

Effect of Educational Program about Adaptive Leadership for Nurse Managers on Staff Nurses' outcomes

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Abstract

Background: Leadership style of nurse managers can effectively motivate and mobilize them and enhance staff nurses to accomplish positive outcomes among staff nurses. **Aim of the study:** To assess the effect of educational program about adaptive leadership for nurse managers on staff nurses' outcomes. **Study design:** A quasi-experimental design. **Setting:** The study was conducted in all inpatient units at Benha University Hospital. **Study subjects:** Consisted of two groups: nurses managers (130) and staff nurses group (326). **Tools of data collection:** Three tools were used; **Tool (I)** Adaptive leadership Knowledge Questionnaire, **Tool (II)** Adaptive Leadership Self Report Questionnaire and **Tool (III)** Staff Nurses' Outcomes Questionnaire. **Results:** More than half (60.8%) of nurse managers had inadequate knowledge regarding adaptive leadership at pre-program phase, which improved to the majority (84.6%) of them had adequate knowledge at post-program phase with slightly decrease to be 78.5% at follow up phase. More than three fifths (67.7%) of nurse managers had unsatisfactory performance regarding adaptive leadership approaches at pre-program which improved to be the majority (81.5%) of them had satisfactory performance at immediate post program with slightly decreased to be more than three-quarters (76.9%) at follow up program phase. The highest percent (64.1 % & 59.8%) of staff nurses had high outcomes level at immediate post program and follow up phases respectively compared with one fifths (36.8%) of staff nurses had low level at pre-program phase. **Conclusion:** There were a highly statistically significant positive correlation between nurse managers' total knowledge and performance regarding adaptive leadership and staff nurses' outcomes at immediate post and follow-up program phases. **Recommendations:** Initiating in-service education and training programs in all departments for refreshing and increasing nurse managers' knowledge and skills especially about adaptive leadership.

Keywords: Adaptive leadership, Educational program, Nurse managers, Outcomes, Staff nurses

Introduction:

Nurse managers in nursing are influencing healthcare hospitals at all levels, and in every setting and discipline. Nursing leadership is the ability to inspire, influence and motivate nursing staff to work together to achieve their highest potential and collective hospital goals. The COVID-19 pandemic highlighted more than ever how important strong leadership is for the nursing profession.

The pandemic forced the nursing profession to respond to a rapidly changing and increasingly complex healthcare environment (Dağhan & Topçu, 2022).

Nurse managers become increasingly aware of the correlation between a stronger team and stronger achievements in outcomes, quality and safety, understanding how to incorporate steps for strategic, long-term success into day-to-day practice is a key. In

any given day, nurse managers will solve problem for issues related to bedside care, patient safety, budget constraints, and staffing shortages. Being able to perform well under pressure and adapt the majority of daily challenges is no small endeavor for even the most experienced nurse managers (**Maereg, 2019**).

Leadership style is a necessary function in shaping hospital performance in the area of job satisfaction that can ultimately improve patient care. Productive working environment among nurse managers and their staff nurses can alleviate tensions and disagreements and can contribute to the feeling of job satisfaction and opportunity for career advancement. Staff nurses constitute the largest group of health care providers, and the professional capability plays an important role in fulfilling the health system (**Elbejjani et al., 2020**).

Adaptivity, agility, flexibility, volatility and shifting- these words only touch the surface of how higher education nurse managers have led within a remarkable and ongoing leadership. Challenge and paradigm shift in higher education. Adaptive leadership is a condition that enables dynamic networks and environments to achieve common goals in an environment of uncertainty (**Bileti, 2022**). The adaptive leadership, alternatively, stresses the activities and behaviors of nurse managers in relation to the work of their staff nurses, in each context in which they are embedded. This unique focus assumes that adaptive leadership may manifest differently, given the particular context into which nurse managers must take action (**Kaden, 2020**).

Adaptive leadership involves mobilizing people to address the ambiguous, significant challenges to which there are not readily available solutions. To do so, nurse managers must challenge the existing belief systems and behaviors as well as recognize the greater system and its dynamics that affect

the leadership process. It is a flexible approach that helps hospitals adapt to new challenges and opportunities while retaining the original goals and values. Adaptive leadership is the key in times of rapid change, due to the fact that it permits hospitals to quickly adjust their strategies, policies, procedures, and practices in order to meet the needs of the moment (**Santra & Alat, 2021**).

The distinction made between technical problems and adaptive challenges is that, technical problems are often easy to define, have clear solutions, and can be solved by authorities or by applying existing knowledge or expertise. Technical problems lend themselves to technical work, the aim of which is to quickly and efficiently solve the problem. Adaptive challenges cannot be solved by employing technical strategies, existing capacities, or authority alone. They require adaptive approaches, the aim of which is not to conclusively solve the problem, but to make incremental progress toward solutions (**Nyland, 2022**).

