Effectiveness of using Scenario Based Learning Strategy for Nurse' Managers Cognitive Flexibility on Nurses' Organizational Excellence and Meaningfulness of Work

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Abstract

Implementing a training program based on the organizational cognitive felxibility using new methods of teaching as secnario based learning for nurse managers significantly improves organizational effectiveness in healthcare settings as organizational meaningfulness and excellence. **Aim** of this study is to investigate the effectiveness of using scenario based learning strategy for nurse' managers cognitive flexibility on nurses' organizational excellence and meaningfulness of work. **Research design**: Quasi-experimental research design. **Setting:** Three of Minia University Hospitals. **Subjects**: All (nurses manager =total no 87) and representative sample of 35% from all nurses (total no 257 nurses). **Results**: The nurse managers in study and control group had fair level of cognitive flexibility at pre-test. While at post-test as well as follow-up, above one third of nurse manager in study group had good level than nurse manager in control group with statistically significant difference between two groups. The highest of percentage nurses in study as well as control group had fair level of organizational excellence and work meaningfulness at pre-test. While at post-test and follow-up the highest percentage of nurses in study group had good level of organizational excellence and work meaningfulness than nurse manager in control group with statistically significant variance between two groups. **Conclusion**: The scenario-based learning program was effective in improving nurse managers' cognitive flexibility which in turn improving organizational excellence and work meaningfulness among nurses in the Study group. **Recommendation**: Use scenario-based learning, as part of training programs, to support nurse managers in adopting organizational excellence standards by identifying strengths and weaknesses in performance.

Keywords: Cognitive flexibility, Meaningfulness of Work, Nurses, Nurse Managers, Organizational Excellence, Scenario Based Learning

Introduction

In today's fast-paced world, having adequate cognitive flexibility is another factor that influences desirable nursing performance in hospitals **(Machado, et al., 2018).** Cognitive flexibility is known as the capacity to modify behavioral and cognitive processes in response to ongoing environmental changes. The ability to comprehend the controllable elements of difficult and various situations, offer explanations and a variety of solving for these problems, and not shy away from difficult situations is actually what is meant by cognitive flexibility **(Kılıç, et al., 2023).**

The idea of cognitive flexibility is described as a dynamic steps that enables an individual to positively adjust in spite of conflicting experiences **(Braem, et al., 2018).** According to recent theories, cognitive flexibility is a multifaceted structure that encompasses essential elements including personality, particular skills, and problem-solving abilities **(Medaglia et al., 2018).** Additionally, cognitive flexibility is crucial for behaviours related to health. People that are adaptable are inquisitive on the inside as much as the outside, and they enjoy a wide range of experiences. They actively face and explore various situations, and they actively seek out and enjoy new opportunities **(Mohammadi et al., 2020).**

The ability of an orgnization to be adaptable in how and where its workers are expected to work is known as organisational flexibility. Businesses cannot afford to remain inflexible in an employment environment that is ever changing. As businesses look to the future, the benefits of continuing to provide flexibility are greater. The ability of people or organisations to modify their thoughts and actions in response to shifting circumstances and surroundings is known as

cognitive flexibility, and it has been hailed as a vital skill for success **(Wallin, et al., 2024)**.

Nurses are among the professionals who are in charge of people's health and well-being. They have a lot of difficult tasks to complete in the areas of physical and mental hygiene, and they deal with a lot of physical and psychological stressors at work, such as long hours, a heavy workload, and overtime that is both necessary and optional. Nurses who work in such an environment for an extended period of time may develop disorders and perform incorrectly **(Polat et al., 2022)**. Their attitudes, behaviours, and abilities, their physical as well a mental wellbeing, may be at risk as a result of this illness. Organisational commitment, empowerment, absenteeism, emotional intelligence, organisational excellence, and organisational meaningfulness may all be affected by having a flexible work **(Yang et al., 2023).**

Organizational excellence is identified as " the prosperity and advancement of organization in all its several issues and sides in the way that by favorable satisfaction of all organization stakeholders and firming balance among them enhance the chance of organization victory and excellence in long-term" **(Ghreeb, et al., 2021).** The emphasis on results and stakeholder satisfaction, leadership and reliable goals, management by facts and processes, staff development and sharing, learning, creativity, innovation, and the social mediator role of work engagement responsibility, etc. are some of the fundamental ideas of organizational excellence **(Aldarmaki. & Yaakub, 2022).**

The creation of strategies to attain organizational prosperity that are in harmony with the organization and its surroundings is known as organizational excellence. It guarantees the execution of these plans and their assessment using the instruments of organizational learning, continuous improvement, and total quality management (TQM) **(El-Guindy et al., 2022).**

For an organization to de devoted to a sustainable development with the development of its culture, workplace, and human capital; all that is called organizational excellence. An alternative definition of organizational excellence is the growth and strengthening of the organization in multiple areas to where all stakeholders are satisfied and the organization is profitable over the long term (**Ershadi& Dehdazzi, 2019).**

Al-Dhaafri and Alosani (2020) attribute organizational excellence to the following: organizational leadership, organizational strategy, organizational collaborations and facilities, organizational knowledge, and organizational service excellence. Academic leaders that develop and recent an educational institution's mission as well as vision while encouraging and enhancing academic learning personnel to remain committed to realizing the goal are characterized by organizational leadership excellence. Strategic excellence in the organization developing a stakeholder-focused plan and a market analysis **(Ershadi& Dehdazzi, 2019).**

Additionally, the excellence component of organizational relationships and resources indicates that the educational institution has the top suppliers and resources for instruction. Otherwise, the utilization of technology and expertise in all acquisition knowledge, organization, and transfer skills is described by the organizational knowledge excellence dimension. Lastly, the organizational service excellence factor demonstrates how educational institutions oversee their service delivery processes to provide top-notch instruction **(Alhalaseh & Alrawadyeh, 2020).**

Since the typical work guided by the functional and conventional specifications that predominated in the old bureaucratic pyramid is no longer recognized in the age of knowledge and information. In the globalization era, organizational excellence has emerged as the main concern of all business organizations and the area of study for many researchers. Excellence and variation of knowledge, variations, and employees, as the institution's employees must abandon everything that is standard in most organizations' performance and behavior, as well as the adoption of essential systems and effective practices, in order to achieve outstanding performance **(Buqais, et al., 2018)**.

