

Knowledge Sharing training program and its effect on innovative behavior among nurse teachers

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Abstract: Knowledge is found to be the main building block for the innovational process. Moreover, Knowledge sharing generates key information that ultimately facilitates and predicts organizational innovation Aim of the study: identifying the effect of knowledge sharing training program on innovative behavior among nurse teachers. Design: Quasi- experimental research design: pretest-posttest design. Setting: all secondary Technical Nursing Schools at Elfayoum governorate. Subjects: All the available nurse teachers who are working in the designated setting involved in the study. Tools of data collection: three data collection tools were used namely: Awareness questionnaire sheet, Knowledge sharing readiness questionnaire, and Innovative Behavior Inventory. Result: There were highly statistically significant differences between nurse teacher's total awareness regarding knowledge sharing, and nurse teacher's total readiness to share knowledge throughout program phases. Moreover, there were highly statistically significant differences between satisfactory level of total innovative behavior among nurse teachers throughout program phases. Additionally, there was a positive highly statistically significance correlation between total readiness to share knowledge score and total awareness score, and between total innovative behavior score and total awareness score among nurse teachers throughout program phases. Conclusion: total readiness to share knowledge, and total innovative behavior among nurse teachers level was improved markedly throughout program phases. Recommendations: Organizations should stimulate knowledge sharing beyond the usual emphasis that can improve nurse teachers' understanding of local routines and environments, and their capability to introduce innovation at work. Innovation and creativity can be developed through enabling knowledge and new ideas to be shared. Future investigation might include the impact that the nurse teachers' knowledge sharing has on Innovative behavior.

Keywords: knowledge Sharing, Nurse Teacher, Innovative behavior.

1. INTRODUCTION

Knowledge has become increasingly critical for organizations in terms of gaining a competitive advantage as they strive to compete in the knowledge sharing. As a result, interest in knowledge management has become a strategic agenda item for leaders and managers (*Ragab and Arisha, 2013*). *Nielsen and Cappelen (2014)* noted that, knowledge creation is vital to organizations of all kinds.

Tacit, explicit and embedded knowledge are the three classifications of knowledge (*Kirsch et al., 2015*). Both (explicit and tacit) knowledge are equally important and complement each other (*Ciechanowska, 2014*). Tacit knowledge can be defined as skills, ideas and experiences that people have but are not codified and may not necessarily be easily expressed (*Chugh, 2015*). Moreover, explicit knowledge is also known as "hard" knowledge. It is that type of knowledge that can be expressed in numbers and words and shared formally and systematically in the form of data, specifications, manuals, and so on. It is part of everyday professional life (*Gonzalez and Martins, 2017*). Knowledge sharing is the process of transferring knowledge to other organizational members in a manner suitable for decision-making (*Okah et al., 2011*).

Knowledge sharing is a culture of social interaction, involves exchanging experiences, knowledge, and skills of employees to all parts of the human resource management process (Mohan, 2017). Knowledge sharing is that activity where agents (individuals, communities or organizations) exchange their knowledge (information, skills or expertise) (Ireson and Burel, 2014). Knowledge sharing can be enhanced and expressed with several factors such as, motivations, organizational culture and social systems which resultantly sharpen the individual competencies and work performance (Hawryszkiewicz and Binsawad, 2018).

The importance of sharing knowledge within educational institutions such as schools was the existence of knowledge and the promotion of a knowledge sharing culture among teaching staff which can generate innovation and enhance educational performance. The exchanging of ideas, opinions, and experiences among schools is critical for developing the learning process (Cheng, 2012). According to Shanker et al., (2017) innovation is the crucial element for individuals' creativity and innovativeness in the organization. It is the most pivotal element to attain sustainable growth.

Innovative behavior is the result of a comprehensive set of behaviors associated with idea creation, idea support and idea implementation. Likewise, it is a multi-stage process by which individual faces a problem and then generates an idea which leads to a solution to the specific problem with innovation and required support from the workforce (Kamp, 2016). Therefore, the innovative behavior can be defined as employees' findings, suggestions and implementation of these ideas on job-related tasks which benefit the organizations' performance (Akram et al., 2018). Organizations that stimulate knowledge sharing within and outside the organizational boundaries are more likely to develop innovations and improve their performance (Howell et al., 2013)

Nursing school is a type of educational institution providing education and training to become a fully qualified nurse. The nature of nursing education and nursing qualifications varies considerably across the world (Balding and Fletcher, 2017). Furthermore, nurse teacher can teach in technical schools. From a global perspective, the nurse teacher is responsible for ensuring that the nursing workforce has the accurate and up-to-date information, skills, and attitudes needed to provide effective care for patients. The type of degree required for a nurse teacher may be dependent upon the governing nurse practice act or upon the regulatory agencies that define the practice of nursing (National Council of State Boards of Nursing, 2019).