Adaptive challenges necessitate learning and experimentation to both define the problem and to make progress toward solutions, and the onus for doing adaptive work is on the nurse managers within the hospital. Adaptive leadership focuses on eight approaches; get on the balcony, identify the adaptive challenges, regulate distress, maintain disciplined attention, give the work back to nurses, protect leadership voices from below, continuous improvement and systems thinking and problem solving (**Raei, 2021**).

Adaptive leaders have one unique advantage over all other leadership styles: they are able to adjust their approach to leadership based on the situation they face. Instead of forcing one type of leadership in all situations, an adaptive leader is able to evaluate the circumstances and adjust the approach whenever it is necessary. That means that an adaptive leader must be

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familiar with all leadership styles and be able to implement them. It is a skill that is not present in every leader (Northouse, 2021).

Adaptive leadership style is a significant factor that determines nurses' job satisfaction, reduces staff nurses' turnover, and positively impacts patient and staff nurses safety, which are dimensions of staff nurses' outcomes. Adaptive leadership style is vital to defining a healthcare facility's culture and provides a favorable environment that encourages freedom, motivation, job satisfaction, and career progress. An adaptive leader should provide a favorable work environment that will create an equal opportunity for progress and satisfaction among staff nurses (Naidoo, 2020).

Staff nurses are responsible for providing nursing care to the patient. They help in the improvement of the hospital. Adaptive leadership is essential in nursing and considered one of the most effective ways of enabling nurse managers to use their creative abilities to improve the hospital's performance, work-life quality, and outcomes of staff nurses. Nurses' outcome is the autonomy, self-efficacy, job satisfaction, and commitment to the hospital (Kurniawati, et al., 2022).

Significant of the study:

Nurse managers' adaptive leadership program is an in-service education program that strengthens nurse managers' knowledge and performance, especially about adaptive leadership, coaching, teamwork, participative decision making, delegation, communication and motivation of nurse managers and, consequently affect hospital outcomes and subsequently affect staff nurses outcomes (McKimm et al., 2022). Therefore, the present study was conducted to assess the effect of adaptive leadership educational program for nurse managers on staff nurses' outcomes.

Aim of the study:

This study aimed to assess the effect of educational program about adaptive leadership for nurse managers on staff nurses' outcomes through:

- 1- Assessing nurse managers' knowledge about adaptive leadership.
- 2- Assessing actual performance for nurse managers regarding adaptive leadership skills in their work setting.
- 3- Assessing staff nurses' outcomes through the program.
- 4- Designing an educational program about adaptive leadership for nurse managers
- 5- Implementing the designated educational program for nurse managers in their work setting.
- 6- Reassessing the nurse managers immediately after implementation of the educational program with follow up after three months.

Research Hypothesis:

There will be an improvement in nurse managers' knowledge, and performance regarding adaptive leadership in their work settings after implementing the designated educational program, with a positive effect on their staff nurses' outcomes.

Subjects and Method:

Research Design:

A quasi-experimental design was utilized to conduct this study.

Study settings:

This study was conducted in all inpatient units at Benha University Hospitals.

Study subjects: The subject of the present study included two groups:

1- The Nurse Managers group: All available (130) nurse managers "Hospital director (matron) (1), assistants director (4), supervisors (5), head nurses (49) and their assistants (71) who were working in the above mentioned study setting during the time of

data collection and accepted to participate in the current study.

2- Staff Nurses group: Stratified random sample of staff nurses was taken randomly from the above-mentioned study setting (326 out from (1345) who were fulfilled the eligibility criteria of working experience.

Tools of data collection:

Three tools were used for data collection.

Tool (I): Adaptive Leadership Knowledge Questionnaire:

A structured questionnaire developed by the researcher after reviewing of the current related literature (**Bernstein & Linsky, 2016; Clesen, 2017; Kurniawati, et al., 2022 and Raei, 2021**). It included of two parts:

Part (1): It consisted of nurse managers' personal data including; age, gender, level of education, years of experience, social status and attending any training course about adaptive leadership.

Part (2): Knowledge list of questions that was developed by the researcher. It included 50 questions classified under six main dimensions as follows: leadership in nursing, concept of adaptive leadership in nursing, adaptive challenges and technical problems, characteristics of adaptive leader, adaptive leadership approaches, advantages and disadvantages of adaptive leadership to assess nurse managers' knowledge regarding adaptive leadership in their work setting throughout program phases in the form of multiple choice and true or false questions.

Scoring system:

The nurse managers' answers were scored as (one) for correct and (zero) for incorrect. So, the total scores were 50 and cut off point done at 60% that equal 30 degree. In this respect the level of nurse managers' knowledge was categorized as the following;

- Adequate knowledge level $\geq 60\%$ that equals ≥ 30 points.

- Inadequate knowledge level $< 60\%$ that equals (0- < 29).