Moreover, excellence is characterized as a high-quality process of practices that include self-evaluation to enhance the organization's competitive position, effectiveness, and flexibility as well as the involvement of all users in each organization to collaborate in all areas by comprehending all activities, attempting to

eliminate errors, and improving the process of reaching excellence. Therefore, to achieve the maximum level of performance, organizational excellence is a crucial prerequisite for all staff to raise their skills to a level that corresponds with their aptitudes as well as competencies **(Agayebi, 2022)**.

One significant psychological state that is linked to several significant aspects of work (such as career outcomes, job's skills and satisfaction) is the experience of work meaningfulness **(Peng et al., 2020)**. Scholars have stressed the urgent necessity to look into its origins because of its influence on job as well as career outcomes **(Bailey et al., 2019)**.

The importance of a work aim or objective as assessed by the personnel's own standards or goals is known as meaningfulness. According to professional literature, it is the perception of and importance placed on one's existence and nature **(Bailey et al., 2019).** Apathy, disconnection from one's work, and existential burnout are frequently linked to meaningless labor. Accordingly, a personnel's subjective perception of the vital relevance or objectives of labor is reflected in their perception of the description of their employment **(Stepanek et al., 2023).**

As it is connected to employment attitudes, stress markers, and behaviors, good work is significant. More precisely, meaningful work has a moderate relationship with increased organizational citizenship behavior as well as job skills, but a significant relationship with increased organizational commitment and job satisfaction. Also, meaningful work is also somewhat linked to lower turnover intentions as well as lower levels of stress, intention to leave, and counterproductive job behaviors **(Allan et al., 2018; Lysova, et al., 2019)**.

Also, the positive corollaries on both personal and professional results, like increased organizational commitment, self-efficacy, and self-esteem, are exhibited by meaningful work **(Allan et al., 2018a)**. According to **Yildrim and Naktiyok (2017),** meaningful work has a favorable impact on both personal and professional results, including increased organizational commitment, self- efficacy as well as esteem.

The degree to which people find significance in their job and believe they are getting a return on their personal investments in carrying out their roles is known as meaningfulness **(Tan & Yeap, 2021)**. Individual workers usually assess their work according to its significance, value, and importance to them **(Fletcher & Schofield, 2019).** According to **Tan et al. (2023),** work aids people in achieving one or more aspects of meaning, including competence, autonomy, self-realization, and personal progress.

An employee's ability to accomplish organizational goals, objectives, and excellence is greatly enhanced by the meaningfulness of their work **(Allan et al., 2018b)**. Also, a person's job satisfaction and meaningfulness have a good and significant impact on their lives. Additionally, increased meaningfulness of work leads to a number of favorable work-related outcomes (**Kaur& Mittal, 2020).**

Accordingly, meaningful employment is not only crucial for personnel workers but also for organizations and their management, as it is connected to the policies and practices of the workplace (**Lysova et al., 2022**). Management, motivation, and creativity at work are all impacted by whether or not workers believe their work has purpose (**Riivari et al., 2020**).

Nursing education can improve cognitive, functional, and ethical competence by directly examining the partial of pedagogical strategies like SBL. This will prepare nurses for a world that is changing and uncertain all the time **(Weeks et al. 2017).** Furthermore, nurses and midwives found that the scenario-based learning approach helped them make good changes in their own professional practice and had an impact on their attitudes over time **(Richardson et al., 2017).**

The SBL, sometimes known as "case-based learning," is the experience learning methodology that supports active learning tactics with interactive scenarios. Students, learners, or subjects must solve a scenario or plot in the majority of SBL exercises. SBL narratives usually centre on a challenging issue that students must resolve. Additionally, students must use their subject awareness and problem-solving abilities or critical thinking in a secure, real-world setting throughout the SBL process **(Stewart, 2023)**.

The "developmental situational judgment test" (dSJT) technique is the foundation of scenario-based learning (SBL), in which participants interact with short, real-world, interactive scenarios based on text as well as video. A series of questions follow these scenarios that call for context-based reasoning. Situated learning theory, on which SBL is based, holds that learning is most effective when it is integrated into scenarios that link mimic "real-life" skills **(Cox et al., 2017).**

In this regard, SBL can offer participants a variety of complicated and authentic learning expertise in a low-dangerous environment, allowing them to think about various approaches to handling typical teaching difficulties **(Campos et al., 2020**). With automated evaluated information on answer patterns given to the sample and program supervisors for potential follow up, SBL is an educational tool that is simple to use and accessible online whenever it is convenient for the participant (**Johnson, 2020**).

SBL interferences foster the learning supplied by offering to various classroom scenarios (e.g., role-playing or reading brief accounts of events in the classroom) **(Karaoglan- Yilmaz & Yilmaz, 2021).** Also, by offering scaffolded encouragement that connects new experiences (such as SBL) with critical evaluation of said expertise, and clear cues for sample self-reflection result in the enhancement of deeper situational awareness **(Prilop et al., 2019).**

Significance of the study

Cognitive flexibility is the mental ability to deal with new, alterations, or unexpected situations and to shift thinking strategies as needed. Training nurse managers to improve cognitive flexibility has been shown to positively influence their knowledge, practices, and attitudes, which are crucial for achieving organizational excellence - a state where an organization consistently meets or exceeds performance standards and quality outcomes **(Kılıç, et al., 2023).**

Also, it can be demonstrated that educational programs focusing on talent management (which often includes cognitive and adaptive skills) for nursing managers using SBL strategy led to statistically significant improvements in their knowledge, skills, job affiliation, and organizational excellence scores both immediately after the intervention as well as at follow-up. This suggests that when nurse managers are better equipped with adaptive thinking skills, they foster a more effective and high-performing organizational environment **(Mostafa, et al., 2021).**

Also, Organizational factors, including leadership behaviors and support from nurse managers, act a key role in shaping nurses' sense of meaningfulness in their job **(Tong, 2018; Dechawatanapaisal, 2022).** Thus this study will illustrated the cognitive flexibility training programs using SBL for nurse managers can significantly enhance organizational excellence and increase the meaningfulness of work among nurses.