Significance of the study: Knowledge sharing creates opportunities to maximize organization ability to meet those needs and generate solutions and efficiencies that provide employees with a competitive advantage. Number of studies has demonstrated that knowledge sharing is essential because it enables organizations to enhance innovative performance and reduce redundant learning efforts (Cheng, 2012).

Aim of the study

This study aimed at identifying the effect of knowledge sharing training program, on innovative behavior among nurse teachers.

Research hypothesis:

There is a change in nurse teacher's innovative behavior after implementation of knowledge sharing training program.

2. SUBJECTS AND METHODS

Research design:

Quasi- experimental research design: pretest-posttest design.

a. Setting:

The study was conducted at all Secondary Technical Nursing Schools at Elfayoum governorate, which affiliated to general administration for technical nursing schools and institutes at the Ministry of Health. Their total number of nursing schools (7).

b. Subjects:

The study subjects included all the available nurse teachers who are working in the designated setting, their total number (60) nurse teachers.

c. Tools of data collection:

Data for this study were collected using three tools namely: Awareness questionnaire sheet, Knowledge sharing readiness questionnaire, and Innovative Behavior Inventory.

1) Awareness questionnaire sheet: To assess nurse teachers' knowledge regarding knowledge sharing: this tool was developed by the researcher based on review of relevant literatures (*Fullwood & Hislop, 2013, Kim et al., 2013 and Hendricks, 2016*). It was include two parts:

Part 1: it was include data pertaining to demographic characteristics of the study subjects (such as age, gender, educational level, years of experience, attending training related to knowledge sharing.

Part 2: It was include questions regarding to knowledge sharing.

Scoring system: Awareness items were scored (one) for the correct answer and (zero) for the incorrect answer. The score of items were summed up and the total was divided by the number of the items. mean and standard deviation were calculated then converted into a mean percent., the score of knowledge was considered unsatisfactory if the percent score was <60%, and was considered satisfactory if the percent score 60% or more (*Kim et al., 2013; Hendricks, 2016*).

(2) Knowledge sharing readiness questionnaire: To assess nurse teachers' readiness to share knowledge. This tool adopted from (*Ridder and deVries, 2006*) it consisted of 16 items. Donating (8items) and Collecting (8items).

Scoring system: Nurse teachers' responses were measured on a 5-point Likert scale ranging from "1= strongly disagree, 2= Disagree, 3= uncertain, 4= Agree, and 5= Strongly agree". The scores of items were summed-up and the total divided by number of the items. These scores were converted into a percent score. The calculation of the mean and standard deviation was done. Knowledge sharing readiness was considered low if the total percent score was less than 60% and high if the total score was 60% or more (*Ridder and deVries, 2006*)

(3) Innovative Behavior Inventory: To assess innovative behavior among nurse teachers. It developed by (*Martin Lluques & Ute Stephan, 2017*). It consisted of 22 items. The tool categorized under 7 main dimensions, these are Idea generation (3items), Idea search (3items), Idea communication (4 items) Implementation starting activities (3items), Involving others (3items), Overcoming obstacles (3items), and Innovation outputs (3items).

Scoring system: Nurse teachers' responses were measured on a 5-point Likert scale ranging from 1= never, 2= rarely, 3=sometimes, 4= often, and 5= always". The scores of items were summed-up and the total divided by number of the items. These scores were converted into a percent score. In addition, the calculation of the mean and standard deviation was done. Innovative Behavior was considered low if the total percent score was less than 60% and high if the total score was 60% or more.

II. Operational design

The operational design for this study included three phase's namely preparatory phase, pilot study, and the fieldwork.

a. Preparatory phase

In this phase the investigator reviewed the national, international, current and past related literature, and using text books, articles, journals, and thesis concerning the topic of the study. Based on this review the investigator prepared the study tools, translate awareness questionnaire sheet, the knowledge sharing readiness questionnaire, and innovative behavior inventory into Arabic and back retranslated to ensure proper wording.