Tool (II): Adaptive Leadership Self Report Questionnaire:

A self-report questionnaire developed by researcher after reviewing of related literature (**Heifetz, et al., 2009, Aldhaheri, 2020 & Hayman & Barber, 2022**), to assess nurse managers' actual performance regarding adaptive leadership approaches in their work settings throughout program phases. It consisted of 51 items.

Scoring system:

The nurse managers' responses were evaluated through a three-point Likert Scale as follows: always done was scored (2 points), sometimes done was scored (1 point) and never done was scored (zero point). The total scores (102) and cut point was done at 60 % equals 61 scores. Accordingly, nurse managers' adaptive leadership self-reported actual performance levels were categorized as the following;

- Satisfactory level $\geq 60\%$ that equals (61 - 102) points
- Unsatisfactory level $< 60\%$ that equals (0- 60) points.

Tool (III): Staff Nurses' Outcomes Questionnaire:

A structure questionnaire developed by the researcher after review of related literature (**Cadiz, 2010, Zayan, 2013, Chen, et al., 2020 & Zhang, et al., 2022**), to assess staff nurse' outcomes in their work setting throughout program phases. It consisted of two parts:

Part (1): Staff nurse' personal data including age, gender, level of educational, marital status, years of experience and most common work shift.

Part (2) It included (44) items divided under 8 domains; turn over (3 items), job satisfaction (5 items), participation in decision making (4 items), challenging job variables (4 items), fringe benefits (4 items), organizational

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commitment (14 items), nurse safety (5 items) and patient safety (5 items).

Scoring system:

Staff nurses' responses were rated on a three-points Likert Scale as follows; disagree (0 point), uncertain (1 point) and agree (2 point) and total scores (88). Range of scores is from 0:88. Cut off point was done at 60% equals 52 degree. Each staff nurse had chosen only one best answer after reading carefully and understanding. Finally, the answer was assigned in numerical values. According outcomes as reported by staff nurses; level was categorized as the following;

- High level $\geq 75\%$ that equals (66-88) points
- Middle level from 60 % to less than 75% that equals (53-65) points
- Low level $< 60\%$ that equals (0-52) points.

Administrative design:

An official permission was issued from the Dean of the Faculty of Nursing Benha University to the director of Benha University Hospital and then an official approval was obtained from the director of Benha University Hospital to allow the researcher to collect data and give the program content, this approval was given after the aim of the study was clarified

Operational design:

The operational design for this study includes; preparatory phase, pilot study and field work. These phases took about 15 months, starting from the beginning of October 2021 to the end of December 2022.

Preparatory phase:

Reviewing the national and international related literature using journals, periodicals, textbooks, internet and theoretical knowledge of various aspects concerning the topic of the study to develop the tools for data collection. This phase took about seven months,

extended from the beginning of May 2021 to the end of December 2021.

Content validity:

The study tools were revised and ascertained by seven Experts from different nursing Faculties in the field of Nursing Administration; one Professor and one assistant Professor at Tanta University, three assistant Professors at Benha University and two Professors at Menoufia University. The validity of the tools aimed to judge its clarity, comprehensiveness, relevance, simplicity and accuracy. Based on experts' prospective, minor modifications were done based on their comments such as (educational qualifications modified to level of education and demographic characteristics modified to personal data). The researcher developed the final validated form of the tools. This phase took three months starting from January, 2022 to the end of March, 2022.

Reliability of tools:

Reliability of the tools was examined by using the Chronbach's Alpha Coefficient test to measure the internal consistency for all tools; adaptive leadership knowledge was 0.91, nurse managers adaptive leadership approaches self-report was 0.89 and staff nurses' outcomes questionnaire was 0.98 that reflect accepted internal consistency of the tools.

Pilot study:

A pilot study was carried out on (13) nurse managers and (33) staff nurses who represent about 10% of the study subjects at the previously mentioned setting to test the applicability and clarity of the constructed tools. It also served for estimating the time needed to fill data collection tools and to identify obstacles and problems that may be encountered during data collection. No modifications were done and nurse managers and staff nurses involved in the pilot study were included in the main study subjects. The

time required for finishing each questionnaire was around; nurse managers' adaptive leadership knowledge questionnaire 20-30 minutes, nurse managers' adaptive leadership approaches self-report 15-20 minutes and staff nurses' outcomes questionnaire 15-20 minutes. It was done in April, 2021.

Ethical considerations:

Before conducting the study, the researcher explained the nature and the aim of the study to the nurse managers and staff nurses and informed them that participation in the study was voluntary. Oral consent was obtained from each nurse managers and staff nurse in the study. Confidentiality of data obtained was protected by the allocation of a code number to questionnaire sheets. Nurse managers and staff nurses were informed that the obtained data will be used for the research purpose only and have the right to withdraw from the study at any time with no consequences was ascertained.

Field Work

It took seven months; started from May, 2022 to the end of December, 2022.

