

The Effect of Implementing Training Program on Organizational Citizenship Behavior Model for Nurse Managers on Organizational Effectiveness

Samia Mohamed Sobhi Mohamed Assistant Lecturer

Nursing administration department, Faculty of Nursing, Alexandria University

Nora Ahmed Bassiouni, Professor

Nursing administration department, Faculty of Nursing, Alexandria University

Amal Diab Ghanem Atalla, Assistance Professor

Nursing administration department, Faculty of Nursing, Alexandria University

Abstract

Background: Organizational citizenship behavior (OCB) explains 63% of individual performance. OCB is very important especially in private healthcare organizations because the extra behavior is beneficial in bridging gaps and facilitating communication, coordination, loyalty, and maintenance of interpersonal harmony which are the most influential factor in determining healthcare organizational effectiveness (OE). **Objective:** To determine The effect of implementing training program on organizational citizenship behavior model for nurse managers on organizational effectiveness. **Settings:** This study was conducted at Mabert El Asafra East Hospital at Alexandria, Egypt. **Subjects:** The target population for this study included two groups; group (1) included nurse managers who were working in the hospital(N=23), Group (2) included a proportion sample from all nurses(n=91)**Tool:** In order to collect the necessary data for the study three tools were used: tool one: Nurse manager's knowledge about organizational citizenship behavior questionnaire, tool two: Nurse managers practice of organizational citizenship behavior observational scale, and tool three: Subordinate nurse's perception about organizational effectiveness scale (OES) **Results,** there is a positive statistically significant difference between the organizational citizenship behavior knowledge , practices level for nurse managers and organizational effectiveness in the three periods; before, immediately after, and after two months of implementing the training program in the study unit. **Conclusion:** implementing a training program on the OCB model has a significant impact on healthcare organizational effectiveness (OE). **Recommendations:** nurse managers should adhere all OCB dimension especially in private healthcare organizations to become a role model to nurses and to increase effectiveness and efficiency.

Keywords: organizational citizenship behavior, organizational effectiveness, nurse managers, nurse and hospital

Introduction

Nurse managers in healthcare organizations need to adopt several forms of behaviour to increase their effectiveness, encourage employees' engagement, to become more adaptive to changes, and to be highly competitive (Taha, Sircova & Ferencova, 2014). Various forms of behaviors that are beneficial to a healthcare organization, performed that spontaneously

by the nurse managers, and they are never directly or explicitly compensated under the formal reward system of the healthcare organization that is known as organizational citizenship behaviour (OCB) (Khiabani & Baroto, 2014) . According to Asbari, Wijayanti & Hyun et al., (2020) OCB is a constructive behavior not included in the formal job description of employees. Organ, Podsakoff, & MacKenzie (1990) introduced a model for OCB in which OCB was shown as a function of five dimensions: altruism,

conscientiousness, sportsmanship, courtesy, and civic virtue. Altruism refers to how to help the other nurses in the health care organization in performing tasks or solving problems (Sheba, 2015). Conscientiousness is the pattern of going well beyond minimally required levels of attendance punctuality, hygienic practices, resource conversation, related matters of internal maintenance, and having more updating information about services offered (Manzoor,2015). Sportsmanship, which shows a tolerant behavior to survive in less than ideal or uncomfortable situations without complaining (Manzoor,2015). Courtesy refers to behavior that is intended to avoid problems and conflicts of coworkers, (Mahmoud, 2018). Civic virtue refers to the responsibility which employees undertake as a member of the organization. It's also providing a favorable image of the healthcare organization for the outsider (Sheba, 2015). OCB is a tool for nurse managers to form a cooperative work environment, improve solidarity in the working environment, this improves healthcare organizational efficiency and effectiveness (Cusí et al, 2020).

Organizational effectiveness is the concept where an organization optimizes its resources and capabilities to achieve its short-term and long-term goals (Mohamed et al.,2017). Human relations emphasize internal focus, flexibility, values cohesion, morale, human resource development (Zeb et al., 2021). The internal processes dimension measured the efficacy of the internal process that makes the healthcare organization effective like transparency, people-friendly bosses, proper definition authorities, and simple routine processes like reporting (Grabowski et al, 2015). The open system dimension measured the ability of the healthcare organization to withstand environmental challenges, acceptability of news ideas, and fruitful interaction with external agencies (Zeb et al., 2021). Competition is a business strategy based on an organization's resources that support an organization to sustain its competitiveness by outperforming others in a

competitive market (Shahzad et al., 2015). A stakeholder is a person, group, organization, or system that affects and can be affected by an organizational action (Kaur,2017). And Job satisfaction defines as a pleasurable or positive emotional state, resulting from the perception of one's job as fulfilling or allowing the fulfillment of one's important job values (Kumari,2017).

