The Consequence of Knowledge-Sharing Training Program on Innovative Work Behaviors of Staff Nurses

Hanaa Mohamed Abd rabou,
Nursing Administration, Faculty of Nursing, Ain Shams University

Abstract

Background: Knowledge-sharing (KS) is a voluntary activity that is mostly dependent on an individual's desire to share knowledge, their ability to direct the process of sharing knowledge, and their participation in KS activities. Those who actively engage in knowledge sharing are motivated to exhibit innovative behavior with the newly acquired knowledge. There is substantial practical evidence on the significant influence of KS towards innovative work behavior (IWB). **Aim:** To investigate the consequence of KS training program on staff nurses' innovative work behavior (IWB). **Methods**: This Quasi-experimental: pretest-post-experienced design was performed at all medical and critical care units (CCU) at Ain Shams University Hospital which included 98 staff nurses which were randomly selected out of 300 staff nurses. Data was collected using a Self-administered knowledge questionnaire, KS-readiness questionnaire, and Innovative Behavior Inventory. **Results**: Results showed that staff nurses' knowledge and KS readiness were enhanced in the post-intervention and follow-up stages. Furthermore, staff nurses' total IWB was highly significant variation in post-intervention and follow-up stages when compared with pre-intervention stage. **Conclusion & Recommendation:** according to the findings of this study it is concluded that KS educational program had positive consequence on staff nurses' total IWB in post and 3 months from the intervention compared to the pre-intervention stage. The study suggests that organizations can offer culture that supports sharing of information and learning together. Nurse leaders must support shared learning and ask to create infrastructures that facilitate KS. Enhancing tools that encourage KS in clinical practice and encouraging nurses to innovate.

Keywords: Knowledge-sharing, Staff nurses, Innovative work behavior.

Introduction:

Organizations have been compelled by a knowledge-based economy to be competitive by utilizing resources, particularly those that are priceless and unique, like knowledge and expertise. Knowledge-sharing (KS) is necessary for the capability of organization, which is needed to maintain a sustainable competitive improvement *(Witherspoon et al., 2013)*. KS indicates providing of information and realizes the way of collaborating and helping others to solve problems, create new ideas, or implement policies or procedures (*Frasson and Kostopoulos, 2017).* It is the process of exchanging knowledge, talents or people's experience, friends, community, or organization. To achieve the organization's aims and objectives, many employees these days promote knowledge exchange among their staff *(Derej et al., 2016).*

KS improves firms by accelerating the deployment of knowledge, in addition to enhancing employee competency in the process *(Ireson & Burel, 2014).* It is a process where individuals exchange knowledge and together create a new knowledge and takes place when a knowledge able individual supports other individuals develop anew capabilities or experience when new knowledge acquired, it should de transfer to other parts of the organization that need new knowledge (*Zheng, 2017).* There are several methods

for classifying knowledge, and diverse professions have focused on different fields. Tacit, explicit, and embedded knowledge are the three classifications of knowledge *(Kirsch et al., 2015).* Both tacit and explicit knowledge are valuable and work best together *(Ciechanowska, 2014).*

Knowledge is categorized into individual, group, and organizational levels and can exist at various levels within organizations. The development, diffusion, and management of knowledge at all levels within an organization depend on the sharing of individual knowledge, even though individuals only make up one level at which information is found *(Ipe, 2016)*. At the individual and group level, KS comprises both knowledge-donation and knowledge-collection (*Hendricks, 2018*). Sharing information is a deliberate process that not only improves one's understanding but also helps build or improve a repository of accessible knowledge for others *(Zhang, 2017).*

KS acts as a valuable role in nurses' IWB. As sharing knowledge among nurses allows nurses to discuss and exchange ideas with others, call their attention to the advantages of ideas and put ideas into action by developing them into a workable solution *(Mura et al, 2016).* KS is highly dependent on the nurses' willingness to share their personal information and knowledge. The dialogue involved during KS frequently leads to the generation of new ideas, which is considered to have the potential for the creation of new knowledge. It also leads to marketing effectiveness and improved organizational innovativeness *(Weng et al., 2016).*

Innovation in its recent sense is a novel idea, innovative ideas, and innovative ideas for a tool or technique *(Merriam-webster, 2018).* Innovative work behavior is described as an individual's deliberate conduct to introduce and/or implement new ideas, products, processes, and procedures to their work function, unit, or organization *(Essays,*

2018). It is seen as proactive organizational conduct that is based on a complete awareness of one's tasks and obligations at work and is driven by internal motivations. *(Gogoleva et al, 2016).*

The main component for people's creativity and innovativeness in the workplace is innovative work behavior. It is essential for achieving sustainable growth. *(Hawryszkiewycz and Binsawad, 2018).* Innovative work behavior is deliberate conduct used by individuals to develop and use new and practical concepts that benefit specific people, groups, or organizations *(Bos-Nehles and Veenendaal, 2017).* It is also a procedure for developing novel approaches to issue-solving that starts with problem identification, resolution, and application of organizational solutions *(Nguyen et al., 2019).*

Innovative ideas must be put into practice for innovation to succeed *(Anderson and Potočnik 2014).* In most organizations, nurses are unable to put ideas into practice on their own and frequently require management approval. Therefore, sharing the concept with coworkers and management so they may give feedback is a crucial component of innovative work behavior. Additional resources, including time, money, and people, are allocated after a proposal is authorized to begin the implementation stage *(Llukes and Stephan, 2017).*

Significance of the study:

In a world that is constantly changing, innovative conduct is essential for organizational performance. Organizations today need nurses who can share knowledge and self-direction because they achieve organizational outcomes. Health care organizations have relied on continual improvements since the industrial revolution to make goods, services, and medical treatments more efficient and inexpensive. Organizational leaders understand the importance of encouraging

staff to innovate and share their knowledge with colleagues since these goals produce long-term organizational success (**Edú-Valsania, Moriano, & Molero, 2016).** These findings support the hypothesis that the KS training program will influence the staff nurses' innovative work practices.