Phase I (Assessment):

This phase involved meeting with nurse managers and staff nurses; the researcher went to the previously mentioned settings three days weekly (Saturday, Monday and Wednesday) in the morning and afternoon from 10 am to 12 pm by rotation in each study setting. In the beginning, the researcher welcomed the nurse managers and staff nurses gave a brief idea about the aim and activity of the program. Then, the researcher collected baseline data from subject using study tools. The data collection process was carried out in May, 2022, and the average number collected was 10-11 nurse managers and 20-21 staff nurses per day.

Phase II (Planning phase):

Program construction is in a form of printed Arabic booklet to enhance the

adaptive leadership for nurse managers. Based on baseline data obtained from pre-test assessment and relevant literature review, the educational program was developed by the researcher. It was done in June, 2022.

Phases III (Implementation phase)

The implementation phase was achieved through sessions at July, 2022 to the end of August 2022. The researcher divided nurse managers in to six groups, each composed of 21-22 nurse managers. The researcher distributed educational booklet to participants on the first day of program implementation. Daily feedback was given at the beginning of each session about the expectation and the end of each session about the session and activity given to the participant. The educational program had taken 11-12 hours for each group distributed as six theoretical sessions; each session lasted 1.45 - 2 hours and was implemented according to work circumstances. These sessions were repeated with the same to each group of nurse managers. The educational program session took three days (Sunday, Tuesday and Wednesday) per week over four weeks from 10.00 a.m. to 6.00 p.m.

Phase IV (Evaluation phase):

After program implementation, the immediate posttest was carried out to assess knowledge, performance of nurse managers regarding adaptive leadership by using the same previous tools of pretest as well as collect staff nurses outcomes. This helped to evaluate the effect of implemented program. This was done immediately after the program and done also after three months (follow up). The time of data collection lasted for four months from the beginning of September, 2022 to the end of December, 2022.

Statistical analysis:

All data were collected, coded, tabulated and subjected to statistical analysis. Statistical analysis was performed by Statistical Package

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for Social Science (SPSS version 26.0); also, Microsoft Office Excel is used for data handling and graphical presentation. Descriptive statistics were applied quantitative data (e.g., P value, Chi square, frequency, t test and percentages). (χ^2) test was utilized to compare percentage between studied variables. A significant level value was considered when $p \leq 0.05$ and a highly significant level value was considered when $p \leq 0.001$. Parametrical tests e.g., paired (t) test to compare mean scores between the same samples at different study phases.

Results:

Table (1): Shows personal data of the studied nurse managers. It was cleared that more than two-fifths (43.8%) of studied nurse managers were in age ranged from 25 – 30 years with mean score 32.02 ± 7.57 and the majority of them (88.5% & 93.1%) were females and married respectively. Moreover, the level of education of most of them (91.5%) was bachelor degree of nursing. As far as, years of experience, more than half (50.8%) of them had 5–10 years of experience with mean score 10.08 ± 5.09 . Additionally, most of them (91.5%) didn't attend a training course about adaptive leadership.

Table (2): Shows personal data of the studied staff nurses. It was revealed that more than two-fifths (40.2%) of studied staff nurses were in age group >30 years with mean score 30.02 ± 7.57 . In relation to the gender, most of them (94.2%) were females. Increasingly, the level of education of more than half of them (57.1%) was nursing diploma. As regards years of experience, two thirds (60.1%) of them had 5–10 years of experience with mean score 7.87 ± 4.22 . Moreover, most of them (96.9%) were married and the most common work shift of

more than half of them (53.1%) were morning shifts.

Figure (1): Displays that, three fifth (60.8%) of nurse managers had inadequate knowledge regarding adaptive leadership at pre-program which, it improved to be the majority (84.6%) of them had adequate knowledge regarding adaptive leadership at immediate post program with slightly decreased to be more than three-quarters (78.5%) of them had high regarding adaptive leadership at follow up phase of program.

Table (3): Elaborates that, after implementation of program, the total mean score for knowledge domains of the studied nurse managers was higher than the score before implementation with a highly statistically significant difference ($p \leq 0.001$) among pre-program, immediately post-program and follow up phases. The highest total mean score of nurse managers' knowledge at immediate post was (8.38 ± 1.07) with mean percent (83.8%) and at follow up phase was (7.72 ± 1.50) with mean percent (77.2%) related to adaptive challenges and technical problems compared with pre-program phase (6.49 ± 1.42) with mean percent (64.9%).