Consequently, OCB is vital for the development of the healthcare organization, and this is highly required in hospitals because healthcare personnel must work as a team and work by innovative work, also nurse managers must adopt OCB to improve healthcare organizational image (khiabani&Baroto,2014). Hence, nurse managers should be knowledgeable about OCB and competent to identify behaviors, attitudes, and practices to encourage staff nurses to become more engaged, highly moral, high level of satisfaction, and provide a high quality of care that leads to organizational effectiveness

Aims of the Study

This study aims to determine the effect of implementing training program on organizational citizenship behavior model for nurse managers on organizational effectiveness.

Research hypotheses

- Nurse managers who attend organizational citizenship behavior model training program exhibit higher level of practice of OCB than before the implementation of training program .
- Nurses who are subordinate to the nurse managers achieve higher level of perception of organizational effectiveness than before the implementation of training program on organizational citizenship behavior model

Materials and Method

Materials

Design: Quasi-experimental research (one group pre-test, post-test) design was used in this study.

Settings: This study was conducted at Mabert El Asafra East Hospital. All its departments were included in the study (n=13). Mabert El Asafra East hospital was selected because it provides a wide range of services for multi-specialty and had a bed capacity of more than 50 beds and had a large number of nurse managers and acceptance of the hospital administrator to conduct the study proposal.

Subjects: The target population for this study included two groups; group (1) included nurse managers. The accessible population is identified based on the following inclusion criteria (a) nurse manager working in an administrative position; (b) has completed at least six months of experience in the study hospital (c) willing to participate in the study. The study sample included all nurse managers were working in different managerial positions who worked in different settings (N=23). Group (2) included a proportion sample from all nurses who were subordinate to the selected nurse managers (N=253) to assess their perception of organizational effectiveness before, immediately after, and after two months from implementation of the organizational citizenship behavior training program for nurse managers. The appropriate sample size of nurses is (n=91).

Tools: In order to collect the necessary data for the study three tools were used:

Tool one: Nurse manager's knowledge about organizational citizenship behavior questionnaire.

This tool was developed by the researcher based on review-related literature Atalla & Abdelaa (2019), Kumari, (2018), Thiruvankadam & Durairaj (2017), Sheba (2015), (Manzoor, 2015), Kolade, Oluseye, & Omotayo (2014), and Podsakoff et al (2009) to assess the level of nurse managers' knowledge about OCB. It included 15 closed-

ended questions. Each correct answer was given a score of one and the wrong answer was given a score of zero. The scores of the items were summed - up and converted into percentages scores and were classified as follows: less than 50% = poor level of knowledge, 50- less than 75% = fair level of knowledge, 75% and more than 75% = good level of knowledge.

Tool two: Nurse managers practice of organizational citizenship behavior observational scale.

It was developed by the researcher based on a framework of Podsakoff et al., 2009, Mathur & Kushwah (2007), and Organ (1988) to observe the nurse manager's practice of citizenship behavior. The scoring system was measured by three Likert scales, where (2) = done, (1) partially done, and (0) = not done. It consists of 23 items classified into five dimensions namely: namely Altruism (4 items), Conscientiousness (6 items), Sportsmanship (5 items), Courtesy (4 items), and Civic Virtue (4 items). The scores of the items were summed - up and converted into percentages scores and were classified as follows: less than 50% = poor level of practice, 50- less than 75% = fair level of practice, 75% and more than 75% = good level of practice.

Tool three: Subordinate nurse's perception about organizational effectiveness scale (OES)

It was developed by the researcher based on a framework of Kumari (2018), Sharma (2012), and Vinayan (2012) to assess the level of nurse perception about organizational effectiveness. It consists of 45 items classified into six dimensions namely: human relations (11 items), internal process (10 items), open system (7 items), competition (6 items), stakeholder (5 items), and job satisfaction (6 items). The responses were measured on a 5-point Likert scale ranging from (1) strongly disagree and (5) strongly agree. The scores of the items were summed - up and converted into percentages scores and were

classified as follows :less than 50% = poor level of perception, 50less than 75% =fair level of perception , %75and more than 75% = good level of perception.

