Integrate the concepts of knowledge sharing, and work innovation into the main values and integrate them in strategic management.
- Encourage and provide support to staff nurses through open communication, problem-solving, and shared decision making.
- Reduce nurses' resistance to change through communicating the objectives, methods and process of introducing new changes, nursing trends, media and technologies.
- Provide reinforcement programs about knowledge sharing to improve the quality of patient care, and innovative work behaviors.
- Conduct workshops on innovative thinking and develop strategies to enhance nurses' level of knowledge sharing and innovative work behavior.

The staff nurses should:

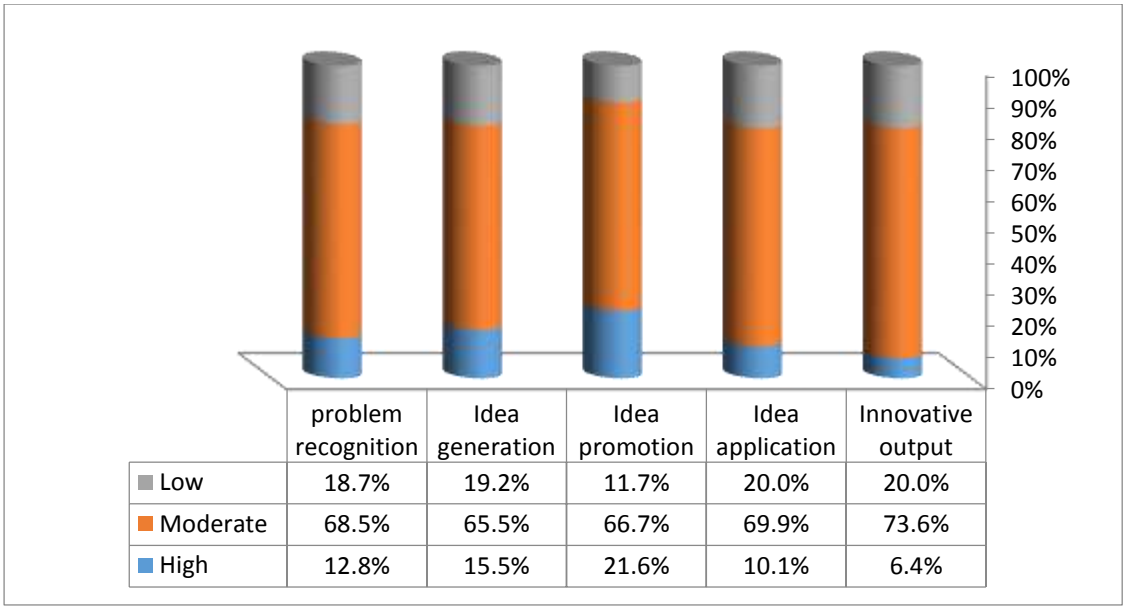
- Learn how to prioritize work, work proactively, and how make a difference at work for problem recognition and improve innovative behavior.
- Develop themselves professionally
- Use new technologies, media, information, and communication technologies and methods in nursing
- Attend workshops on innovative thinking and apply strategies to elevate their levels of knowledge sharing and innovative work behavior.
- Improve their skills in problem recognition, idea generation, idea promotion, application, and innovative output.

Further research:

- Further researches should be conducted regarding innovation, and knowledge sharing in nursing.
- The impact of training strategy about innovation in nursing on staff nurses' organizational climate, self-efficacy and job productivity of nurses.

Table 1: shows the frequency and percentage distribution of the studied samples based on personal and occupational characteristics of the studied groups.