Validity of study tools and program content was done by jury group. Who consists of five experts, two of them were professors of Nursing Administration at Faculty of Nursing, Cairo University, two were Assistant Professor of Psychiatric Nursing at Ain Shams University and one was Assistant Professor of Nursing Administration at Zagazig University. They were asked to express their opinions regarding the proposed tools. Based on their recommendation corrections, addition and / or omission of some items were done.

Tools reliability: The reliability test was done to assess the internal consistency of the tools by using Cronbache's alpha coefficient. These tools proved to be high reliable as indicated in the following.

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

Test variables	No. of Items	Cronbach's Alpha
Awareness questionnaire sheet	24	0.898
Knowledge sharing readiness questionnaire.	16	0.915
Innovative Behavior Inventory	22	0.938

Pilot study

The pilot study was carried out on 10% of the study sample (6 nurse teachers). These six teachers were included in the main study sample. Data obtained from the pilot study was analyzed, and no modifications were done. The time consumed for fulfilling the study tools was 35 minutes.

Field work:

The actual field work of the study lasted for ten months from the beginning of January 2019 to the end of October 2019. The study was conducted through the following five phases:

Phase I (preliminary): the investigator visited department of training and schools in the health directorate to explain the purpose, nature of the study and obtained their permission to carry out the study. Then the investigator met with the nurse teachers, oriented them about the study aim and invited them to participate. The study tools were distributed three times throughout the study (pre, post training program and after three months of the training program implementation for nurse teacher).

Phase II (Training program planning): The content of the training program was developed based on review the related literature and based on the assessment of the knowledge questionnaire. Different instructional strategies were selected to suit the participant's needs, and achieve the objectives and contents of the training program. It was aimed at providing trainers with much experience as possible. Within the available resources, a training program was developed by the researcher. This phase took approximately four weeks.

Phase III (program implementation): the training program was implemented to the nurse teachers in department of training and schools in the health directorate. Nurse teachers were divided into two groups, each group was consisted of 30 teachers. Each group has one session/week and each session was conducted through 3 hours, from 10am to 1pm. The total numbers of sessions were 8 sessions, with 24 hours 16 theoretical hours 8 practical hours allowed for achieving the training program.

Phase IV (post program evaluation): The investigator evaluated the effect of the knowledge sharing training program on the nurse teachers' innovative behavior. A post-test was done immediately after training program implementation by using the same data collection tools as in the pre planning phase. This phase took two months.

Phase V (follow-up): follow up test was repeated three months after post intervention evaluation by using the same data collection tools to evaluate effect of the knowledge sharing training program on the nurse teachers' innovative behavior. This phase took four months.

III. Administrative Design: An official letter requesting permission to conduct the study was submitted from the Faculty of Nursing Ain Shams University to the general director of nursing schools at Elfayoum governorate. The letter included the aim of the study and photocopy from data collection tools in order to get the permission and help for collecting data. Then the general director sent letter for each nursing school director to facilitate the investigator mission.

Ethical consideration: The research approval was obtained from a scientific research ethics committee of the faculty of the nursing Ain Shams University. The aim and purpose of the study were explained to schools administrators as well as the nurse teachers who were included in the study. Also, it assured maintaining anonymity and confidentiality of the subject data. Nurse teachers were informed that they were allowed to choose to participate or not in the study and that they had the right to withdraw from the study at any time.

Statistical Design: Data entry was done using SPSS V20 computer software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means ± standard deviations for quantitative variables. Qualitative variables were compared using chi-square test. Moreover, paired t-test was used to compare between two means in the same studied group pre and post intervention & between two means post intervention and during follow up phase. Chi-square test was used to identify the relations between personal characteristic and their Knowledge sharing Awareness questionnaire sheet, Knowledge sharing readiness questionnaire, and Innovative Behavior Inventory.

Pearson correlation co-efficient (r) was used for assessment of the inter-relationship among quantitative variables. In order to identify the independent predictor of innovative behavior scores, multiple linear regression analysis was used. The confidence level chosen for the study was 95%. Statistical significance was considered at p value <0.05

3. RESULTS

Table (1), shows that, slightly more than half (51.7%) of nurse teachers had age more than 35 years old with mean age of 35.37±5.52. Moreover, majority (83.3%) of them was female and married. Also, more than three quarters (81.7%) of nurse teachers had bachelor degree in nursing, and slightly more than half (51.7%) of them had experience more than 10 years in the current school with mean 8.33±3.5. Meanwhile, all (100.0%) of nurse teachers didn't attend training programs.