Method

Official permission was obtained from the Research Ethics Committee at the Faculty of Nursing, Alexandria University to conduct the study, permission for conducting the study was obtained from the Dean of Faculty of Nursing, Alexandria University, and the hospital administrator to collect the necessary data, tools (1,2,3) were translated into Arabic and tested for their content validity by a panel of five experts in the field of the study. The necessary modifications were done based on their comments on the translation, tools 2: nurse managers' practice o OCB observational scale and tool 3: subordinate nurse's perception about organizational effectiveness scale) were tested for reliability. The internal consistency reliability was assessed using Cronbach's alpha coefficient. The reliability of tool (2) nurse managers' practice of organizational citizenship behavior observational scale was =0.906; tool (3) subordinate nurse's perception about organizational effectiveness scale was = 0.965. This proved that the two tools were highly reliable. , pilot study was carried out on 10 % of nurse managers (n=10), and staff nurses (n=91) from the study settings; in order to check and ensure the clarity of tools, applicability, feasibility, and to identify obstacles and problems and no any modifications were done.

The training program was developed, implemented, and evaluated according to the following phases.

Phase 1: Assessment phase

-Data were collected after obtaining an official agreement from the director of the Mabert El-Asafra East hospital to explain

the objectives of the study and to gain his cooperation.

a) The researcher used educational needs questionnaire and distributed it on nurse managers to collect data related to their previous training and their desires for an organizational citizenship behavior training program

b) **Tool 1:** nurse managers' knowledge about organizational citizenship behavior questionnaire used by the researcher to assess the level of nurse managers' knowledge of organizational citizenship behaviors before the training program by hand-delivered the questionnaire at their working units and returned it back to the researchers.

c) **Tool 2:** nurse manager's practice of organizational citizenship behavior observational scale used by the researcher to observe the nurse manager's practice of OCB. Each nurse manager was observed 2 observations for two shifts, every shift took two hours and relieve for one hour then repeated. and was observed during her/his shift morning or evening or night .

d) **Tool 3:** Subordinate nurse's perception about organizational effectiveness scale used by the researcher to assess the subordinate nurse's perception of organizational effectiveness before introduced the OCB training program for nurse managers. Answering the questionnaire took approximately 15-20 minutes to be completed by each nurse. Data collection of phase 1 took place from 14 May to 8 June 2022 .

Phase 2: Planning stage :

a) Organizational citizenship behavior training program was organized, as follows: the objectives and content were established, and the design of the handout was based on the analysis of data obtained from nurse managers and based on the review of related literature as well as the

teaching sessions, teaching strategies, teaching aids, and time schedules were developed.

b) The program included: general and specific objectives, relevant content, educational methods, and teaching strategies such as interactive lectures, discussions, and brainstorming as well as pictures and videos.

Phase 3: Implementation stage:

a) Before the conduction of the training program for nurse managers (director, assistant director, supervisor, and first-line nurse managers) permission was obtained from the hospital managers and nursing service director.

b) For the implementation of the training program, nurse managers were divided into 4 groups; each group attained the training program involved approximately 4-7 nurse managers. Each group attended three consecutive sessions each session two hour to cover the content. The following educational methods were utilized: discussion, and brainstorming as well as PowerPoint, pictures, and videos. The time of program was twenty-two working days between morning, evening, and night shifts. The program encompassed: objectives, content, teaching strategies, and evaluation techniques pre-and post-test. The training program was conducted from 12 June to 13 July.

Phase 4: Evaluation stage:

- Training program was evaluated. First, before the beginning of the program. Second, immediately after the program, and finally, two months after the program conduction in order to validate the effect of implementing the training program.

-The researcher used Participants' reaction questionnaire and distributed it on nurse managers immediately after program

implementation to reveal their reactions to the benefit gained from the program. The questionnaire explained how to be answered. Nurse managers were given enough time to answer the questions. Answering each questionnaire took approximately from 10-15 minutes to be completed by nurse managers.

-Knowledge assessment after the training program using post-test tool 1: nurse managers' knowledge about organizational citizenship behavior questionnaire was distributed again to nurse managers immediately after the program and after two months to evaluate the gained knowledge in comparison with the pre-test (15 minutes) .