Aim of the study:

The research aims to investigate the effectiveness of using scenario based learning strategy for nurse' managers cognitive flexibility on nurses' organizational excellence and meaningfulness of work.

Objectives to

- Investigate role of scenario based learning on nurses' manager cognitive flexibility
- Evaluate the effect of organizational flexibility program on organizational excellence and meaningfulness of work among nurses.

Research hypothesis:

1. Application of scenario based learning will improve nurses manager level of cognitive flexibility in post-program than pre-program
2. The nurses will have higher level of organizational excellence after implementation of cognitive flexibility program for nurses manager
3. The nurses will have higher level of organizational meaningfulness after implementation of cognitive flexibility program for nurses manager

Setting:

The study was applied at three selected Minia University Hospitals which are: Renal and Urology University Hospital; Liver University Hospital; and Pediatric and Gynecology University Hospital.

Study design

Quasi – experimental research design was utilized to achieve the study aims

Subjects:

- All (nurses manager) worked at the selected Minia University Hospitals (total no 87) was be divided into study and control groups.
- Representative sample of 35% from all nurses, at the selected Hospitals (total no 257 nurses).

Tools of Data Collection:

The following three instruments were used to gather data:

Tool (I): Nurse Managers Cognitive Flexibility Inventory

It was involved from two Parts

Part one: Personal data and occupational data: It was designed by the researchers to collect data from nurse managers as (gender, age, marital status, years of experience, residence, as well as educational qualification).

Part two: Cognitive Flexibility Inventory (CFI): This part designed by **Dennis and Vander-Wal (2010);** and was adopted and translated into Arabic by the researchers. It composed of twenty items; the responses was evaluated by five Likert Scale responses from strongly disagree equal one to strongly agree equal five. The scoring system was divided into three levels as follows:

- Poor cognitive flexibility: *If the score range from 20 to 46*
- Fair cognitive flexibility: *If the score range from 47 to 73*
- Good cognitive flexibility: *If the score range from 74 to 100*

Tool (II): Organizational Excellence Questionnaire:

It was involved from two Parts:

Part one: Personal traits and occupational data: It was designed by the researchers to collect data from nurses as (age, marital status, gender, years of experience, residence, and qualification level).

Part two: Organizational Excellence Questionnaire

This part was designed by the researchers depend on literature **Qawasmeh, et al., (2013); Amalnick and Zadeh, (2017), Ershadi and Dehdazzi (2019), American Nurses Credentialing Center (2020), and El-Guindy, et al., (2022).** It was consisted of (74) items divided into ten dimensions. Each item was measures using the 5-responses Likert scale as follows: (1=always, 2= usually, 3= sometimes, 4= rarely, and 5= never). The scoring system was divided into three levels as follows:

- Poor Organizational Excellence: *If the score range from 74 to 172*
- Fair Organizational Excellence: *If the score range from 173 to 271*
- Good Organizational Excellence: *If the score range from 272 to 370*

Tool (III): Organizational Meaningfulness questionnaire:

This tool included 31 items divided into three parts (**meaningful work, individual work performance, and organizational outcomes**). For evaluating part 1 that was meaningfulness at work, it was encompassed of 10 items developed by **Steger et al. (2012)** and it classified into three dimensions. Part 2 was individual job performance that encompassed of 15 items designed by **Koopmans et al. (2014)**; and it classified into two dimensions. Part 3 was the organizational outcomes; that was used for measuring the organizational effectiveness. Several researchers used utilized, reviewed, and implemented this part **(Cooke, 1997; Szumal, 2001) and Fess and Henderson, 2000;** it included 6 items and classified into two dimensions.

The items of tool was evaluated based on 5 point likert scale as follows (one for "absolutely untrue", two for "untrue", three for "neither true nor untrue", four for refers to "true" and five for "absolutely true"). The scoring system was divided into three levels as follows:

- Poor Organizational Meaningfulness: *If the score range from 31 to 72*
- Fair Organizational Meaningfulness: *If the score range from 73 to 113*
- Good Organizational Meaningfulness: *If the score range from 114 to 155*

Validity and reliability of the study tools

Validity: Five professionals with expertise in the field of nursing administration reviewed the study's tools face and content validity. To hold out the final version of the tools, the suggested changes were completed. The instruments were thought to be reliable from the perspective of the specialists.

Reliability: Reliability was assessed using the Cronbach's Alpha test, and the internal consistency of the tools was ascertained. The results showed that the tools had an acceptable level of reliability for the "Cognitive Flexibility Inventory" ($\alpha = 0.91$), the "Organizational Excellence Questionnaire" ($\alpha = 0.82$), and the "Organizational Meaningfulness questionnaire" ($\alpha = 0.94$).

Pilot Study:

A pilot study was carried out before starting data collection on 10% of the studied sample at selected Hospitals (9) nurse managers and (25) of nurses. This pilot study's objectives were to assess the tools' comprehensiveness, clarity, accessibility, and usefulness as well as to determine how long it would take to complete the questionnaire. Sample of the pilot study was involved in the research sample as there was no major change in the content of the study tools.

Data collection procedures

The data was collected in three phases as preparation and assessment, implementation, and evaluation.