Table (2), illustrates that, awareness regarding to knowledge sharing items mean scores of nurse teachers was low before implementing the program. Moreover, awareness mean scores increased markedly in both post and follow up program phases. Also, there were highly statistically significant differences between all items as well as total awareness regarding to knowledge sharing throughout program phases.

Table (3) clarifies that, at pre training program phase minority (13.3%) of nurse teachers had satisfactory total readiness to share knowledge. As observed at post and follow up training program phases the total readiness to share knowledge was improved markedly (80.0%, 91.7%) respectively. Also, there were highly statistically significant differences between total readinesses to share knowledge throughout program phases.

Table (4), shows minority of nurse teachers had satisfactory innovative behavior level at preprogram phase. As observed, at post program phase the nurse teachers satisfactory innovative behavior level was improved markedly to be ranged between (78.3% - 85.0%) in all behavior. While some increased (81.7% - 91.7%) occurred in follow up phase. Also there were highly statistically significant differences between all dimensions satisfactory level as well as the total innovative behavior among nurse teachers at post program phase. While, there were statistically significant differences at follow up program phase.

Table (5), shows there was a positive highly statistically significance correlation between total readiness to share knowledge score and total awareness score among nurse teachers throughout program phases.

Table (6), shows that, there was a positive highly statistically significance correlation between total innovative behavior score and total awareness score among nurse teachers throughout program phases.

Table (7), displays the Best fitting multiple linear regression model for the score of total innovative behavior post program among nurse teachers. As the model shows, nurse teacher's marital status, years of experience in the current school, and total awareness score were positive dependent predicators for the score of total innovative behavior immediate post program. As indicated by the value of R; they explain 95% of the variation of nurse teacher's innovative behavior score.

Table (1): Description of personal characteristic of the nurse teachers (n= 60)

Demographic characteristics	Nurse' teachers (60)	
	Frequency	Percent
Age (in Years)	12	20.0
< 30	17	28.3

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30-35	31	51.7
> 35		
Mean ± SD	35.37±5.52	
Range	27-45	
Gender		
Male	10	16.7
female	50	83.3
Marital status		
single	5	8.3
Married	50	83.3
Divorced	5	8.3
Level of education		
Nursing diploma +specialty in teaching methods	11	18.3
Bachelor degree in nursing	49	81.7
Years of experience in the current school		
< 5 years	12	20.0
5- 10years	17	28.3
> 10 years	31	51.7
Mean ± SD	8.33±3.5	
Training programs		
Yes	0	0.0
No	60	100

Table (2): Distribution of nurse teachers’ awareness regarding to total knowledge sharing throughout program phases (n= 60).

<i>Satisfactory awareness knowledge 60%+</i>	Program phases						<i>Pre& Post(X2 P-value)</i>	<i>post& follow up (X2 P-value)</i>
	Pre		Post		Follow up			
	<i>NO</i>	<i>Percent</i>	<i>NO</i>	<i>Percent</i>	<i>NO</i>	<i>Percent</i>		
<i>Total awareness regarding knowledge sharing</i>	18	30.0	48	80.0	55	91.7	30.30	5.45
							< 0.00**	< 0.01**

(*) Statistically significant at p<0.05 (**) High Significant at P < 0.0

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Table (3): Distribution of nurse teachers’ total readiness to share knowledge throughout program phases

Satisfactory readiness to share knowledge 60%+	Program phases						Pre& Post(X2 P-value)	post& follow up (X2 P-value)
	Pre		Post		Follow up			
	NO	Percent	NO	Percent	NO	Percent		
Total share knowledge donating	7	11.7	49	81.7	56	93.3	59.06	4.86
							< 0.000**	< 0.00**
Total share knowledge collecting	8	13.3	47	78.3	55	91.7	51.06	5.18
							< 0.000**	< 0.00**
Total share knowledge	8	13.3	48	80.0	55	91.7	56.81	4.18
							< 0.000**	< 0.00**

(*) Statistically significant at p<0.05 (**) High Significant at P < 0.01

Table (4): Distribution of nurse teachers’ total innovative behavior throughout program phases (n= 60).