Personal & Job Characteristics	Staff Nurses (n = 375)		Head Nurses (n = 100)	
	n	%	n	%
1) Age per years:				
o 20 to < 30 year	204	54.4	26	26.0
o 30 to < 40 year	109	29.1	43	43.0
o 40 to < 50 year	47	12.5	31	31.0
o 50 to < 60 year	15	4.0	-.	-.
2) **Sex:**		.		
o Males	92	24.5	6	6.0
o Females	283	75.5	94	94.0
3) **Marital status:**		.		
o Single	72	19.2	8	8.0
o Married	270	72.0	83	83.0
o Divorced	20	5.3	3	3.0
o Widow	13	3.5	6	6.0
4) **Education qualification:**		.		
o Diploma	146	38.9	-	-
o technical institute	169	45.1	1	1.0
o Bachelors	60	16.0	99	99.0
5) Hospital affiliation: Emergency Sector:	**(246)**	**(65.6).**	**(56)**	**(56.0)**
o Emergency Hospital included (Emergency Department)	37 (10)	9.9 (2.7)	11	11.0
o Internal-Medicine Hospital	71	18.9	11	11.0
o The Delivery and Premature Hospital	27	7.2	9	9.0
o Outpatient Hospital	26	6.9	11	11.0
o New-Surgical Hospital	75	20	14	14.0
El-Salam Sector:	**(129)**	**(34.4)**	**(44)**	**(44.0)**
o Cardiac and Chest Hospital	48	12.8	13	13.0
o El-Salam Hospital	40	10.7	11	11.0
o El-Sadat Hospital	6	1.6	8	8.0
o The Pediatric Hospital	35	9.3	12	12.0
6) **Experience years:**		.		
o 1 year to ≤ 10 year	204	54.4	26	26.0
o 11 year to ≤ 20 year	109	29.1	43	43.0
o 21 year to ≤ 30 year	47	12.5	31	31.0
o > 30 year	15	4.0	-	-



	problem recognition	Idea generation	Idea promotion	Idea application	Innovative output
Low	18.7%	19.2%	11.7%	20.0%	20.0%
Moderate	68.5%	65.5%	66.7%	69.9%	73.6%
High	12.8%	15.5%	21.6%	10.1%	6.4%

Figure (1): Frequency Distribution of Opinions of Head Nurses about Nurses' Innovative Work Behavior Dimensions Levels

Table (2): Frequency Distribution of Opinions of Head Nurses about Nurses' Innovative Work Behavior (n=100).

Innovative Work Behavior Level (80)*	n. (375)	%	Mean ±SD	Median (Range)
• **High**	59	15.7	45.9±8.8	45(29-65)
• **Moderate**	269	71.8		
• **Low**	47	12.5		

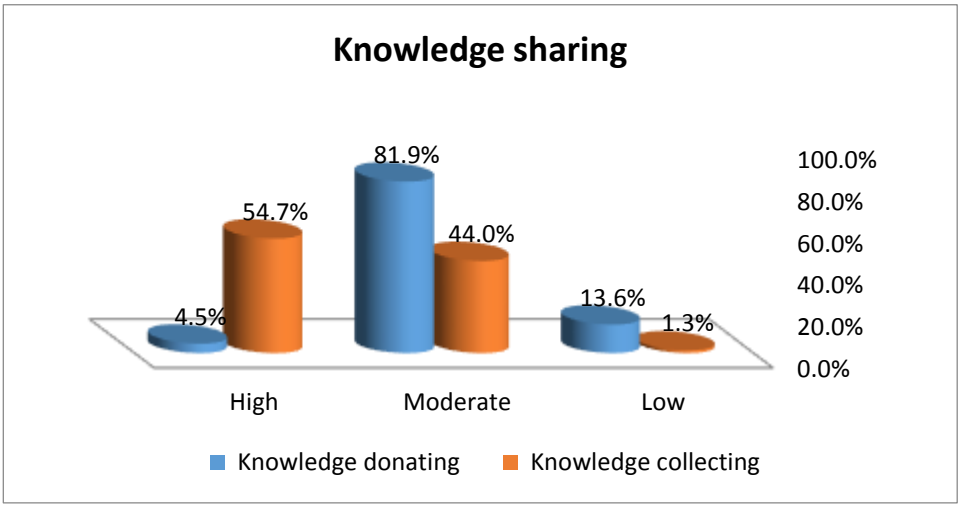


Figure (2): Distribution percent of opinions of nurses' staff regard knowledge sharing dimensions

Table (3): Distribution Percent of Opinions of the Study Sample about Knowledge Sharing (n=375).