Aim of the study:

The purpose of this research is to examine the consequence of Knowledge-sharing (KS) training program on staff nurses' innovative work behaviors (IWB) by:

1- Identifying staff nurses' knowledge level regarding KS before and after the program.
2- Measuring staff nurses' IWB before and after the program.
3- Comparing staff nurses' IWB before and after the program.

Study hypothesis:

After the KS training program was implemented, the IWB of the staff nurses will be changed.

Subjects and Methods

Research design:

Quasi- experimental: pretest-posttest design was used to perform this study.

Setting: The study was conducted at all medical and CCU at Ain Shams University Hospital.

Subjects: The study included 98 staff nurses which were randomly selected out of 300 staff nurses who were working in the designated setting.

Tools:

Three tools were used in collecting data processing. Those tools are self-administered knowledge questionnaire, KS readiness questionnaire, and innovative Behavior Inventory.

1st Tool: Self-administered knowledge questionnaire: Based on some prior literature (Henttonen et al., 2016; Xue et al., 2011; Jaberi, 2016), researchers created this questionnaire form to evaluate (pre- and post-test) the competence of staff nurses on KS. This tool contains two sections as follow:

Section 1: The goal was to compile data on the staff nurses' age, gender, educational attainment, years of experience, and attendance at KS -related training.

Section (2): There were 24 multiple-choice questions (MCQ) divided into eleven subgroups to test staff nurses' knowledge of the following: (Knowledge concept and tacit knowledge (2 questions), internal sources and knowledge characteristics (3questions), The importance of KS (2 questions), Factors that influence KS (2 questions), KS standards and strategies (3questions), KS dimensions and models (2 questions), Knowledge culture and Knowledge donation (2 questions), The concept of organizational culture (2 questions), Concept of creativity and its elements (2questions), KS obstacles and overcoming obstacle (2 questions), Developing the culture of sharing knowledge (2 questions).

Scoring system: The knowledge sheet for staff nurses contained 24 questions, with MCQs serving as the answers. Correct responses received a score of 1, while wrong ones received a score of (zero). The knowledge level of staff nurses was rated as high if the percent score was greater than 75 percent, moderate if it varied between 60 percent and 75 percent, and low if it was less than 60 percent.

(2) KS readiness questionnaire: To assess the nurses' willingness to share their knowledge. This tool which was adapted from *(Ridder and de Vries, 2006)* featured two domains, collecting, and donating 8 items for each.

Scoring system: Response from staff nurses were scored on a 5-point Likert scale in the range from 1 to 5 matching strongly disagree, disagree, uncertain, agree, and strongly agree, respectively. By summation scores of items and dividing the total by number of the items, expressed as a percentage score. Mean and standard deviation were calculated. The score level of staff nurses was rated as high if the percent score was greater than 75 percent, moderate if it varied between 60 percent and 75 percent, and poor if it was less than 60 percent.

(3) Innovative Behavior Inventory: To evaluate innovative work practices of staff nurses. It was created by (Lukes and Stephan, 2017) and modifies by researchers. Also, it includes 22 items in it. The tool contained seven domains: idea production, idea search, idea communication, idea implementation starting actions, involvement of others, obstruction removal, and innovation outcomes.

Scoring system: a 5-point Likert scale with the levels ranging from 1 to 5 matching to never, rarely, sometimes, often, and always, respectively. The scores were converted to a percentage score generated from dividing the items summation by the number of these items. If the score is greater than 75 percent, the degree of innovative work behavior is high; if it is between 60 and 75 percent, it is moderate; and if it is less than 60 percent, it is considered low.

Tools validity and reliability: The jury group of seven specialists thoroughly evaluated the produced tools; four of them were nursing administration professors at Ain Shams University and three of them were nursing administration professors at the faculty of nursing at Benha University. They were prompted to provide their thoughts on the tools. Corrections, additions, and/or omissions of some things were made in accordance with their recommendations.

By evaluating the tools' internal consistency, the tools' dependability was put to the test. The table below shows that they had high rates of reliability.

Table (1): Scores for the study tools' internal reliability coefficients (Cronbach's Alpha coefficients).

Cronbach's Alpha	No. of Items	Test variables
Knowledge questionnaire	24	.917
KS readiness questionnaire.	16	.935
IBI	22	.968

KS= Knowledge-sharing, IBI= Innovative Behavior Inventory.

II. Operative planning

The current study's operational design included a planning stage, a pilot study, ethical concerns, and fieldwork.