Preparation and assessment Phase:

- Written Approval was obtained from Minia University, Faculty of Nursing -Ethical Committee, code (REC202314) date (3-1-2023).
- A literature review which included different aspects of the study variables was done, through various books, journals as well as web sites, to obtain enough knowledge about the research issues and to perform the research.
- Tools (I and III) was adopted, and tool (II) was designed by researchers depend on related evidences. Then the tools were translated into Arabic language.
- From a jury of five experts, the tools were test for the validity (face and content); and necessary modification were done.
- A pilot study was done and it was involved to total number of the study subjects.
- Tools of the study were tested for reliability and its internal consistency.
- Pre-test was collected from participants (study as well as control groups) using all three study tools in which tool I was collected from nurse managers and tool II and III from nurses. The researchers gathered data in one month from the beginning to the end of March 2023.
- Depend on the result of pre-test, the nurse managers' learning needs was identified.
- Developing the program booklet and scenario for nurse managers' about cognitive flexibility based on the extensive reviewing of the literatures
- The program booklet included knowledge about Cognitive Flexibility such as definitions, importance, components, types of cognitive flexibility exercises, implementing cognitive flexibility, how to improve, sources and ways to develop flexibility, etc.
- The timetable of the program was developed for nurse manages based on their work time schedules. And the learning circumstances was organized in which the research was performed, and all needed facilities (e.g. hospital conference rooms and as well as data show) were revised.
- Developing the program booklet, scenarios, timetable and learning environment was lasted for two months from the starting of April to the end of May 2023.
- This phase lasted from the beginning of January (2023) to the End of May (2023).

Implementation phase:

For the study group; this phase was included the following:

- The study subjects of nurse managers in the study group were divided into eight subgroups, each subgroup contained five to six of nurse managers who were available and allowed to researchers according to their units, and the researchers conducted the program for every subgroup on different time. There were six subgroups included six nurse managers and two subgroups included five nurses managers, and each subgroup was named as follows:

Subgroup	A	B	C	D	E	F	G	H
Number	Six	Six	Five	Six	Six	Five	Six	Six

- Every session was carried out in accordance with the participants' working hours and took place in hospital classrooms. And the program was implemented as eight sessions for each subgroup, with one session every week for each subgroup as follows:

Saturday	Subgroup A and B
Monday	Subgroup C and D
Tuesday	Subgroup E and F
Thursday	Subgroup G and H

- The goals of each session were explained at the start of the meeting. Before each session, comments regarding the previous session was gathered, and at the conclusion of each session, a summary of the current session was provided. The sessions were put into action as follows:

Session one	● Discussed objectives of the program and the research ● Distributed content as well as explain timetable to nurse managers ● Introduced general introduction about cognitive flexibility, definitions and benefits
Session two	● Explained importance, components, types of cognitive flexibility ● Provide Mini general Scenario-Based Learning and discussion
Session three	● Discuss how to implement cognitive flexibility, sources and ways to develop flexibility ● Provide Mini general Scenario-Based Learning and discussion
Session four	● Provide Mini general Scenario-Based Learning and discussion
Session five	● Provide Mini general Scenario-Based Learning and discussion
Session six	**Level two of SBL** ● Provide Complex Scenario-Based Learning and discussion
Session seven	● Provide Complex Scenario-Based Learning and discussion
Session eight	● Provide Complex Scenario-Based Learning and discussion

- There were different teaching facilities were used: power point, video as well as booklets.
- At the end of each session thanks for the nurse managers for their sharing, and at the final session there was a summary about the program provided.
- The time of the program was 8 hours for each subgroup; in which one session per day were given. Each session took about one hour.
- The training program and application of SBL was performed in two months (from the beginning of June 2023 to the end of July 2023).

For control group No intervention was done

Evaluation and follow up Phase:

This phase was done in two sub-phases the evaluation and follow up

Evaluation phase: In this phase nurse managers were assessed by using tool I, and nurses were assessed by using tools II and III for the study as well as control groups. This phase conducted after one month from execution of program (September 2023).

Follow up Phase: In this phase nurse managers were assessed by using tool I, and nurses were assessed by using tools II and III

for the study and control groups. This phase conducted after four month from implementation of program (December 2023).

Administrative design:

- The Minia University Faculty of Nursing's Ethical Committee provided written approval. The Minia University Dean of the Faculty of Nursing gave permission to carry out the research.
- Permissions were get from nurse managers and nurses (Minia university Hospitals).
- After outlining the nature and goal of the investigation, consent was sought from study participants who were willing to participate before the pilot study and the main study were conducted.

Ethical Consideration:

- Minia University's Faculty of Nursing's research ethics committee issued an official letter.
- Minia University's dean of the nursing faculty gave permission to carry out the study.
- Permissions and consent were taken from hospitals director, nursing director at selected hospitals. Also, permissions and consent were obtained from the head of the departments.
- After describing the nature as well as purpose of the research, as well as the nurses' right to withdraw at any time without explanation, consent was obtained from willing share prior to the conduct of both the pilot study and the actual study. Privacy of research participants was consider into account as data was being collected. The participant was given the assurance that all of their information would be kept completely private. To further secure their privacy, each nurse was given a number rather than their names.

Results:

Table (1) shows that there are 45.6% of nurse managers in Study group and 48.8% in Control group aged between 41-50 years old. For the gender, 73.9% of them in Study group and 70.7% in Control group are females. Also, 80.4% of them in Study group and 85.4% in Control group are married. As well as, 43.5% in Study group and 48.8% in Control group of them have 10 to 20 years of experiences. For Educational qualification, 45.7% in Study group and 46.3% in Control group of them have a Bachelor degree of nursing. Regarding residence, 71.7% in Study group and 70.7% in Control group of them are living in rural areas.

Table (2) shows that there are 52.2% of nurses in Study group and 54.6% in Control group aged less than 30 years old. For the gender, 62.3% of them in Study group and 58% in Control group are females. Also, 56.5% of them in Study group and 50.4% in Control group are married. As well as, 55.8% in Study group and 63% in Control group of them have less than 10 years of experiences. For Educinional qualification, 47.1% in Study group and 44.5% in Control group of them have a Bachelor degree of nursing. Regarding residence, 78.3% in Study group and 68.9% in Control group of them are living in rural areas.