Knowledge sharing scale (65)*	n.	%	Mean ±SD	Median (Range)
• High	88	23.5	44.6±5.5	45(19-57)
• Moderate	278	74.1		
• Low	9	2.4		

Table (4): Correlations among Knowledge Sharing, and Innovation Work Behavior of Nurses. (Staff Nurses (n= 375) & Head nurses (n=100))

	knowledge sharing of nurses		Innovation work behavior of nurses	
	(r)	p	(r)	p
knowledge sharing of nurses	1		0.213*	0.02

Pearson 'Correlation coefficient (r) ** Correlation is significant P<0.01. * Correlation is significant P<0.05.

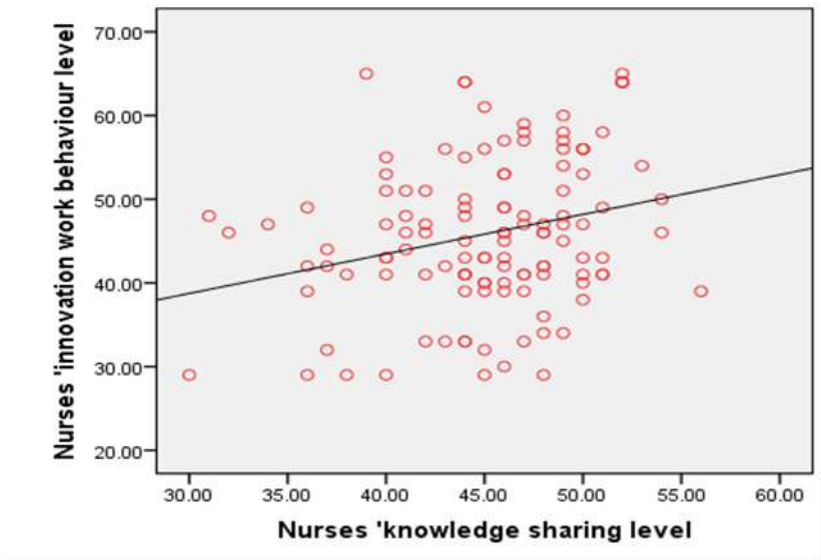


Figure (3): Scatter dot define positive correlation between knowledge sharing of nurses and innovative work behavior.

Table (5): Relation between Personal and Job Characteristics of Staff Nurses and Innovation Behavior Level (n=375).

Variables	Innovation work Behavior Level						n	χ^2	P
	High n. 24		Moderate n.276		Low n.75				
	No.	%	No.	%	No.	%			
Age per years									
• 20 to < 30 year	15	7.4	148	72.5	41	20.1	204	5.6	0.46
• 30 to < 40 year	8	7.3	80	73.4	21	19.3	109		
• 40 to < 50 year	1	2.1	34	72.3	12	25.5	47		
• 50 to < 60 year	0	.0	14	93.3	1	6.7	15		
Sex	.	.	.	.	.	.			
• Males	5	5.4	70	76.1	17	18.5	92	2.4	0.81
• Females	19	6.7	206	72.8	58	20.5	283		
Marital status	.	.	.	.	.	.			
• Single	6	8.3	50	69.4	16	22.2	72	4.8	0.57
• Married	16	5.9	199	73.7	55	20.4	270		
• Divorced	2	10.0	17	85.0	1	5.0	20		
• Widow	0	.0	10	76.9	3	23.1	13		
Education qualification	.	.	.	.	.	.			
• Diploma	9	6.2	109	74.7	28	19.2	146	4.2	0.38
• technical institute	13	7.7	126	74.6	30	17.8	169		
• Bachelors	2	3.3	41	68.3	17	28.3	60		
Hospital affiliation	.	.	.	.	.	.			
Emergency Sector:									
• Emergency Hospital	4	8.5	35	74.5	8	17.0	47	8.6	0.93
• Internal-Medicine Hospital	6	8.5	54	76.1	11	15.5	71		
• The Delivery and Premature Hospital	2	7.4	19	70.4	6	22.2	27		
• Outpatient Hospital	1	3.8	19	73.1	6	23.1	26		
• New-Surgical Hospital	3	4.0	54	72.0	18	24.0	75		
El Salam Sector:	.	.	.	.	.	.			
• Cardiac and Chest Hospital	4	8.3	36	75.0	8	16.7	48		
• El-Salam Hospital	3	7.5	29	72.5	8	20.0	40		
• El-Sadat Hospital	1	16.7	3	50.0	2	33.3	6		
• The Pediatric Hospital	0	.0	27	77.1	8	22.9	35		
Experience years	.	.	.	.	.	.	.		
• 1 year to ≤ 10 year	15	7.4	148	72.5	41	20.1	204	5.7	0.45
• 11 year to ≤ 20 year	8	7.3	80	73.4	21	19.3	109		
• 21 year to ≤ 30 year	1	2.1	34	72.3	12	25.5	47		
• > 30 year	0	.0	14	93.3	1	6.7	15		