Satisfactory innovative behavior 60%+	Program phases						Pre& Post(X2 P-value)	post& follow up (X2 P-value)
	Pre		Post		Follow up			
	NO	Percent	NO	Percent	NO	Percent		
Idea generation	8	13.3	47	78.3	55	91.7	51.06	5.18
							< 0.000**	< 0.00**
Idea search	13	21.7	49	81.7	54	90.0	43.25	3.45
							< 0.000**	< 0.05*
idea communication	14	23.3	48	80.0	54	90.0	38.58	3.65
							< 0.000**	< 0.05*
implementation starting activities	14	23.3	48	80.0	54	90.0	38.58	3.65
							< 0.000**	< 0.05*
involving others	9	15.0	48	80.0	55	91.7	50.83	3.85
							< 0.000**	< 0.05*
overcoming obstacles	8	13.3	51	85.0	49	81.7	61.65	0.240
							< 0.000**	>0.05
innovation outputs	8	13.3	49	81.7	55	91.7	56.17	3.65
							< 0.000**	< 0.05*
Total innovative behavior	7	11.7	48	80.0	54	90.0	56.43	3.65
							< 0.000**	< 0.05*

(*) Statistically significant at p<0.05 (**) High Significant at P < 0.01

Table (5): Correlations between total readiness to share knowledge score and total awareness score among nurse teachers throughout program phases (n=60).

Parameter	Total awareness score
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	Pre		Post		Follow up	
	r	P-value	r	P-value	r	P-value
<i>Total readiness to share knowledge</i>	0.637	<0.000**	0.587	<0.000**	0.511	<0.000**

Table (6): Correlations between total innovative behavior score and total awareness score among nurse teachers throughout program phases (n=60).

Parameter	<i>Total awareness score</i>					
	Pre		Post		Follow up	
	r	P-value	r	P-value	r	P-value
<i>Total innovative behavior</i>	0.690	<0.000**	0.726	<0.000**	0.595	<0.000**

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

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	19.015	7.127		2.668	.010
Gender	9.638	7.647	.166	1.260	.213
Marital status	15.125	3.072	.286	4.923	.000
Level of education	.131	7.923	.002	.017	.987
Years of experience in the current school	10.807	2.234	.393	4.838	.000
Total awareness score	.778	.135	.328	5.746	.000

R= 0.95

Model ANOVA: F= 89.022 <0.000**

Variables entered and excluded: Age.

a. Predictors: (Constant): Gender, Marital status, Level of education, Years of experience in the current school, Total knowledge sharing score.

b. Dependent Variable: Total innovative behavior score.

4. DISCUSSION

Knowledge sharing is crucial because it enables people to work on existing knowledge within and outside the organization, thus enhancing their capacity to come up with creative solutions, and enabling their organizations to develop new platforms for the development of new products and services to the market (Wang and Noe, 2010). This study aimed at identifying the effect of knowledge sharing training program on innovative behavior among nurse teachers.

The present study findings showed that, less than one third of nurse teachers had satisfactory awareness regarding to total knowledge sharing before implementing the program. From the researcher point of view, this result may be due to career advancement and performance appraisal of nurse teachers seem to be creating a mentality of fear of discouraging them from sharing knowledge, also many nurse teachers refuse to document procedures and information about certain tasks because they do not want to lose their knowledge power to others.

In the same line with the study finding a study conducted at Singapore by Chaudhry, (2005) who mentioned that, knowledge is power' mentality act as one of the barriers to knowledge sharing activities. Moreover, Alhammad et al., (2009) concluded that, academicians are less interested in sharing their knowledge than administrators. This is also supported by Wah et al., (2011) believed that, an individual will only involve in knowledge sharing if such conditions exist, opportunities to do so, communication modality, expectation of the benefits of members accrue, expectation of the

cost of not sharing knowledge, context compatibility for those who shared, motivation is crucial precondition for knowledge sharing, personal compatibility and liking and opportunism.

As observed the awareness regarding to total knowledge sharing was increased obviously throughout program phases. This finding may be due to nurse teachers gained new skills by knowledge sharing with colleagues, which allows them to exchange and discuss ideas with peers, draw their attention to the benefits of ideas and implement ideas by turning into a viable solution. The study finding is consistent with solution *Mura et al., (2013)* who mentioned that, knowledge is acquired and facilitates lawsuits that promote employees' innovative work behavior, when employees actively share knowledge. This study finding is relevant and consistence with *Almahamid and McAdams, (2010)* who claimed that, the learning process is most likely to be voluntary rather than compulsory, and the biggest challenge is increasing the willingness to learn, and acquired new knowledge.