-Observation for nurse managers was conducted by the researcher using tool 2: nurse manager's practice of organizational citizenship behavior observational scale immediately after the program and after two months from the implementation of the training program to assess changes in the performance of nurse managers .

-Evaluation of subordinate nurse's perception of organizational effectiveness was done immediately after the training program and after two months from the implementation of the training program by using tool 3: Subordinate nurse's perception about organizational effectiveness scale to collect data related to the effect of the training program about OCB for nurse managers on the organizational effectiveness as perceived by nurses Answering each questionnaire took approximately 15-20 minutes to be completed by each nurse.

-Data collection of the reassessment phase, immediately after the training program from 14 July to 2 August.

-Data collection of the follow-up phase, after two months of the implementation

training program, this phase took place from 2 October to 3 November .

Ethical considerations:

Written informed consent from the study subjects was obtained after explaining the aim of the study, and their participation was on a voluntary base, witness written consent from the hospital director at the study units for observation was taken after explaining the aim of the study, confidentiality regarding data collection was maintained during the study, Privacy of the study participants was maintained and the right to withdraw from the study was assured.

Statistical Analysis

The collected data were organized, tabulated and statically analyzed using the statistical package for social studies (SPSS) Version 25.0. Qualitative data were described using number and percent. Quantitative data were described mean \pm standard deviation. Finally analysis and interpretation of data were conducted. P-values of 0.05 or less were considered statistically significant.

Results

Table 1 shows that more than one-third of the studied nurse managers in the Mabert El Asafra East Hospital (39.1%) were in the age group ranged from 40 to less than 50 years old. In relation to gender, this table revealed that 73.9% were female. Regarding the marital status, the same table shows that the majority of the studied nurse managers (87%) were married. Also, more than three-quarters of nurse managers (78.3%) were professional nurses (**BScN**).

Concerning the years of experience in the nursing profession, 60.9% of the studied nurse managers had more than 15 years of experience with mean years of experience 18.95 ± 38 . In relation to years of experience in the current job position, this table illustrates that 26,1% of the studied nurse managers had more than 15 years of experience in the current position with mean years of experience 11.78 ± 7.81 .

Table 2 shows that 46.2% of the studied nurses ranged from 20 to less than 30 years old with mean age (32.71 ± 7.88). In relation to gender, this table reveals that 62.6% of the studied nurses were female. Regarding marital status, approximately less than one-half (49.5 %) of the studied nurses were single and 47.3% were married. Concerning educational qualifications, this table shows that the vast majority of studied nurses (93.4%) held a Bachelor's degree of Nursing Science (**BScN**), and 41.8% were working in the intensive care unit.

In respect to years of experience in nursing profession, this table reveals that slightly more than one third (34.1%) of the nurses had 1 to less than 5 years of experience. As well, 29.7% of them had experience ranged from 5 to less than ten years with mean years of experience (5.91 ± 4.80). In relation to years of experience worked in this hospital, this table illustrates that slightly more than one third (37.4%) of the nurses had less than one years of experience in this hospital, as well as 37.4% of them ranged from 1 to less than 5 years of experience with mean years of experience (3.46 ± 3.27).

Table 3 shows that there were statistically significant differences ($P < 0.001$) between before, immediately after and two months after of implementing the training program. On the other hand there were no significant differences ($P = 0.58$) between immediately after and two months after the training program that means the effect of a training program on OCB is still maintained. Also, this table shows that the highest mean percentage (96.52 ± 7.75) of the studied nurses managers' knowledge level on OCB were for immediately after the implementation training program compared to mean percentage (31.88 ± 15.17) before implementing a training program .

Table 4 illustrates that the highest mean percentage of the studied nurse managers practices on OCB was 84.12 ± 3.56 for immediately after implemented training

program compared to 57.56 ± 10.85 before implementing training program. Also, this table shows that there were statistically significant differences ($P < 0.001$) between those before and immediately after for all dimensions namely (Altruism, Conscientiousness, Sportsmanship, Courtesy, and Civic virtue).