Planning stage:
This stage was devoted to getting the data collection tools ready. This was accomplished utilizing existing textbooks, papers, periodicals, scientific journals, and internet searches to review recent and historical local and international literature. Such an endeavor aided the researcher's knowledge of the most modern and reliable tools pertinent to the study issue.

Pilot study
Before embarking on the main study, a pilot study was conducted on a group of 9 nurses who represent 10% of the estimated sample size. The purpose was to ensure the clarity, feasibility, and applicability of the tools, identify obstacles and problems that may be encountered during data collection, and estimate the time needed to fill-in the forms. Necessary modifications were made based on the results of the pilot study. Some statements were rephrased, and then the final version of tool was developed. The time for filling in the knowledge questionnaire and each of the checklists was found to range between 35 and 45 minutes.

This stage took approximately six weeks from the starting of October to the ending of November 2018. The nurses involved in the pilot were not included in the main study sample.

Ethical Considerations:

- The participants' verbal agreement was obtained after they were informed of the study's purpose and methods.
- Participant's name was optional.
- The privacy of all the collected data was secured, and all participants were informed about their ability to withdraw at any time.
- The confidentiality of all the data collected was ensured. Additionally, participants received guarantees of privacy and that all data would be utilized only for the investigation.
- Only research purposes were served by the collected data, which were kept on a password-protected computer.

Field work:

The field work included four stages: Planning, implementation, evaluation and follow up stages.

Planning stage: For improving the data collection tools and preparing the media required for the KS training program, the researcher reviews recent related literatures. Before collecting the data, staff nurses were informed of the study's purpose and asked for their consent to participate. The researcher distributed data collection tools to staff nurses working in clinical settings to assess their familiarity with KS topics and determine what they needed to learn. It took about 35 to 45 minutes to complete this sheet. A team of seven experts reviewed the information sharing program the investigator developed for content validity, and any necessary changes were made in accordance with their recommendations.

Implementation stage:

The program classes for staff nurses were held in the training and development center (Ain Shams University Hospitals). According to their work schedules, staff nurses were divided into three main groups. The program took roughly 11 days for each main group. Over the course of 11 sessions, the whole program's content was explained. Each session lasted three hours, with two hours devoted to theory and one to practice. Sessions for the training program were held twice a week for three hours each. It was done between 11 am and 2 pm. The pretest was covered in the first session, and the researcher clarified the goals, schedule, and evaluation procedures. Theoretical and practical information about KS items was presented through lectures and group discussions.

Evaluation stage: This stage performed directly after implementing the program using the same data collection tools used in the assessment stage for measuring staff nurses' knowledge regarding KS items, staff nurses' readiness to share knowledge and innovative work behavior among staff nurses. It took each participant approximately 45 minutes to complete the questionnaire. Directly after program implementation, this stage measure staff nurses' understanding of KS -related topics, staff nurses' readiness to share knowledge and innovative work behavior among staff nurses.

Follow-up stage: Three months after the program's implementation, the identical procedure was carried out once more to evaluate its long-term effectiveness. The same methods and resources used for the posttest were also used for this stage.

III. Administrative Design: The general director of Ain Shams University Hospital received a letter from the faculty of nursing at Ain Shams University asking for permission to carry out the study. The letter included the aim of the study and copies of the data collection tools.

Statistical Analysis:

The computer program SPSS V20 was used for data entry. For qualitative factors, data were presented using frequencies and percentages, and for quantitative variables, means and standard deviations. The same study group's means were compared using a paired t-test before and after the intervention, as well as after the intervention and during the follow-up stage. The inter-relationship between quantitative variables was evaluated using the Pearson correlation coefficient (r). Multiple linear regression analysis was utilized to determine the independent predictor of the innovative behavior score. The study's chosen degree of confidence was 95%. At a p value of 0.05, statistical significance was considered.

Result:

Table (1): representing the descriptive data analysis. From this Table, about half of the staff nurses (50%) were above 35 years old with mean age± SD of 37.94±4.73. Furthermore, 82.4% of staff nurses was female with a percentage of 82.7% of them are married. Besides, 45.9% of staff nurses had a diploma in nursing. For the experience, it was found that 66.3% exceeded 10 years in experience. Meanwhile, none of them attended training programs about KS at any time before.

Table (2): explains that the mean score for KS items among staff nurses was low prior to the program's implementation. Additionally, knowledge mean scores significantly rose across all program periods. Additionally, there were highly statistically significant differences in the total knowledge of KS items throughout program stages as well as between all items.

Figure (1): also showed that 7.1% of staff nurses had a high total knowledge level about KS items before realizing the program. As seen, the high overall knowledge level for KS items significantly

increased post & follow-up the program, respectively (84.7 % and 88.8 %).

Table (3): showed that the mean ratings for the staff nurses' readiness to share knowledge components were low prior to the program's implementation. Additionally, readiness means scores significantly improved across all program stages. Additionally, there were changes across all measures and overall readiness to share information across program stages that were highly statistically significant.