Moreover, the present study findings showed that, there were highly statistically significant differences between total awareness regarding to knowledge sharing throughout program phases. This result may be due to changing nurse teachers' attitudes was the promotion of knowledge sharing within nursing schools, also generating new ideas and developing new opportunities through socialization and learning process of knowledge sharing. In agreements with the study finding *Jones et al., (2010)* who reported that, changing employee attitudes determine the promotion of knowledge sharing within an organization. Also, *Hsiu-Fen (2010)* stated that, one of the vital characteristics of knowledge sharing is that it is capable in generating new ideas and developing new business opportunities through socialization and learning process of knowledge workers.

The results of present study revealed that, at pre training program phase minority of nurse teachers had satisfactory total readiness to share knowledge. This finding may be due to the despite the importance of knowledge production and sharing socio-economic development and in promoting the business and competitive advantage of organizations most nursing school especially in developing countries lack the requisite infrastructures for knowledge management. In the same context *Mutula and Jacobs (2012)* who mentioned that, in the context of higher education in South Africa identified lack of integration of information and knowledge management systems as part of the challenges hampering knowledge sharing in the institutions.

Moreover, as observed at post and follow up training program phases the total readiness to share knowledge among nurse teachers was improved markedly. This result perhaps suggests that, the nurse teachers understand and attach great importance to knowledge sharing this may be due to the positive attitude of nurse teachers towards knowledge sharing after attending the training program, that enabling them for knowledge production and sharing rather than knowledge hoarding. In the same line with the study finding *Hodliffe, (2014)* who mentioned that, the learning culture encourages employees to generate new proficiencies and share their collective knowledge, and augment innovation which elicit quick adaptation to the transforming processes and systems.

Similarly, *Bagaja and Guyo, (2015)* reported that, universities should put more emphasis on training and information sharing in order to improve employee knowledge sharing. Also, there were highly statistically significant differences between total readiness to share knowledge throughout program phases. This result perhaps suggests that, the effect of the training program in promoted a culture of knowledge sharing. In agreements with the study finding *Zakayo, (2017)* who reported that, the universities promoted a culture of knowledge sharing through workshops, research, seminars, publications, presentations, meetings, public lectures, forums, conferences, training, ICT, IT and colloquia.

In addition, the present study finding showed that, minority of nurse teachers had satisfactory total innovative behavior level at preprogram phase. This finding may be due to innovative behavior of nurse teachers is difficult to encourage, especially in educational systems, where neoliberal principles, followed by standardization, accountability and testing have had strong influence. *Hargreaves and Shirley, (2009); Sahlberg, (2010)* mentioned that, innovative behavior of nurse teachers is difficult to encourage, especially in educational systems.

Moreover, as observed there was statistically significant improvement between satisfactory total innovative behavior level among nurse teacher throughout program phases. This finding may be due to the implementation of knowledge sharing training program leads to creativity and innovation which evolves new work methods, new procedures and change in traditional methods and make the school grow and perform better. This is congruent with the finding by *Kamp, (2016)* who mentioned that, the implementation of knowledge sharing may be different as per organizational style and unique

features innovation. Furthermore, *Qammach, (2016)* illustrated that, knowledge sharing is an important factor which affects company's innovation. Explicit knowledge directly affects the innovation speed while tacit knowledge affects innovation quality.

The results of this study revealed that, there was a positive highly statistically significance correlation between total readiness to share knowledge score and total knowledge awareness score among nurse teachers throughout program phases. This finding may be due to training programs could create awareness about the importance of knowledge sharing, which enhance the knowledge sharing practice. This study finding consistent with *Bulan and Sensuse, (2012)* concluded that, creating awareness about the importance of knowledge sharing to enhance the knowledge sharing practice. Also, finding is supported by *Zakayo, (2017)* concluded that, universities provided training opportunities for the academic staff to promote knowledge sharing.

The results of present study revealed that, there was a positive highly statistically significance correlation between total innovative behavior score and total awareness regarding to knowledge sharing score among nurse teachers throughout program phases. This may be due to knowledge sharing enhances nurse teachers' idea generating capacity by forcing them to explain, integrate and translate knowledge to required understandable and relevant information for the receivers, evaluating reflections and input of the receivers of the shared knowledge. This finding is supported by *Radaelli et al., (2014)* who theorized that, the more employees share knowledge with their colleagues, the more they will engage in workplace innovations.