Table (3) shows that there are 47.8% of nurse managers in Study group and 48.8% in Control group have fair level of cognitive flexibility at pre-test, with no statistically significant variance (p=0.99). While at post-test, there are 52.2% of nurse manager in Study group and only 12.2% in control group have good level with statistically significant variance between two groups (p=0.001). Also at follow-up, there are 58.7% of nurse manager in Study group and only 14.6% in control group have good level with statistically significant variance ce between two groups (p=0.001). Moreover, this table shows a statistically significant variance between variance time of intervention in study group (p=0.001).

Table (4) shows that there are 52.9% of nurses in Study group and 53.8% in Control group have fair level of organizational excellence at pre-test, with no statistically significant variance between two groups (p=0.89). While at post-test, there are 33.4% of nurses in Study group and only 2.5% in control group have good level with statistically significant variance between two groups (p=0.001). Also at follow-up, there are 39.9% of nurses in Study group and only 3.4% in control group have good level with statistically significant variance between two groups (p=0.001). Moreover, this table shows a statistically significant variance between

various time of intervention in study group (p=0.001).

Table (5) shows that there are 51.4% of nurses in Study group and 52.9% in Control group have fair level of work meaningfulness at pre-test, with no statistically significant variance between two groups (p=0.98). While at post-test, there are 45.7% of nurses in Study group and only 5.9% in control group have good level with statistically significant variance between two groups (p=0.001). Also at follow-up, there are 52.2% of nurses in Study group and only 5.9% in control group have good level with statistically significant variance between two groups (p=0.001). Moreover, this table shows a statistically significant variance between various time of intervention in study group (p=0.001).

Table (6) shows that there are highly statistical significant correlations between cognitive flexibility, orgnizational excellence, and work meaningfulness at pretest, posttest, and followup in study and control groups (p=0.000).

Table (1): Percentage distribution of nurse managers personal data (no.=87)

Personal data	Nurse managers (no.=87)			
	Study group (no.=46)		Control group (no.=41)	
	no	%	no	%
Age				
<30	4	8.7	3	7.3
30-40	13	28.3	12	29.3
41-50	**21**	**45.6**	**20**	**48.8**
>50	8	17.4	6	14.6
Mean ± SD	**41.8423±4.826**		**41.5423±4.636**	
Gender				
Male	12	26.1	12	29.3
Female	**34**	**73.9**	**29**	**70.7**
Marital status				
Single	5	10.9	2	4.9
Married	**37**	**80.4**	**35**	**85.4**
Divorce	2	4.3	2	4.9
Widowed	2	4.3	2	4.9
Years of experience				
<10	8	17.4	6	14.6
10-20	**20**	**43.5**	**20**	**48.8**
21-30	18	39.1	15	36.6
Mean ± SD	**15.6423±3.826**		**15.5423±3.626**	
Educational qualification				
Master Degree	12	26.1	9	22.0
Technical institute of nursing	13	28.3	13	31.7
Bachelor of nursing	**21**	**45.7**	**19**	**46.3**
Residence				
Rural	**33**	**71.7**	**29**	**70.7**
Urban	13	28.3	12	29.3

Table (2): Percentage distribution of nurse personal data (no.=257)

Personal data	Nurses (no.=257)			
	Study group (no.=138)		Control group (no.=119)	
	No	%	No	%
Age				
<30	72	**52.2**	65	**54.6**
30-40	41	29.7	40	33.6
41-50	18	13.0	10	8.4
>50	7	5.1	4	3.3
Mean ± SD	**40.8412±1.234**		**30.8412±1.234**	
Gender				
Male	52	37.7	50	42.0
Female	86	**62.3**	69	**58.0**
Marital status				
Single	49	35.5	56	47.1
Married	78	**56.5**	60	**50.4**
Divorce	7	5.1	2	1.7
Widowed	4	2.9	1	0.8
Years of experience				
<10	77	**55.8**	75	**63.0**
10-20	47	34.1	37	31.1
21-30	14	10.1	7	5.9
Mean ± SD	**10.123±1.112**		**8.134+2.122**	
Educational qualification				
Secondary school nursing diploma	25	18.1	24	20.2
Technical institute of nursing	48	34.8	42	35.3
Bachelor of nursing	65	**47.1**	53	**44.5**
Residences				
Rural	108	**78.3**	82	**68.9**
Urban	30	21.7	37	31.1

Table (3): Percentage distribution of nurse managers Cognitive Flexibility (no.=87)

Study time		Cognitive Flexibility among nurse manager (no.=87)						Mann-Whitney (p-value)
		Study group (n=46)			Control group (n=41)			
		Poor	Fair	Good	Poor	Fair	Good	
Pre test	No	17	22	7	15	20	6	0.005
	%	37.0%	**47.8%**	15.2%	36.6%	**48.8%**	14.6%	(0.996NS)
Post test	No	1	21	24	12	24	5	4.607
	%	2.2%	45.7%	**52.2%**	29.3%	**58.5%**	12.2%	0.001**
Follow up	No	0	19	27	14	21	6	5.076
	%	0.0%	41.3%	**58.7%**	34.1%	**51.2%**	14.6%	0.001**
Kendall's Q test P value		66.865 0.001**			1.500 0.472NS			

Table (4): Percentage distribution of nurses organizational excellence (no.=257)

Study time		Organizational excellence among nurse (no.=257)						Mann-Whitney (p-value)
		Study group (n=138)			Control group (n=119)			
		Poor	Fair	Good	Poor	Fair	Good	
Pre test	No %	60 (43.5%)	73 (52.9%)	5 (3.6%)	52 (43.7%)	64 (53.8%)	3 (2.5%)	0.132 (0.895NS)
Post test	No %	22 (15.9%)	**70** **(50.7%)**	**46** **(33.4%)**	51 (42.9%)	65 (54.6%)	**3** **(2.5%)**	6.669 (0.001**)
Follow up	No %	20 (14.5%)	**63** **(45.7%)**	**55** **(39.9%)**	52 (43.7%)	63 (52.9%)	**4** **(3.4%)**	7.318 (0.001**)
Kendall's Q test P value		160.689 (0.001**)			1.000 (0.607NS)			