Figure (2): Displays that, more than three fifths (67.7%) of nurse managers had unsatisfactory self-reported actual performance about adaptive leadership approaches at pre-program which, it improved to be the majority (81.5%) of them had satisfactory self-reported actual performance about adaptive leadership approaches at immediate post program with slightly decreased to be more than three-quarters (76.9%) of them had satisfactory level regarding adaptive leadership approaches at follow up phase of program

Table (4): Clears that, after implementation of program, the total mean score & percent mean for self-reported actual

performance of the studied nurse managers regarding Approaches of adaptive leadership was higher than the score before implementation with a highly statistically significant difference ($p \leq 0.001$) among pre-program, immediately post-program and follow up phases. The highest total mean score of nurse managers' knowledge at immediate post was 8.70 ± 1.13 with mean percent 87% and at follow up phase was 8.26 ± 1.25 with mean percent 82.6% related to give the work back to nurses compared with pre-program phase 7.56 ± 1.04 with mean percent 75.6%.

Figure (3): Displays that, more than one third (36.8%) of staff nurses had low level of outcomes at pre-program which, it improved to be more than three fifths (64.1%) of them had high level of outcomes at immediate post program with slightly decreased to be more than half (59.8%) of them had high level of outcomes at follow up phase.

Table (5): Clears that, after implementation of program, the total mean score for outcomes of the studied staff nurses was higher than the score before implementation with a highly statistically significant difference ($p \leq 0.001$) among pre-program, immediately post-program and follow up phases. The highest total mean score of staff nurses' outcomes at immediate post program was 4.74 ± 0.90 with mean percent 79% and at follow up phase was 4.36 ± 0.97 with mean percent 76.2% related to turnover & job satisfaction respectively compared with pre-program phase 17.29 ± 1.89 with mean percent 61.75% regarding organizational commitment.

Table (6): Illustrates that, there was a positive highly statistically significant positive correlation between nurse managers' total knowledge and total self-reported actual performance score regarding adaptive leadership and staff nurses' outcomes at pre-

program, immediate post and follow up program phases.

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Table (1) Frequency distribution of nurse managers regarding their personal data (n=130).

Personal data	No	%
Age:		
<25 years	24	18.5
25 – 30years	57	43.8
>30years	49	37.7
Mean ± SD = 32.02±7.57		
Gender:		
Male	15	11.5
Female	115	88.5
Level of educational:		
Bachelor degree	119	91.5
Master degree	5	3.9
Doctorate degree	6	4.6
Years of experience:		
<5years	18	13.8
5 – 10years	66	50.8
>10years	46	35.4
Mean ± SD =10.08 ±5.09		
marital Status:		
Married	121	93.1
Unmarried	9	6.9
Attending a training course about adaptive leadership:		
Yes	11	8.5
No	119	91.5

Table (2): Frequency distribution of staff nurses regarding their personal data (n=326).

Personal data	No	%
Age:		
<25years	87	26.7
25 – 30years	108	33.1
>30years	131	40.2
Mean ± SD = 30.02±7.57		
Gender:		
Male	19	5.8
Female	307	94.2
Level of education:		
Nursing diploma	186	57.1
Associated degree of nursing	101	31.0
Bachelor degree	31	9.5
Postgraduate studies	8	2.4
Marital Status:		
Married	316	96.9
Unmarried	10	3.1
Years of experience:		
<5years	79	24.2
5 – 10years	196	60.1
>10years	51	15.7
Mean ± SD = 7.87 ± 4.22		
Most common work shift:		
Morning shifts	227	70%
Afternoon shifts	48	14.7
Long day shifts	30	9.2
Night shifts	21	6.4

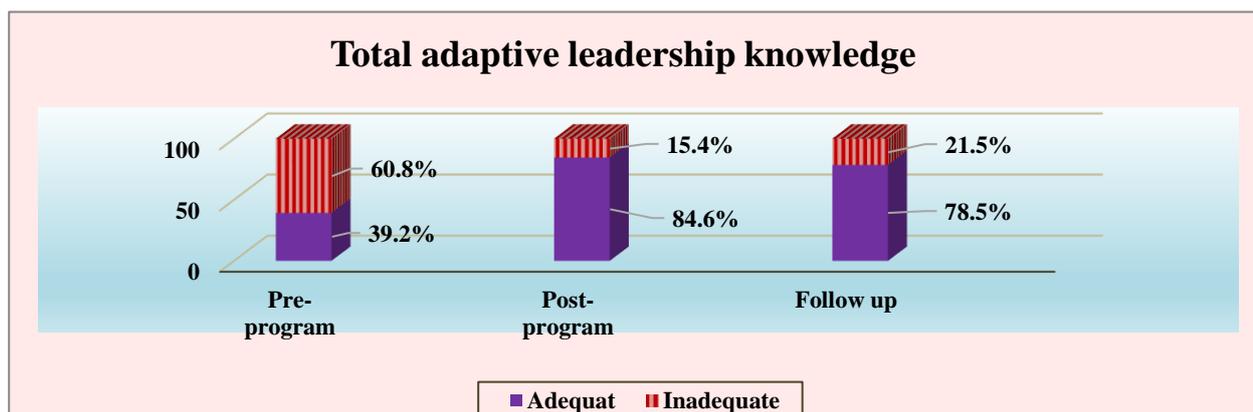


Figure (1): Nurse managers' adaptive leadership knowledge total levels through program phases.