The results of present study revealed that, there was a positive effect of awareness regarding to knowledge sharing in improving nurse teacher's innovative behavior. This finding supported the hypotheses of the study, which was there is a change in nurse teacher's innovative behavior after implementation of knowledge sharing training program. This finding is supported by *Mura et al, (2016)* who mentioned that, sharing knowledge with colleagues allows individuals to exchange ideas, discuss ideas with peers, draw their attention to the benefits of ideas and implement ideas by turning into a viable solution.

In the same line with the study finding *Phung et al. (2017)*; have confirmed that, donating and collecting knowledge having an impact of on innovative work behavior. Also, *Thi et al., (2019)* showed that, knowledge sharing consists of two central processes of donating and collecting knowledge that are related to innovative working behaviors. Consequently, *Trivellas et al., (2015)* have demonstrated, knowledge sharing has a direct impact on innovative work behavior.

Moreover, the best fitting multiple linear regression models for the score of total innovative behavior throughout program phases among nurse teachers showed that, nurse teacher's total awareness score was positive dependent predictors for the score of total innovative behavior throughout post program phases. As indicated by the value of R; they explain 95% of the variation of nurse teacher's innovative behavior score. This finding may be due to nurse teacher are more contributing in innovative work behavior when they are able to get more knowledge as compare to those instances when they have to reciprocate this knowledge.

In agreements with study finding *Lu et al., (2012)* who suggested in their study that, knowledge sharing contributes positively to innovative work behavior of employees. Furthermore *Mura et al., (2013)* and *Akhavan et al., (2015)* are among recent researchers who found the positive effect of knowledge sharing on innovative work behavior. In addition, nurse teacher's years of experience in the current school was positive dependent predictors for the score of total innovative behavior throughout post program phases. This finding is consistent with *Baumann (2011)* who mentioned that, years of experience in current position were found to be significantly positive predict for innovation behavior.

Also, nurse teacher's marital status was positive dependent predictor for the score of total innovative behavior throughout post and follow up program phases. This finding may be due to married nurse teacher have congruence with their job or organization that will increase their involvement in work and enhance their innovative behavior. In contrary with the study finding *Baumann (2011)* who mentioned that, age was positive dependent predictors for the score of innovative behavior.

5. CONCLUSION

According to the study findings, it can be concluded that, awareness regarding to knowledge sharing items mean scores of nurse teachers, total readiness to share knowledge, and total innovative behavior level was low before implementing the

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program. Moreover, as observed the awareness regarding to knowledge sharing items mean scores of nurse teachers, total readiness to share knowledge, and total innovative behavior level with highly statistically significant differences throughout program phases. Finally, there was a positive effect of awareness regarding to knowledge sharing in improving nurse teacher's innovative behavior. This finding supported the hypotheses of the study.

6. RECOMMENDATIONS

Based on the main study findings, the following recommendations were deduced:

- It is essential for university administration to develop enabling strategies on knowledge sharing that create awareness and motivate staff to participate in knowledge sharing practices.
 - Collaboration, trust, and training are needed to enhance the knowledge sharing among academics and raise the university competitiveness.
 - Directors of technical nursing schools should accordingly build an organizational and technological environment that creates the conditions for the exchange of tacit knowledge.
 - Developing training program for top and middle management to support knowledge sharing, which plays an integral role in encouraging and increasing the practice of knowledge sharing throughout the organization.
 - Directors of technical nursing schools can increase knowledge sharing by creating a less centralized structure that supports communication among employees.
 - Nurse teachers must be a part of group discussions and problem-solving provide opportunities to gain knowledge and learn new skills.
 - Providing opportunities for training, developing skills to enhancing the levels of innovation that will help the nurse teachers to be innovative individuals .
 - Innovation and creativity can be developed through enabling knowledge and new ideas to be shared .
- **Further studies are suggested as:**
- The results are, however, exploratory in nature and require replication with a sample from a diverse range of health sector.
 - This study needs to be replicated with a bigger sample of nurse teachers to investigate the question as to whether Knowledge sharing could be linked to Innovative behavior in a broader range.
 - Extending research to other specialties, as well as to other health professions, may cast new light on our findings by emphasizing the influence of context.

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