Table (5): Percentage distribution of nurses meaningfulness of work (no.=257)

Study time		Meaningfulness of Work among nurse (no.=257)						Mann-Whitney (p-value)
		Study group (n=138)			Control group (n=119)			
		Poor	Fair	Good	Poor	Fair	Good	
Pre test	No %	60 (43.5%)	**71** **(51.4%)**	7 (5.1%)	51 (42.9%)	63 (52.9%)	5 (4.2%)	0. 015 (0.988NS)
Post test	No %	10 (7.2%)	65 (47.1%)	**63** **(45.7%)**	49 (41.2%)	63 (52.9%)	7 (5.9%)	8.321 (0.001**)
Follow up	No %	10 (7.2%)	56 (40.6%)	**72** **(52.2%)**	50 (42.0%)	62 (52.1%)	7 (5.9%)	8.869 (0.001**)
Kendall's Q test P value		213.409 (0.001**)			1.000 (0.607NS)			

Table (6): Correlation between cognitive flexibility, organizational excellence and Meaningfulness of Work

Variable		Study group			Control group		
		Cognitive flexibility	Organizational excellence	Work meaningfulness	Cognitive flexibility	Organizational excellence	Work meaningfulness
Pre- test							
Cognitive flexibility	**R** **P**		0.527** 0.000	0.490** 0.000		0.537** 0.000	0.491** 0.000
Organizational excellence	**R** **P**			0.945** 0.000			0.929** 0.000
Post - test							
Cognitive flexibility	**R** **P**		0.654** 0.000	0.623** 0.000		0.547** 0.000	0.492** .000
Organizational excellence	**R** **P**			0.751** 0.000			0.928** 0.000
Follow - test							
Cognitive flexibility	**R** **P**		0.478** 0.000	0.525** 0.000		0.527** 0.000	0.472** 0.000
Organizational excellence	**R** **P**			0.769** 0.000			0.924** 0.000

*. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Discussion:

A hospital is an organisational structure that houses specialised staff members from a variety of backgrounds who work in different areas of patient care. Nurses are among this organization's most important service providers (**Yusefi et al., 2022**). Additionally, a lot of nurses' conditions can be managed and controlled using cognitive flexibility (**Kruczek et al., 2020**). According to some research, nurses' cognitive flexibility can assist them provide high-quality services in work settings like hospitals by improving and enhancing their personal and professional lives (**Kent et al., 2019; Polat et al., 2022; Yang et al., 2023**).

Regarding personal data; this study showed that uner fifty percent of nurse managers in two groups aged between 41-50 years old. For the gender, under three quarters of them in two groups were females. Also, the majority of them in Study and Control groups were married. As well as, less than half of nurse managers in two groups had 10 to 20 years of experiences. For Educational qualification, it was noted that uner fifty percent of them in two groups had a Bachelor degree of nursing. Regarding residence, the highest percentage of nurse mangers in two groups living in rural areas.

Furthermore, shows that there above fifty percent of nurses in two groups aged less than 30 years old. For the gender, the highest percentage of them in two groups were females. Also, above fifty percent of nurses in two groups were married. As well as, the highest percentage of nurses in two groups of had less than 10 years of experiences. For Educinional qualification, under fifty percent of nurses in two groups of had a Bachelor degree of nursing. Regarding residence, above three quarters in Study group and above two thirds in two groups of nurse living in rural areas.

Regarding Cognitive Flexibility, this study showed that there were less than half of nurse managers in Study group and Control group had fair level of cognitive flexibility at the pre-test, with no statistically significant variance. While at post-test and followup there were more than half of nurse manager in Study group had a good level, while low percentage in control group has a good level with statistically significant variance between two groups. Moreover, threre were a highly statistically significant variance between various time of intervention in study group (p=0.001).

This result indicated that the training program which provided for nurse managers in the study group by using scenario based learning was very effective and have efffective role in improving cognitive flexibility skills. SBLis well-supported by educational theory and a growing body of research demonstrating its effectiveness in developing a range of higher-order cognitive skills essential for adapting to complex and changing situations.

This is matched with **Lundmark, et al., (2017)** who revealed that strategic difficulties are usually intricate and poorly organised, necessitating that students formulate problems thoroughly in order to build useful methods. There is no one correct response to poorly constructed situations, which promotes information analysis and the evaluation of several viewpoints. - Developing tactics in these kinds of situations requires thinking differently as the situation develops, which is consistent with fundamental elements of cognitive flexibility..

This is supported by **Kazempour, et al., (2020)** who agreed that nurse managers can enhance organisational flexibility and decision-making abilities by using scenario-based learning to help them create shared mental models and apply knowledge efficiently.

Also, **Rosenblum, et al., (2021)** indicated that SBL and other real-world exercises assist users in relating their condition's theoretical understanding to their everyday functioning. SBL's usability shows that it supports cognitive flexibility effectively through realistic task simulation. Additionally, SBL is proactive and involved. Students are in the thick of things, making decisions and witnessing the results of those decisions right away. This "learning by doing" method facilitates the development of stronger cognitive connections and increases the transferability of knowledge to novel contexts.

In addition, this is matched with **Wu, and Molnár, (2022)** who mentioned that different exploratory techniques used in complex problem solving (CPS) influence how students evaluate data and modify their ideas, which is consistent with cognitive flexibility. - In CPS, students who

employ more effective exploratory techniques show improved thinking abilities, suggesting increased cognitive adaptability in solving unstructured issues.

Also, **Schlotzhauer, et al., (2023)** explained that implementing SBL using a narrative approach that frames difficult circumstances as stories for improved comprehension and retention can improve organisational flexibility programs for nurse managers. Scenario-based learning using automated generation of realistic clinical situations supports nurse managers in developing flexible decision-making skills in dynamic healthcare settings.