Table 5 illustrates that the highest mean percentage of the studied nurses' related to perception of OE 75.59 ± 11.60 were for immediately after implemented training program compared to 47.23 ± 13.86 before the program training implementation. Also, this table shows that there were statistically significant differences ($P < 0.001$) between before and immediately after for all dimensions namely (human relation, internal process, open system, competition, stakeholders, and job satisfaction

Discussion

Regarding the effect of the OCB model training program on nurse managers' knowledge, the finding of the current study shows improvement in their knowledge levels where it was poor before the training program and became good knowledge level in both periods immediately after and two months. Also, statistically significant difference was observed between the effect of the training program before, immediately after the training as well as before and two months after ($P < 0.001$) the training program which confirm hypothesis one.

These results could be contributed to the hospital's selection of professional well-experienced nurse managers, where most of them had more than fifteen years of experience, and nurse managers want continuous self-development that leads to a rapid response to update their knowledge. Also, it is due to the use of an interactive learning strategy with multiple audiovisual materials such as illustrative pictures and PowerPoint, videos and group discussions. all these strategies and aids helped increase knowledge retention.

Whereas, the current study pointed out that nearly most of the studied nurse managers had a good level of practices of the OCB model in relation to altruism, conscientiousness, courtesy, and civic virtue dimensions immediately after and two months after implementing the training program which also confirms hypothesis one. Also, comparing the overall effect of the OCB training program on nurse managers' practices during the three periods, there were statistically significant different between before and immediately after the training as well as before and two months after ($P < 0.001$) the training program. This may be attributed to the researchers' point of view that the nurse managers were interested to know about the OCB model and how can apply it. They were convinced of the advantage for them with guidance, and information and support their abilities to perform their tasks successfully. Also, all nurse managers more adhere to hospital policies (the head nurse asked about a discharge permission before patients exit from the unit and check the physician did the surgery marker before the patient moved into the operation room), maintained the workplace clean, helped nurses during heavy workload (such as head nurse provided total patient care after she received a patient from operation room and inserted cannula because the assigned nurse had a lot of workload), rapid allocated nurses according to the work requirement, had skills in the communication directions upward, downward, horizontal and diagonal, also, encouraged nurses participation in making decisions related to nursing activities.

In relation to nurses' perception of OE before, immediately after, and two months after the training program on OCB model, the present study pointed out that one-half of the studied nurses perceived OE at good level immediately after training program while it was at fair level after two months of the OCB

training program which confirms hypothesis two.

Moreover, the finding of this study revealed that there statistically significant difference between studied nurses' perception toward OE before and immediately after the training program as well as between before and two months after the OCB training program in relation to all dimension of OE ($P < 0.001$). This may be due to the effect of the OCB training program for nurse managers reflected on nurses' where the nurses allowed to participate to work. Also, most of studied nurses were a professional nurse and mean years of experience in the hospital around three years which led to accuracy in their perception of OE about hospital, most of nurse managers evaluate them monthly and provide feedback about their performance, assigned them specific duties specifically with clear job instructions. Moreover, nurse managers provide their nurse's social support. Also, nurses are willing to share information about any issues related work. In this respect, Chiyem and Anayo (2018) reported a significant relationship between goal attainment, system resources, internal process, and stakeholder to OE.

According to the results of repeated measures ANOVA with Bonferroni post hoc analysis between the periods of the training program which had statistically significant differences between nurses managers the OCB knowledge and practices levels for nurse managers and the same showed statistically significant differences between nurses' perception of OE synchronized with the same periods measurement the impact of the OCB training program means implementing a training program on the OCB model in Mabert El Asafra Shark Hospital had a significant impact on healthcare OE. The study findings are consistent with Kumari and Thapliyal (2018) and Sadeghi, Ahmadi, and Yazdi (2016) who found that altruism, sportsmanship, conscientiousness, courtesy, and civic virtue are positively and significantly

($p < 0.05$) correlated with job satisfaction and OE

Conclusion: The implementing a training program on the OCB model has a significant impact on healthcare organizational effectiveness (OE).