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Table (3): Mean scores of nurse managers' adaptive leadership knowledge throughout program phases (n=130).

Knowledge domains	Maximum score	Pre-intervention	Mean %	Post-intervention	Mean %	Follow up	Mean %	Paired t (1) p-value	Paired t (2) p-value	Paired t (3) p-value
		Mean ± SD		Mean ± SD		Mean ± SD				
leadership in nursing	9	5.07±0.92	56.3%	7.27±0.86	80.8%	7.13±0.94	79.2%	19.17 0.000**	17.90 0.000**	1.14 0.25
Concept of adaptive leadership in nursing	12	4.14±1.14	34.5%	7.15±1.81	59.6%	6.93±1.80	57.8%	15.58 0.000**	15.26 0.000**	0.833 0.40
Adaptive challenges and technical problems	10	6.49±1.42	64.9%	8.38±1.07	83.8%	7.72±1.50	77.2%	12.69 0.000**	6.46 0.000**	1.87 0.124
Characteristics of adaptive leader	7	3.71±0.86	53%	5.16±1.60	73.7%	4.69±1.31	67%	8.95 0.000**	7.24 0.000**	1.56 0.144
Adaptive leadership approaches	7	3.33±0.99	47.57%	5.16±1.55	73.7%	4.83±1.27	69%	11.53 0.000**	10.75 .000**	1.91 0.058
Advantages and disadvantages of adaptive leadership	5	2.27±0.88	45.4%	3.53±1.14	70.6%	3.24±1.04	64.8%	9.29 0.000**	7.61 0.000**	1.89 0.092
Total score	50	25.04±2.25	50.08%	36.69±3.77	73.38%	34.60±3.10	69.2%	29.93 0.000**	28.59 0.000**	1.67 0.159

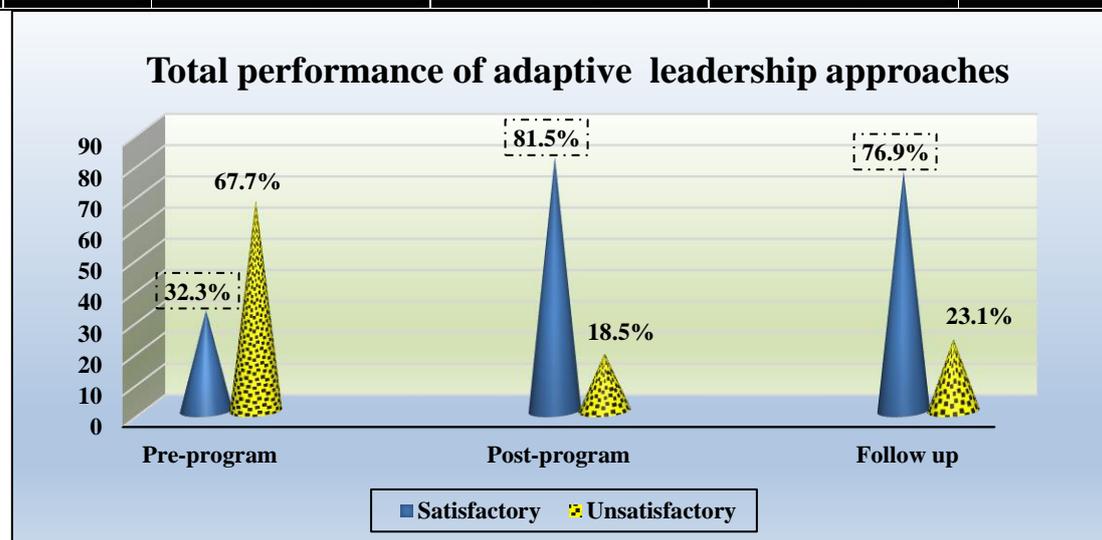


Figure (2): Nurse managers' total performance level regarding adaptive leadership approaches total levels throughout program phases.

Table (4): Mean scores of nurse managers' adaptive leadership approaches throughout program phases (n=130).