Figure (2): a percentage of 8.2% of staff nurses had an elevated total readiness level to share knowledge before implementing the program. The high overall preparedness level to impart knowledge was significantly increased as observed throughout program stages (86.7 % and 90.8 %, respectively)

Table (4): demonstrates that there was a very statistically significant increase in the mean scores of all staff nurses' innovative conduct across all program stages. The overall innovation outputs dimension had the lowest mean scores (6.92±2.28) before program implementation, but these scores significantly increased in the post-implementation and follow-up stages (10.08±3.25 and 10.48±3.24, respectively).

Figure (3): shows that before the initiative was put into place, 6.1 % of the nursing staff showed high levels of overall innovative behavior. The high overall degree of inventive behavior was significantly improved, as observed throughout program stages (88.8% and 91.8%).

Table (5): there was a positive, highly statistically significant association between the staff nurses' total knowledge score and their overall readiness to share knowledge across all program stages.

Table (6): among staff nurses across all program stages, there was a

positive, highly statistically significant link between the total score for innovative work behavior and the total score for knowledge.

Table (7): Multiple linear regression for the overall innovative behavior scores post-program among staff nurses is shown in the model demonstrates that the score of total innovative behavior immediately following program was positively dependent on the staff nurses' gender, years of experience, and total knowledge score. According to the value of R, account for 92 % of the variation in the staff nurses' score for innovative work behavior.

Table (1): Descriptive analysis of personal characteristic of the staff nurse (n= 98).

Demographic characters	Staff (n= 98 Nurses)	
	Freq	%
Age (in Years)		
Below 30	20.00	20.40
30-35	29.00	29.60
Above 35	49.00	50.00
Mean ± SD	37.94± 4.73	
Range	27-45	
Gender		
Male	27.00	27.60
Female	71.00	72.40
Marital status		
single	10.00	10.20
Married	81.00	82.70
Divorced	7.00	7.10
Level of education		
Diploma	45.00	45.90
Technical Diploma (Postgraduate)	4.00	4.10
Technical Institute	4.00	4.10
Bachelor	26.00	26.50
Master's degree	19.00	19.40
Years of experience		
< 5 years	9.00	9.20
5- 10years	24.00	24.50
> 10 years	65.00	66.30
Mean ± SD	8.33 ± 3.50	
Training program about KS		
Yes	0.00	0.00
No	98.00	100.00

Table (2): knowledge scores of staff nurses in relation to KS topics over program stages.

Items	Mean score (Mean ± SD)			Paired Samples Test (p-value)	
	Pre-	Post-	Follow-up	Pre vs. Post	Pre vs. follow-up
Concept of knowledge and implicit knowledge	0.67±0.91	1.50±0.89	1.75±0.60	6.85 <0.00**	9.06 <0.00**
Internal sources and characteristics of knowledge	0.72±0.92	1.61±0.81	1.80±0.58	7.08 <0.00**	8.82 <0.00**
The importance of KS	1.23±1.36	2.30±0.80	2.77±1.37	5.87 <0.00**	8.91 <0.00**
Factors that influence KS	1.66±1.60	3.07±1.63	3.58±1.06	7.53 <0.00**	9.87 <0.00**
KS standards and strategies	0.70±0.91	1.55±0.85	1.70±0.70	6.52 <0.00**	8.37 <0.00**
KS dimensions and models	0.58±**0.87**	1.57±0.83	1.68±0.72	7.78 <0.000**	9.26 <0.00**
Definition of Knowledge culture and Knowledge donation	0.50±0.60	1.52±0.83	1.77±0.53	10.53 <0.00**	15.47 <0.00**
The concept of organizational culture	0.35±0.47	0.83±0.45	0.94±0.31	6.83 <0.00**	8.82 <0.00**
Concept of creativity and its elements	0.63±0.92	1.53±0.72	1.75±0.60	7.95 <0.00**	9.20 <0.00**
KS obstacles and overcoming obstacle	1.23±1.38	2.37±1.21	2.75±0.72	5.58 <0.00**	8.72 <0.00**
Developing the culture of sharing knowledge	0.44±0.50	0.82±0.40	0.93±0.25	6.07 <0.000**	7.94 <0.00**
Total awareness regarding KS	8.92±10.01	18.74±9.23	21.49±6.19	8.53 <0.00**	10.28 <0.00**

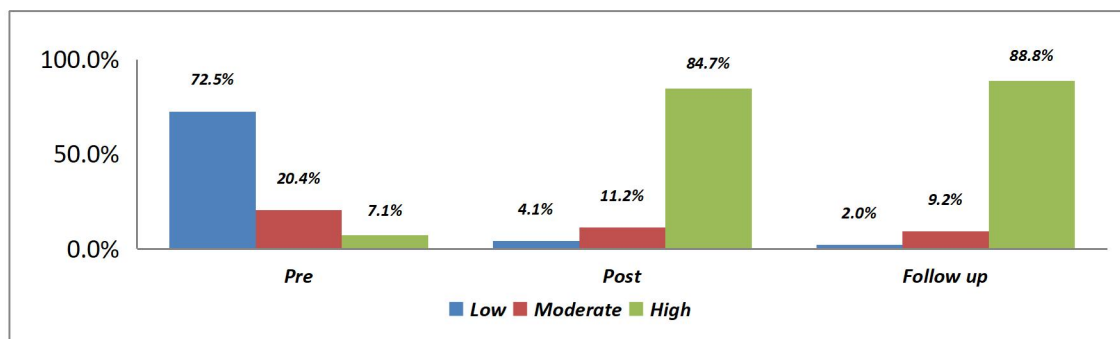(*), (**) Significant at P<0.05, P<0.01.