Furthermore, SBL gives learner a secure environment in which to practise making decisions and solving problems in authentic scenarios free from the repercussions of real-world scenarios. This gives them the confidence to try new things, make errors, and take criticism to heart—all of which are essential for growing in adaptability. This result is in line with **Ekinci and Doğtekin, (2023)** who revealed that students in the seventh grade participated in an eight-week psychoeducation program called Bilişsel Esneklik using SBL, which was created to improve cognitive flexibility. Students in the experimental group demonstrated significantly higher levels of cognitive flexibility than those in the control group following the 8-week program. Their research demonstrates that focused psychoeducational programs can successfully improve students' cognitive flexibility, fostering the growth of adaptation.

Also, **Demir-Acar and Çaylak- Altun, (2024)** reported that SBL gives students difficult, frequently "ill-structured" questions with no one correct answer. This compels people to evaluate data, take into account other viewpoints, devise plans, and modify their ideas as the situation develops. All of these are essential elements of cognitive flexibility.

Regarding Organizational Excellence among nurses; this research showed that there were above fifty percent of nurses in two groups had fair level of organizational excellence at pre-test, with no statistically significant variance between two groups. While at post-test, there were one third of nurses in Study group and lowest percentage in control group had good level with statistically significant variance between two groups. Also at follow-up, there were more than one third of nurses in Study group and lowest percentage in control group have good level with statistically significant variance between two groups (p=0.001). Moreover, there were a highly statistically significant variance between various time of intervention in study group (p=0.001).

Before any intervention, both the study group and the sontrol group had a similar starting point. More than half of the nurses in both groups showed a "fair" level of organizational excellence, with no significant statistical difference between them. This indicates that the groups were comparable in terms of organizational excellence at the outset.

Post-Test: in the study group, one-third of nurses achieved a "good" level of organizational excellence, while the control group had a much lower percentage reaching this level. This difference was statistically significant, suggesting the intervention had a positive effect. Follow-Up: The positive impact on the study group persisted. More than one-third of nurses in the Study group maintained a "good" level of organizational excellence at follow-up, again with a statistically significant difference compared to the Control group (p=0.001).

These results indicated that the training program about cognitive flexibility by using SBL which provided to nurse managers had a significant impact on nurses organizational excellence. Also, the impact of meaningfulness of work improve their organizational excellence. Furthermore indicates the intervention's effects were not just temporary but had a lasting impact.

In pre-test, this result is matched with **Daradkeh, (2017)** who stated that the faculty members in his study had a medium degree of practicing organizational excellence. In post- test and follow up, this result is consistent with **Al-Eida, (2020)** who showed that participants in their study setting expressed a high level of organizational excellence. Similarly, **AlHalaseh and Ayoub, (2021)** who claimed that Jordanian commercial banks achieved a high degree of organizational excellence. Moreover, this result is in line with **Abu Jarbou, (2022)** they revealed that there was a high level of organizational excellence at the Gaza University.

Moreover, this is matched with **Awais, et al., (2023)** who mentioned that the ability of an organization to adjust and reallocate resources in dynamic contexts is known as strategic flexibility, and it has a beneficial impact on organizational performance and creativity. The study emphasizes how crucial strategic adaptability and creativity are to attaining long-term organizational excellence, particularly in engineering project-based organizations operating in unpredictable environments.

On the other side **El-Guindy et al., (2022)** found that nursing management staff in their study setting had low perception levels about organizational excellence. Also, this result is in disagreement with **Halaf and Hamed, (2022)** who presented that the University of Karbala had a low degree of organizational excellence from their staff perspectives.

Regarding Meaningfulness among nurses, this study result revealed that there were above fifty percent of nurses in two groups had fair level of of work meaningfulness at pre-test, with no statistically significant variance ce between two groups. While at post-test, there were less than half of nurses in Study group and only about six percent in control group had good level with statistically significant variance between two groups (p=0.001). Also at follow-up, there were more than half of nurses in Study group and only about six percent in control group had good level with statistically significant variance between two groups (p=0.001). Moreover, there were a highly statistically significant variance between various time of intervention in study group (p=0.001).

At the beginning of the study, both the study and the control group were on a similar footing with no statistically significant difference between them. This confirms that the groups were comparable before the intervention began. While After the intervention due to the cognitive flexibility improvement among nurse manager, less than half of the nurses in the study group achieved a "good" level of work meaningfulness. In stark contrast, lowest percent of nurses in the control group reached this level. This disparity was statistically significant, indicating a clear positive impact of the intervention.

Follow-Up: the positive effects were not just temporary. At the follow-up, above fifty percent of the nurses in the Study group maintained a "good" level of work meaningfulness, while the Control group remained low at only about six percent. Again, this difference was highly statistically significant, demonstrating the sustained benefit of the intervention.

This is in line with **Bailey, et al., (2019)** who illustrated that the paradox of meaningfulness in work is demonstrated by the growth of creative and good flexibility, which opens doors to more meaningfulness but may also be stressful, making social relationships more difficult and prioritising individuals above community. And **Lysova et al., (2019**) showed that participants have a good level of work meaningfulness.

Furthermore, **Albrecht, et al., (2021)** mentioned that Numerous workplace resources that increase the meaningfulness of work, including autonomy, organizational rules, flexibility, employment variety, and growth chances, have a large and beneficial impact on meaningful work. Cognitive flexibility and job variety are related because cognitive flexibility helps people better adjust to the demands of diverse work contexts, and job variety can improve cognitive flexibility. The ability to transition between various tasks or conceptual sets is known as cognitive flexibility, and it is essential for handling a variety of professional responsibilities. The best indicators of meaningful work are job variety and cognitive flexibility, suggesting that giving workers a range of activities and abilities significantly enhances their sense of purpose.

And **Lysova et al., (2022**) confirm that emotional and cognitive expetise is a vital determinant of future work meaningfulness. **Lysova et al., (2023**) agreed that positive emotions, including feeling in control, being respected for one's work, being accepted, and having a high degree of flexibility, respect, values, and appreciation from one's superiors, are what promote meaningfulness.