Approaches of adaptive leadership	Maximum score	Pre-intervention	Mean %	Post-intervention	Mean %	Follow up	Mean %	Paired t(1) p-value	Paired t(2) p-value	Paired t(3) p-value
		Mean ± SD		Mean ± SD		Mean ± SD				
Get on the Balcony	14	8.50±1.08	60.7%	11.70±1.23	83.57%	11.54±1.32	82.42%	20.80 .000**	21.46 .000**	0.840 0.403
Identify the Adaptive Challenges	14	8.67±1.27	61.9%	10.46±1.51	74.71%	10.28±1.43	73.42%	10.51 .000**	9.01 .000**	0.918 0.360
Regulate Distress	12	7.76±1.08	64.66%	9.91±0.835	82.58%	9.87±8.44	82.25%	17.22 .000**	17.24 .000**	0.324 0.747
Maintain Disciplined Attention	10	7.32±1.07	73.2%	8.52±1.23	85.2%	8.40±1.27	84%	9.85 .000**	7.06 .000**	1.83 0.068
Give the Work Back to Nurses	10	7.56±1.04	75.6%	8.70±1.13	87%	8.26±1.25	82.6%	7.60 .000**	4.75 .000**	.0987 0.216
Protect Leadership Voices from Below	10	7.50±1.17	75%	8.55±1.12	85.5%	8.17±1.36	81.7%	7.10 .000**	4.07 .000**	1.24 0.217
Continuous improvement	14	9.76±1.57	69.71%	11.10±1.46	79.28%	10.90±1.29	77.85%	7.12 .000**	6.99 .000**	1.09 0.277
Systemic thinking & problem solving	18	10.61±1.49	58.94%	12.84±2.32	71.33%	12.21±2.19	67.83%	9.36 .000**	6.70 .000**	1.26 0.197
Total score	102	67.71±4.56	66.38%	82.00±4.79	80.39%	79.66±5.61	78.09%	22.45 .000**	17.88 .000**	1.98 0.056

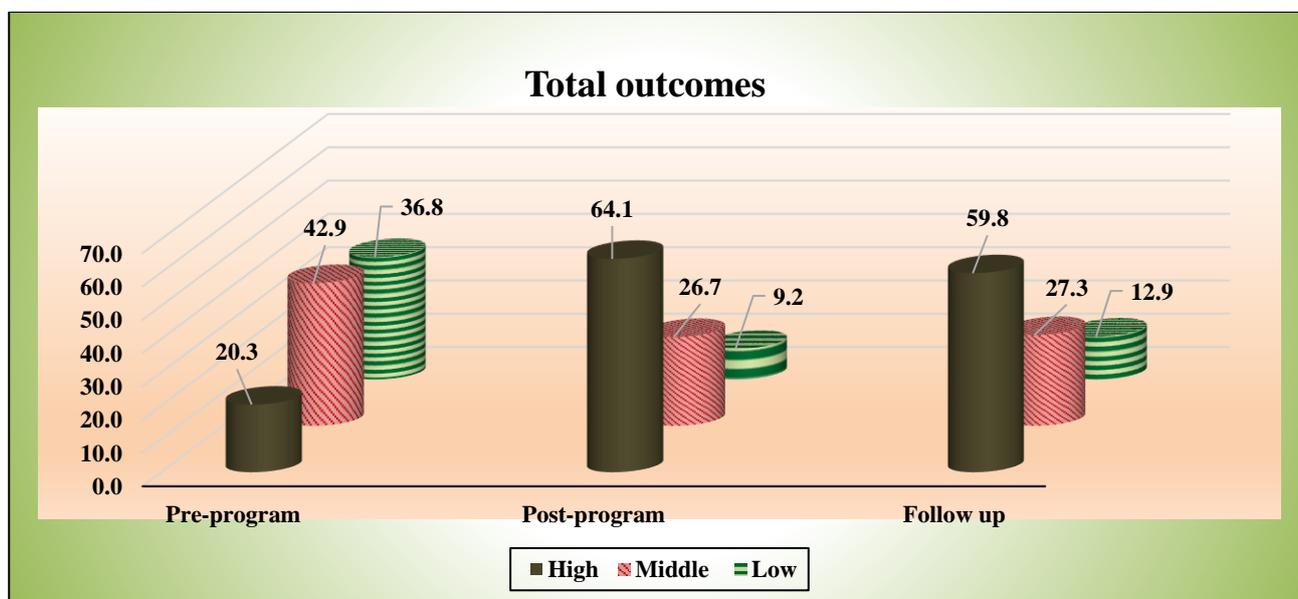


Figure (3): Staff Nurses' outcomes total levels through program phases

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Table (5): Mean scores of staff nurses' outcomes through program phases (n=326).