Recommendations

In line with the findings of the study, the following recommendations are made:

Recommendations for hospital managers. They should:

- *Establish and organize training programs for nurse managers and all nurses related to applying the OCB model inside the healthcare organization or outside the healthcare organization through coordination with the faculty of nursing.*
- *Display posters and pamphlets for nurse managers and nurses to increase awareness of OCB.*
- *Nurse managers should adhere all OCB dimension especially in private healthcare organizations to become a role models to nurses and to increase effectiveness and efficiency.*

Recommendations for first-line nurse managers. They should:

- *Appreciates the constructive ideas from nurses*
- *Establish a method for identifying needs and providing nurses with regular, constructive feedback to help them improve their performance.*
- *Develop and execute ongoing training programs based on an assessment of the nursing staff's needs.*

Recommendations for nurses. They should:

- *Participate in programs of continual learning to improve their knowledge, work quality, and patient satisfaction.*
- *Encourage nurses to be creative and involved in problem-solving by providing them with innovative solutions.*
- *Encourage nurses to give reports to nurse managers by a continuous way.*

Table 1: Distribution of the studied nurses managers according to their sociodemographic characteristics at Mabert El Asafra East Hospital (N=23).

Demographic characteristics		N	%
Age	20 to less than 30	1	4.3
	30 to less than 40	8	34.8
	40 to less than 50	9	39.1
	50 years or more	5	21.8
M±SD	43.78±8.21		
Gender	Male	6	26.1
	Female	17	73.9
Marital status	Married	20	87
	Single	2	8.7
	Divorced	1	4.3
Level of education	Professional nurse	18	78.3
	Diploma	3	13.1
	Master degree	1	4.3
	Doctoral Degree	1	4.3
Job position	Nurse director	1	4.3
	Nurse director assistance	1	4.3
	The supervisor worked in the open unit	4	17.4
	The supervisor worked in the closed unit	4	17.4
	First-line nurse managers	13	56.6
Years of experience in the nursing profession	1<5	1	4.3
	5<10	3	13.1
	10<15	5	21.7
	≥15	14	60.9
M±SD	18.95±7.38		
Years of experience in the current job position	<1	2	8.8
	1<5	5	21.7
	5<10	5	21.7
	10<15	5	21.7
	≥15	6	26.1
M±SD	11.78±7.81		

Table (2):Distribution of the studied nurses according to their sociodemographic characteristics at Mabert El Asafra East Hospital (n=91)

Nurses socio demographic		N	%
Age	20 to less than 30	42	46.2
	30 to less than 40	37	40.7
	40 to less than 50	9	9.9
	50 years or more	3	3.3
M±SD	32.71±7.88		
Gender	Male	34	37.4
	Female	57	62.6
Marital status	Married	43	47.3
	Single	45	49.5
	Divorce	3	3.3
Qualification	Professional nurse	85	93.4
	Technical nurse	6	6.6
Job position	Word nurse	28	30.8
	ICU nurse	38	41.8
	CCU nurse	3	3.3
	Pediatric nurse	6	6.6
	OR nurse	5	5.5
	ER nurse	8	8.8
	Kidney dialysis	3	3.3
Work unit	Eighth floor (word)	6	6.6
	ER	8	8.8
	Fifth floor (word)	9	9.9
	ICU-A	13	14.3
	ICU-B	11	12.1
	ICU-C	8	8.8
	ICU-Isolation	6	6.6
	Kidney dialysis unit	3	3.3
	NICU	6	6.6
	OR	5	5.5
	PCU	3	3.3
	Sixth floor (word)	9	9.9
Tenth floor (word)	4	4.4	
Years of experience in the nursing profession	<1	18	19.8
	1<5	31	34.1
	5<10	27	29.7
	10<15	8	8.8
	≥15	7	7.7
M±SD	5.91±4.80		
Years of experience in the current job position	<1	34	37.4
	1<5	34	37.4
	5<10	15	16.5
	10<15	4	4.4
	≥15	4	4.4
M±SD	3.46±3.27		

Table (3): Repeated measure ANOVA with Bonferroni post hoc analysis related to studied nurse managers’ knowledge level of OCB model before, immediately after and two months after of implementing the training program

Items	Nurse managers knowledge level		
	Before training program	Immediately after the training program	2 months after the training program
	Mean ±SD	Mean ±SD	Mean ±SD
Total score	4.78 ± 2.29	14.48±1.16	13.22±2.35
% Score	31.88 ± 15.17	96.52 ± 7.75	88.12 ± 15.69
Mean Difference (P)			
Before -immediate	9.69 * (<0.001* *)		
Before - after 2 months	8.43* (<0.001* *)		
Immediate- after 2 months	1.26 (0.58)		
F (P)	F = 189.125** P<0.001**		

Table (4): Repeated measure ANOVA with Bonferroni post hoc analysis related to studied nurse managers’ practices of OCB model before, immediately after and two months after of the implementing training program.