Finally regarding correlations, this research revealed that there were highly statistically significant correlations between cognitive flexibility, organizational excellence, and work meaningfulness at pretest, posttest, and follow-up in study and control groups (p=0.000). This result can be explained that the training program by using scenario based learning (SBL) improve cognitive flexibility among nurse managers which

by his role have a positive effect on nurses' organizational excellence and work meaningfulness.

Regarding role of Scenario based learning; this is matched with **Brewer, et al., (2018)** who explore that training nurses to improve their cognitive control and cognitive flexibility skills, particularly in high-stress work environments, can reduce workplace stress and improve employee wellbeing, organizational excellence, intrinsic job satisfaction, quality of work life, and sense of purpose.

Also in this way **Richardson, et al., (2019)** revealed that participants' attitudes towards these topics can be altered and the development aim of climate action can be better understood by employing scenario-based pedagogy when teaching sustainability in general. Additionally, the scenario-based instructional method received favourable comments from students, who thought the sessions were engaging, fun, and informative. SBL sessions in particular were seen as beneficial, assisting the students in strengthening cognitive skills including adaptability, critical thinking, and problem solving as well as connecting climate change, health care resources, and public health.

A reseearch by **Angafor et al. (2020)** designed that traditional, conventional classroom teaching approaches were found to be less effective than games and exercises. They observed that SBL techniques helped students learn by doing, made learning relevant, gave them practical experience, and brought education to life. By doing thus, these immersive, hands-on, scenario-based training activities combined theory and practice.

In addition **Bardach et al. (2021)** they illustrate that subjects who study with an SBL intervention with the mixed of exercise, reflection , and feedback have increased cognitive abilities and skills, teaching self-efficacy, as well as classroom readiness compared to subjects study to a control condition that included scenarios only

Also, **Angafor et al. (2023)** mentioned that the experiment demonstrated how beneficial SBL are for cyber security education. It went on to explain that scenario-based incident response (IR) exercises are advantageous since managers and IT professionals become more conscious of cyber security when they participate in well-designed and executed exercises. These SBL activities help improve learners' communication, critical thinking, flexibility, emotional intelligence, and decision-making skills.

Regarding correlation of organizational excellence; Anning-Dorson, (2021) mentioned that market flexibility is fuelled by organisational culture and creative leadership, two essential firm-level assets that help participants adjust and successfully compete in volatile marketplaces. Market flexibility, which is a second-order competency that depends on the interaction of organisational culture and leadership, is the firm's capacity to link, coordinate, and synchronise functional wards in order to take benefities of recent opportunities. By better adapting to external constraints, customer expectations, and competition, and having a leadership that create flexible organisations, there will be more excellence in the organisation.

Also, **AlHalaseh and Ayoub, (2021)** point out that in Jordanian commercial banks, establishing organisational excellence through strategic flexibility is greatly impacted by entrepreneurial attitude, which includes innovation, proactiveness, flexibility, and risk-taking. The relation between organisational excellence as well as entrepreneurial orientation is partially explained by strategic flexibility, which serves as a mediator between the two. Strategic flexibility only has a mediating effect when looking at entrepreneurial orientation as a whole, as it does not mediate the relationship between individual aspects of entrepreneurial orientation and organisational excellence.

In the same context **Daharat, et al., (2022)** indicated that organizational excellence is considerable fostered by having innovative practices that emhamce Integrated Management Systems (IMS). IMS is a management paradigm that helps teams handle technology efficiently and accomplish organisational goals. By developing an internal innovation framework within the company, IMS promotes cognitive flexibility and excellence through ongoing innovation.

In this line also**, Abdelaziz, (2023)** agreed that organisational excellence in Jordanian telecommunications companies is greatly impacted by strategic agility, including its components of strategic sensitivity (awareness of

market changes), leadership unity (cohesive leadership), resource fluidity (flexible resource allocation), and cognitive flexibility. As a mediating variable, organisational flexibility facilitates the conversion of strategic agility into greater organisational excellence. Maintaining competitive advantage and attaining organisational excellence need high levels of organisational flexibility and strategic agility.

Regarding correlation of meaningfulness; there was a significant correlation between **organizational excellence and work meaningfulness** and this is confirmed by various evidences, which demonstrated that work meaningfulness positively impact on personnel when they experience success as well as excellence at work **(Hasan & Kashif, 2020).** Staff outcomes including in-role performance, engagement, success, and a sense of excellence at work are all positively correlated with meaningful work experience **(Rabiul et al., 2021).** The self-concept theory states that people who have a positive self-concept will be inspired to complete the duties given to them; as a result, they will be able to relate to the significance of their work and the greatness of the organisation **(Rabiul et al., 2023).**

Also, the results of this study provide a significant correlation between **cognitive flexibility and work meaningfulness** that is support by the idea of **Aydin et al., (2020)** they concurred that cognitive flexibility has a favorable impact on feelings of significance at work and intrinsic job satisfaction, an affective component. Similarly, **Polat et al. (2022)** discovered a favorable correlation between meaningfulness and enjoyment (feeling) and cognitive flexibility. Additionally, **Terry et al. (2022)** address the high correlation between cognitive flexibility and good feelings.

Summary

The findings strongly suggest that the intervention (likely the scenario-based learning program) was effective in improving nurse managers' cognitive flexibility which in turn improving organizational excellence and work meaningfulness among nurses in the Study group, with these improvements being sustained over time. The lack of similar improvement in the Control group further strengthens the case for the intervention's positive impact.

Crucially, the study also found a highly statistically significant variance between the various time points of intervention within the Study group itself. This means that the organizational excellence levels within the Study group improved significantly from pre-test to post-test, and this improvement was maintained or further enhanced at follow-up.

Recommendations:

- Enhance the application of scenario based learning for nurses to develop their cognitive skills
- Allow nurses to have more flexibility from managers to foster their positive feelings regarding their hospitals
- Use scenario-based learning, as part of training programs, to support nurse managers in adopting organizational excellence standards by identifying strengths and weaknesses in performance
- Nurse manager should use effective leadership to have good meaningful work and organizational excellence

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