Figure (1): Distribution of staff nurses' overall knowledge of program-related KS tools.

Table (3): Score of staff nurses' readiness to share knowledge throughout program stages.

| Dimensions				Mean score	Paired Samples Test	
		Pre-	Post-	Follow-up	Pre and Post (t1 P-value	Pre and follow up (t2 P-value
		Mean ± SD	Mean ± SD	Mean ± SD		
Total share knowledge donating		18.98±3.89	32.77±8.21	35.92±6.08	20.07 <0.00**	23.97 <0.00**
Total share knowledge collecting		19.82±4.51	30.69±8.42	32.89±7.07	14.25 <0.00**	18.92 <0.000**
Total readiness to share knowledge	38.47±8.40	66.47±16.63	70.81±13.05		20.37 <0.00**	25.53 <0.00**

(*), (**) Significant at P<0.05, P<0.01.
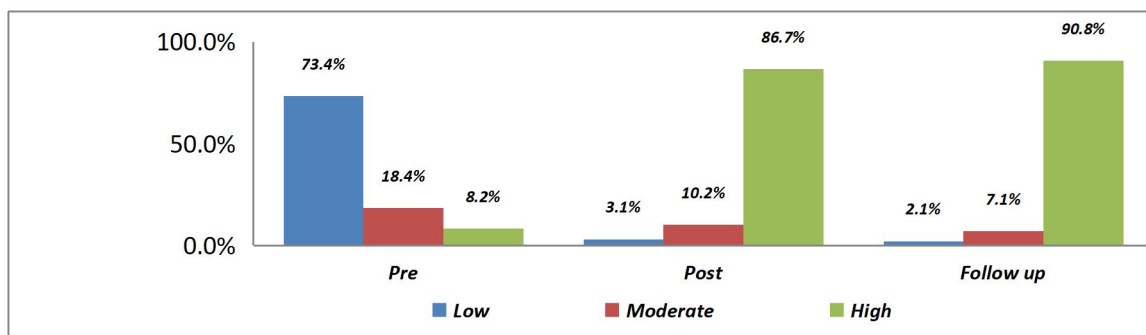
Figure (2): Distribution of staff nurses' total readiness to share knowledge through program stages.

Table (4): Score of staff nurses' innovative work behavior throughout program stages (n= 98).

Items	Pre- Mean ± SD	Post- Mean ± SD	Mean score Follow-up Mean ± SD	Paired Samples Test Pre and Post (t1 P-value	Pre and follow up (t2 P-value
Total idea generation	7.63±2.25	11.42±2.77	12.52±2.51	12.71 <0.00**	14.93 <0.00**
Total idea search	8.55±2.55	11.23±3.01	11.56±2.78	7.88 <0.00**	8.04 <0.00**
Total idea communication	11.69±2.34	14.82±4.05	15.10±3.90	7.89 <0.00**	8.53 <0.00**
Total implementation starting activities	7.96±1.87	11.55±3.00	11.77±2.61	9.78 <0.00**	10.93 <0.00**
Total involving others	8.30±1.71	11.29±3.01	11.70±2.90	9.10 <0.00**	10.32 <0.00**
Total overcoming obstacles	6.95±2.22	10.55±3.22	10.66±3.31	12.97 <0.00**	13.82 <0.00**
Total innovation outputs	6.92±2.28	10.08±3.25	10.48±3.24	14.77 <0.000**	15.08 <0.00**
Total innovative behavior	57.26±15.23	80.74±22.31	82.79±20.79	15.09 <0.00**	18.89 <0.00**

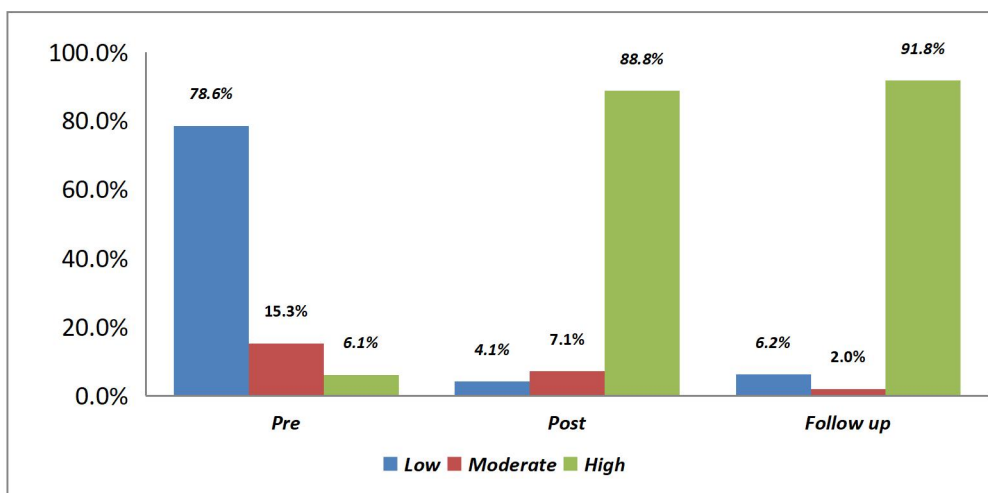(*), (**) Significant at P<0.05, P<0.01.