Dimension	Mean±SD			F (P)	Mean Difference		
	Before	Immediate	Post 2 month		Before - immediate	Before - after 2 months	Immediate- after 2 months
Altruism							
Total score	3.96±2.26	7.35 ± 1.30	7.26±1.66	53.48* * (<0.001)	3.39** (<0.001)	3.30** (<0.001)	.08 (1.00)
% score	49.46 ±28.32	91.85 ± 16.26	90.76 ± 20.72				
Conscientiousness							
Total score	8.09 ± 2.41	11.48±0.67	10.65±1.34	36.45** (<0.001)	3.39** (<0.001)	2.56** (<0.001)	.08 * (.012)
% score	67.39 ± 20.09	95.65 ± 5.54	88.77 ± 11.13				
Sportsmanship							
Total score	3.35±1.07	8.73±1.42	6.26±2.04	72.95** (<0.001)	5.39** (<0.001)	2.91** (<0.001)	2.47** (.001)
% score	33.48 ± 10.71	94.22 ± 4.32	62.60 ± 20.49				
Courtesy							
Total score	5.57±1.85	7.87±0.63	7.65±0.83	30.6** (<0.001)	2.30** (<0.001)	2.09** (<0.001)	.21 (1.000)
% score	69.57 ±23.18	98.37 ± 7.82	95.65 ± 10.40				
Civic virtue							
Total score	5.52±1.20	7.91±0.29	7.39±0.84	52.27** (<0.001)	2.39** (<0.001)	1.87** (<0.001)	.52* (.022)
% score	69.02 ± 15.01	98.91 ± 3.60	92.39 ± 10.48				
Total							
Total score	26.48 ± 4.99	43.34±1.99	39.21±3.76	232.50** (<0.001)	16.87** (<0.001)	12.73** (<0.001)	4.13** (<0.001)
% score	57.56 ± 10.85	84.12 ± 3.56	82.51 ± 7.19				

Table (5): Repeated measure ANOVA with Bonferroni post hoc analysis related to perception of studied nurses’ on OE before, immediately after and two months after of the implementing training program.

Dimension	Mean±SD			F (P)	Mean Difference		
	Before	Post	After 2 months		Before-post	Before-after 2 months	Post-after 2 months
Human relation							
Total score	30.26±6.75	43.30±6.31	41.14±6.27	103.93**	13.03**	10.88*	- 2.15
% score	43.78 ± 15.35	73.40 ± 14.34	68.51 ± 14.27	(<0.001)	(<0.001)	(<0.001)	(.085)
Internal process							
Total score	29.75±6.25	41.02±4.99	39.24 ± 6.16	96.160**	11.27**	9.49*	-1.78
% score	49.37 ± 15.63	77.55 ± 12.48	73.10 ± 15.40	(<0.001)	(<0.001)	(<0.001)	(0.125)
Open system							
Total score	21.29±4.86	28.47±3.77	26.10±4.06	62.95**	7.18**	4.81**	-2.37**
% score	51.02 ± 17.36	76.69 ± 13.47	68.21 ± 14.49	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Competition							
Total score	18.19±4.06	24.42±3.42	22.81±3.27	75.78**	6.22**	4.63**	-1.60*
% score	50.78 ± 16.92	76.69 ± 14.33	70.05 ± 13.61	(<0.001)	(<0.001)	(<0.001)	(.004)
Stakeholders							
Total score	14.66±3.95	20.09±2.65	18.42 ± 3.11	68.409**	5.43**	7.36**	-1.67**
% score	48.30 ± 19.78	75.44 ± 13.28	67.09 ± 15.55	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Job satisfaction							
Total score	15.87±4.08	23.78±3.75	22.86±3.79	117.45**	7.91**	6.99**	.92
% score	41.12 ± 17.04	74.08 ± 15.64	70.24 ± 15.79	(<0.001)	(<0.001)	(<0.001)	(.328)
Total							
Total score	130.01±24.94	181.08±20.86	170.57±23.14	124.8**	51.06**	40.56**	-10.49*
% score	47.23 ± 13.86	75.59 ± 11.60	69.76 ± 12.86	(<0.001)	(<0.001)	(<0.001)	(0.005)

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