χ^2 Chi square test *significant p<0.05 non-significant p>0.05

Table (6): Relation between Personal and Job Characteristics of Staff Nurses and Knowledge Sharing Level (n=375).

Variables	Staff nurses knowledge sharing level						n	χ^2	P
	High n.88		Moderate n. 287		Low n. 9				
	No.	%	No.	%	No.	%			
Age per years									
• 20 to < 30 year	50	24.5	148	72.5	6	2.9	204	5.7	0.45
• 30 to < 40 year	26	23.9	83	76.1	0	.0	109		
• 40 to < 50 year	10	21.3	35	74.5	2	4.3	47		
• 50 to < 60 year	2	13.3	12	80.0	1	6.7	15		
Sex	.	.	.	.	.	.			
• Males	23	25.0	67	72.8	2	2.2	92	0.17	0.92
• Females	65	23.0	211	74.6	7	2.5	283		
Marital status	.	.	.	.	.	.			
• Single	14	19.4	56	77.8	2	2.8	72	2.15	0.91
• Married	66	24.4	198	73.3	6	2.2	270		
• Divorced	4	20.0	15	75.0	1	5.0	20		
• Widow	4	30.8	9	69.2	0	.0	13		
Education qualification	.	.	.	.	.	.			
• Diploma	25	17.1	116	79.5	5	3.4	146	7.12	0.13
• technical institute	46	27.2	119	70.4	4	2.4	169		
• Bachelors	17	28.3	43	71.7	0	.0	60		
Hospital affiliation **Emergency Sector:**									
• Emergency Hospital	7	14.9	38	80.9	2	4.3	47	23.6	.098
• Internal-Medicine Hospital	20	28.2	49	69.0	2	2.8	71		
• The Delivery and Premature Hospital	5	18.5	22	81.5	0	.0	27		
• Outpatient Hospital	12	46.2	14	53.8	0	.0	26		
• New-Surgical Hospital	14	18.7	58	77.3	3	4.0	75		
El Salam Sector:	.	.	.	.	.	.			
• Cardiac and Chest Hospital	14	29.2	34	70.8	0	.0	48		
• El-Salam Hospital	7	17.5	32	80.0	1	2.5	40		
• El-Sadat Hospital	2	33.3	3	50.0	1	16.7	6		
• The Pediatric Hospital	7	20.0	28	80.0	0	.0	35		
Experience years	.	.	.	.	.	.			
1 year to ≤ 10 year	50	24.5	148	72.5	6	2.9	204	5.7	0.45
11 year to ≤ 20 year	26	23.9	83	76.1	0	.0	109		
21 year to ≤ 30 year	10	21.3	35	74.5	2	4.3	47		
> 30 year	2	13.3	12	80.0	1	6.7	15		

χ^2 Chi square test non-significant p>0.05

Table (7): Multiple linear regression model for predict innovation work behavior among studied nurses (n.375):

Predictors	Unstandardized Coefficients		T	Sig.	r	R^2
	β	Std. Error				
(Constant)	17.715					
Nurses knowledge sharing	.548	.226	2.42	0.017*	0.31	0.098

β = regression coefficients, R square = 0.098 % of predictors, *significant P<0.05.

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