Figure (3): Distribution of staff nurses' total innovative work behavior through program stages.

Table (5): Correlations coefficients among total readiness to share knowledge score and total knowledge score among staff nurses throughout program stages (n= 98).

Parameter	Total knowledge score					
	Pre-		Post-		Follow-up	
	r	P–value	r	P–value	r	P–value
Total readiness to share knowledge	0.397	<0.00**	0.557	<0.00**	0.521	<0.00**

Table (6): Correlations coefficients among total IWB score and total knowledge score throughout program stages (n= 98).

Parameter	Total knowledge score					
	Pre-		Post-		Follow-up	
	r	P–value	r	P–value	r	P–value
Total innovative behavior score	0.498	<0.00**	0.621	<0.00**	0.567	<0.00**

Table (7): Best fitting multiple linear regression models for total innovative work behavior score post program among staff nurses.

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
A (Constant)	38.475	6.757		5.694	.000
Gender	17.200	8.935	.297	1.925	.059
Level of education	.599	9.449	.011	.063	.950
Years of experience	10.268	2.661	.373	3.859	.000
Total awareness score	1.073	.145	.452	7.399	.000

R= 0.92

Model ANOVA: F= 82.75 <0.000**

Variables entered and excluded: Age.

A. Predictors: (Constant): Gender, Level of education, Years of experience, Total KS score.

B. Dependent Variable: Total innovative behavior score.

Discussion

Knowledge-sharing (KS) is a procedure that advances one's knowledge while also enhancing or creating a repository of knowledge that is available to others. KS is an important idea because it makes people and organizations more flexible and quicker in the face of change, which promotes survival and progress (*Hendricks, 2018)*. The study determined KS training program affected the creative work practices of staff nurses.

The present study results showed that most staff nurses had a low total knowledge level regarding KS items before implementing the program. Because of being most participants came from CCU and ICU, which need careful monitoring and comprehensive treatment, take more time, and ultimately put nurses under a lot of stress, this result may be attributable to the stressful work environment. Another possible explanation is that organization culture is increasingly standing in the way of effective KS. Organizations in which KS is embedded into their culture did not change their culture to tie their knowledge management initiatives.

This result is supported by **Ritala et al., (2015)** who reported that KS is affected

by external barriers such as the contractual environment, legislation, and rules governing KS among different employees. Also **Hung, Lai & Chang, (2011)** said it is well recognized that organizational culture plays a significant role in the development of learning organizations. Positive workplace relationships and the best organizational culture can inspire employees to share their expertise. On the other hand, **Castaneda and Durán (2018)** assessed participants' KS behavior and discovered that workers had a high mean score.

According to the study finding, the staff nurses had a low mean score of total readiness regarding KS before the implementation of the program. This result may be due to individual barriers concerned with lack of time, fear, low awareness of the value of possessed knowledge, variation in experience level, weak communication skills, lack of interpersonal skills, and educational level. This was seen in the overall number of staff nurses who hadn't attended KS training programs and in the fact that most staff nurses had degrees from diploma-granting and technical institutions.

This result was supported by **Razmerita, Kirchner & Nielsen, (2016)** who demonstrated that trust and education levels have an impact on people, keeping them from sharing knowledge. Similarly, **Nakano, Muniz and Batista, (2013)** emphasized the importance of people for organizations in terms of knowledge resources. This is due to the fact that people are the main resource for retaining and transmitting tacit knowledge. People are thus crucial in the transmission of tacit knowledge.

As observed, the staff nurses' readiness regarding total KS demonstrated significant improvement after program implementation. This finding may be attributable to improving their knowledge and abilities, which enable them to impart qualified knowledge, as training sessions

conducted by experts in the field may serve as both extrinsic and intrinsic motivation to promote KS among staff nurses. When given the right conditions, such as organizational support and training, nurses are more eager to share their knowledge.

This outcome aligns with those attained by **Hajian and Sardarthat (2017)** reported a favorable correlation between intrinsic and extrinsic motives and views on KS. Likewise, **Castaneda and Durán (2016)** showed that workers' abilities can be developed through training programs to enable them to share current information with others within an organization, enhancing organizational performance.

Additionally, the results of this study demonstrated that there were highly significant variations between all items as well as overall knowledge of KS questions between program stages. This outcome can be attributable to the powerful influence of public recognition, which encourages nurses to establish a name for themselves through KS. As a result, the encouragement of public acknowledgment motivation encourages someone to make greater effort to reach higher positions. Additionally energizing them spiritually and encouraging their cooperation.

As follows, this cross-cultural close relationship will build their mutual KS, as well as keep them with visions for observing, learning, and encouraging creativity. This result was reliable with **Moeini, (2017)** confirming that public acknowledgment has a substantial impact on KS and intention. These results were consistent with **Dery et al. (2018)** presented compelling proof of the statistically significant impact of extrinsic rewards, reciprocal benefits, self-respect, and open communication with the nurses.

According to the study finding, staff nurses had mostly low-level IWB before the implementation of the program. this was

noted in all areas of innovative work behavior. Such deficiency might be recognized to the learning style and education system in most schools and universities, where learning is mainly reliant on recall. In such system does not provide chance to think or create new idea or search on new knowledge. Congruently with this, a study in Egypt, revealed that a slightly less than one third have low average level of IWB among nurses **Ahmed, and Abd Elhamid (2019)**. However, in disagreement with this present study finding, **Kamel, and Aref (2017)** in a study in Egypt revealed that a high level of IWB was exhibited by half of the nursing staff. Also, **Abd El-Fattah (2017)** in a study in Egypt reported that more than 50% of participants had a mid-level of IWB.

The improvement of staff nurses innovative work behavior after implementation of the program is certainly due to the content and process of the program implementation. Thus, the program is based on staff nurses' needs and focused on applied knowledge. As for the process, there were open discussions where staff nurses freely asked questions concerning various aspect of the program. They obtain the correct answer via discussion and through exchange knowledge and experience.

In line with the findings of the current study, **Kuo et al. (2014)** showed a significant improvement in innovative work behavior in an organization. An organization that encourages knowledge exchange (within groups and organizations) is supposed to produce new and better ideas and foster new business opportunities, thereby enabling organizational innovation. In a similar vein**, Bos-Nehles (2017)** demonstrates that KS implementation has a beneficial impact in inspiring creative work behavior in the business.

Concerning the correlation between KS and creative work practices. The results of this research specified that there is a significant positive association between the KS of staff nurses and their IWB. This result is similar with **Belso and Diez (2018)** firms that increase their involvement in knowledge networks tend to increase their innovative capacity. Also, **Li-Ying et al., (2016)** who found that KS among ICU nurses was positively associated with nurses' innovation.

Conclusion:

This study found that, compared to pre-program implementation, the KS training program had a significant impact on staff nurses' IWB both immediately following and three months after program implementation. The innovative work habits of the entire workforce of nurses and the three program stages were clearly different.

Recommendations:

Pertaining to the findings of the current study, the researcher recommended the following:

- Organizations can offer culture that supports sharing of information and learning together.

- Nurse leaders have to support shared learning and ask to create infrastructures that facilitate KS.

- Enhancing factors to facilitate KS in clinical practice and strengthening nurses' innovation.
- Allow nurses to participate in KS activities which in turn enhance innovative work behavior.

- Inspiring nurses to innovate and share their knowledge with co-workers which generate sustainable organizational success.

Reference

Abd El-Fattah, M.A. Innovation behavior levels and its relationship with TIGER-

Based nursing informatics competencies among critical care nurses. Egyptian Nursing Journal.2017; 14(2): pp 59–69.

Ahmed, A., Ata, A., & Abd Elhamid, Z. (2019). Relationship between leadership behaviors, organizational climate, and innovative work behavior among nurses. American Journal of Nursing Research.2019; 7(5): pp 870-878.

Anderson, N. Potočnik, K. (2014): Innovation and Creativity in Organizations: A State-of-the-Science Review, Prospective Commentary, and Guiding Framework. Journal of Management · June 2014

Belso, J., & Diez, I. (2018). Firm´s strategic choices and network knowledge dynamics: How do they affect innovation? *Journal of Knowledge Management*, 22(1), 1–20.

Bos-Nehles, A. C., Veenendaal, A. A. (2017): Perceptions of HR practices and innovative work behavior: the moderating effect of an innovative climate. The International Journal of Human Resource Management, 1-23.

Bos-Nehles, A., Renkema, M. & Janssen, M. (2017), HRM and innovative work behaviour: a systematic literature review", Personnel Review, Vol. 46 No. 7, pp. 1228-1253. https://doi.org/10.1108/PR-09-2016-0257.

Castaneda, D. I., Fernandez, M., & Durán, W. (2016). Determinants of knowledge sharing intentions and knowledge sharing behavior in a public organization. Knowledge Management & E-Learning, 8(2), 372–386.

Castaneda, D. I., & Durán, W. F. (2018). Knowledge sharing in organizations: Roles of beliefs, training, and perceived organizational support. Knowledge Management & E-Learning: *An International Journal*, 10(2), 148-162.

Ciechanowska, D. (2014): The Ability of Tacit Knowledge Sharing as the Competence Needed in the Knowledge Economy. 114-120.

Dereje, Roba. Worku, Jimma. Chala, Diriba. (2016): Individual, Organizational and Technological Factors Affect Knowledge Sharing Practices in Assosa Hospital, Ethiopia. European Academic Research, - Vol. IV, Issue 5 / August 2016

Dery J, Clarke SP, D'Amour D, Blais R. (2018) Scope of nursing practice in a tertiary pediatric setting: Associations with nurse and job characteristics and job satisfaction. *J Nurs Scholarsh.* 50:65–4. [PubMed] [Google Scholar]

Edú-Valsania, S., Moriano, J. A., & Molero, F. (2016). Authentic leadership and employee knowledge sharing behavior. Leadership Organ. Develop. J. 37(4), 487–506. https://doi.org/10.1108/LODJ-08-2014-0149.

Essays, UK. (2018): Definition and Description of Employee Innovation Behavior. Retrieved from https://www.ukdiss.com/examples/definition-anddescription-of-employee-innovationbehaviour.php?vref=

Frasson, Claude. Kostopoulos, George. (2017): Brain Function Assessment in Learning: First International Conference BFAL 2017, Patras, Greece, September 24-25, 2017. Springer, 2017. Pp. 40-50.

Gogoleva AS, Balabanova ES, Efendiev AG. (2016): Determinants of employee innovative behavior: do foreign and domestic companies in Russia differ? Moscow, Russia: National Research University Higher School of Economics; 2016.

Hajian E, Sardar S. (2017). A pattern to evaluation of motivational factors affecting knowledge sharing. J Inf Proc Manage, 32:1093–118.

Hawryszkiewycz, I. Binsawad, M. (2018): Exploring How Environmental and Personal Factors Influence Knowledge Sharing Behavior Leads to Innovative Work Behavior. In Advances in Information Systems Development. Advances in Information Systems Development, 97-112.

Hendricks, B. (2018): Knowledge Sharing: Definition and Process. https://study.com/ academy/ lesson/ knowledge-sharing-definition-process.htm

Henttonen, K., Kianto, A. and Ritala, P. (2016): Knowledge sharing and individual work performance: an empirical study of a public sector organization. Journal of Knowledge Management, 20(4), 749-768

Hung, S.Y., Lai, H.M., & Chang, W.W. (2011). Knowledge-sharing motivations affecting R&D employees' acceptance of electronic knowledge repository. Behaviour & Information Technology, 30(2), 213-230.

Ipe, M. (2016): Knowledge Sharing in Organizations: A Conceptual Framework. Human Resource Development Review, 2(4), 337-359.

Ireson and Burel (2014): Knowledge Sharing in Collaboration. Knowledge Sharing Behavior among Multigenerational Employees. Asian Social Science. 11(9); 32-35.

J. Clin. Nursing, 25 (13) (2016), pp. 1950-1961,

Jaberi, E. (2016): The effect of knowledge sharing on innovative behavior among employee of Besat hospital in city of Hamedan. International Academic Journal of Accounting and Financial Management. 3(4), 41-47.

Kamel, F.F., & Aref, M.A. Staff nurses' perception toward organizational culture and its relation to innovative work behavior at critical care units. American Journal of Nursing Science.2017; 6(3): pp251-260 27)

Kirsch, P., Hine, A. and Maybury, T. (2015): A model for the implementation of industry-wide knowledge sharing to improve risk management practice. Safety Science, 80, 66-76.

Kuo, Y. K., Kuo, T. H. & Ho, L. A. (2014). "Enabling innovative ability: knowledge sharing as a mediator", Industrial Management & Data Systems, 114(5), pp. 696- 710

https://doi.org/10.1108/IMDS-10-2013-0434

Li-Ying J, Paunova M, & Egerod,I (2016). Knowledge Sharing Behaviour and Intensive Care Nurse Innovation: The Moderating Role of Control of Care Quality. Journal of Nursing Management, 24(7): 943–953, http://dx.doi.org/10.1111/jonm.12404.

Lukes M, Stephan U. (2017): Measuring employee innovation: a review of existing scales and the development of the innovative behavior and innovation support inventories across cultures. Int J Entrep Behav Res. 2017;23(1): 136e58.

Merriam-webster.com. (2018): Merriam-Webster. Retrieved 11 Nov, 2019.

Moeini M. (2017). The effect of perceived costs and benefits of knowledge sharing on knowledge sharing. (M.A. thesis) Islamic Azad University of Isfahan.

Mura, M., Lettieri, E., Radaelli, G., & Spiller, N. (2016): Behavioural operations in healthcare: a knowledge sharing perspective. International Journal of Operations & Production Management, 36(10), 1222- 1246.

Nakano, D., Muniz, J., & Batista, E, D. (2013). Engaging environments: tacit knowledge sharing on the shop floor. Journal of Knowledge Management, 17(2), 290-306, https://doi.org/10.1108/1367327131131 5222

Nguyen, TPL., Trana, NM., Xuan, HD., Nguyena, VH. (2019): The impact of knowledge sharing on innovative work behavior of Vietnam telecommunications enterprises employees. Management Science Letters, 10: 53–62.

Razmerita, L., Kirchner, K., &Nielsen, P. (2016). What factors influence knowledge sharing in organizations? A social dilemma perspective of social media communication. Journal of Knowledge Management, 20(6), 1225-1246.

https://doi.org/10.1108/JKM-03-2016-0112

Ritala, P., Olander, H., Michailova, S., & Husted, K. (2015). Knowledge sharing, knowledge leaking and relative innovation performance: An empirical study. Technovation, 35, 22-31.

Weng, R.H . Chen, W.P . Huang C.Y, . Hung, C.H . Hsu C.T, (2016): Can nurse innovation improve customer perception of service quality and experience?

Witherspoon, C.L., Bergner, J., Cockrell, C. and Stone, D.N. (2013): Antecedents of organizational knowledge sharing: a Meta-analysis and critique. Journal of Knowledge Management, Vol. 17 No. 2, pp. 250-277.

Xue, Y. Bradley,J . Liang,H (2011): Team climate, empowering leadership, and knowledge sharing J. Knowl. Manage., 15 (2) (2011), pp. 299-312,

Zheng, T. (2017): A Literature Review on Knowledge Sharing. Open Journal of Social Sciences, 5, 51-58.