Outcomes domains	Maximum score	Pre-intervention	Mean %	Post-intervention	Mean %	Follow up	Mean %	Paired t(1) P-value	Paired t(2) P-value	Paired t(3) P-value
		Mean ± SD		Mean ± SD		Mean ± SD				
Turnover	6	3.23±1.04	53.83 %	4.74±0.90	79%	4.36±0.97	72.66 %	20.03 .000* *	13.64 .000* *	1.34 0.152
Job satisfaction	10	5.47±2.07	54.7%	7.81±1.39	78.1%	7.62±1.42	76.2%	14.49 .000* *	22.15 .000* *	1.24 0.217
Participation in decision making	8	3.52±1.15	44%	4.96±1.25	62%	4.70±1.19	58.75 %	15.57 .000* *	9.22 .000* *	1.41 0.108
Challenging job variables	8	4.39±1.32	54.87 %	6.00±0.94	75%	5.84±0.94	73%	17.59 .000* *	8.66 .000* *	1.39 0.164
Fringe benefits	8	4.50±1.41	56.25 %	5.88±0.95	73.5%	5.21±1.09	65.12 %	14.26 .000* *	4.07 .000* *	1.93 0.055
Organizational commitment	28	17.29±1.89	61.75 %	20.79±2.86	74.25 %	20.32±2.65	72.57 %	16.50 .000* *	10.57 .000* *	1.06 0.289
Nurse safety	10	5.08±0.86	50.8%	7.05±1.59	70.05 %	6.73±1.63	67.3%	19.86 .000* *	9.24 .000* *	1.50 0.136
Patients safety	10	5.12±1.48	51.2%	6.63±1.72	66.3%	6.19±1.62	61.9%	11.93 .000* *	5.30 .000* *	1.95 0.055
Total score	88	48.90±4.98	55.56 %	63.91±4.54	72.61 %	61.00±4.87	69.31 %	31.13 .000* *	23.14 .000* *	1.63 0.168

Table (6): Correlation coefficient matrix between studied variables through program phases

Variables	Program phases	Nurse managers' adaptive leadership Knowledge		Nurse managers' adaptive leadership approaches		Staff nurses' Outcomes	
		r	P value	r	P value	r	P value
Nurse managers' adaptive leadership Knowledge	Pre-program	1	—	0.422	0.000**	0.539	0.000**
Nurse managers' adaptive leadership approaches	Post-program	0.457	0.000**	1	—	0.653	.000**
Staff nurses' Outcomes	Follow up	0.547	0.000**	0.637	0.000**	1	—

Discussion:

This study displays that, there was highly statistical significant improvement in the domains of adaptive leadership of nurse managers knowledge after implementation of the program. Three fifth of nurse managers had inadequate knowledge regarding adaptive leadership at pre-program which, it improved to be the majority of them had adequate knowledge regarding adaptive leadership at immediate post program with slightly decreased to be more than three-quarters of them had high regarding adaptive leadership at follow up phase of program. The highest mean score of nurse managers' knowledge at immediate post and follow up phase was related to adaptive challenges and technical problems. While, the lowest mean scores of nurse managers' knowledge at immediate post and follow up phase was related to concept of adaptive leadership in nursing.

From the researcher's point of view, this improvement in the knowledge of nurse managers could have resulted from utilizing creative teaching approaches that can facilitate the interactions and collaboration in the learning process, however, increasing knowledge acquired by nurse managers could be explained by the fact that learning was not a passive experience and courses created an interactive environment. Also nurse managers put their concentration on learning more about adaptive leadership and the first priority was to adapt in any new situation and improve their staff nurses outcomes at work. In addition, the several cycles of repetition had created a truly dynamic interactive educational sessions. Also, improvement of their knowledge besides this retention of knowledge immediate post-program implementation is higher than after three months. Also, improvement of their knowledge besides this retention of knowledge immediate post-program

implementation is higher than follow up after three months, due to not all knowledge is reserved in the long-term memory as a biological fact and needs to be periodically refreshed and updated.

This result was in agreement with **Laur et al., (2021)**, who pointed that there was a highly statistically significant improvement in nurse managers' knowledge levels regarding adaptive leadership at post program and follow up than pre-program. The majority of nurse managers had adequate level of their total knowledge regarding adaptive leadership after program and follow up the educational program compared to pre educational program. Also, this result is in accordance with **London, (2022)**, who illustrated that the highest total means score of nurse managers related to adaptive challenges and technical problems compared with pre-program phase. While, the majority of them had satisfactory level of performance at immediate post and follow up program phases respectively.

In contrary, this result doesn't match with **Kurniawati et al., (2022)** who demonstrated that highest total means score of nurse managers was related to leadership in nursing compared with pre-program phase. Also this result was inconsistent with **Bulgiba, (2021)**, who found that the highest percent of nurse managers had inadequate knowledge levels regarding adaptive leadership after implementation of program.

The result indicated that there was a highly statistically significant improvement of nurse managers' performance toward adaptive leadership approaches. More than three fifths of nurse managers had unsatisfactory performance level about adaptive leadership approaches at pre-program which, it improved to be the majority of them had satisfactory performance level about adaptive leadership approaches at immediate post program with slightly decreased to be more than three-

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quarters of them had satisfactory performance level regarding adaptive leadership approaches at follow up phase of program. The highest total mean score of nurse managers' performance at immediate post and at follow up phase was related to give the work back to nurses compared with pre-program phase. While, the lowest mean scores of nurse managers' performance at immediate post and follow up phase was related to systemic thinking & problem solving compared with pre-program phase.

From the researcher's point of view, this improvement might be due to adaptive leadership intervention that targets teaching nurse managers to be initiative, be creative and innovative, take responsibility, make quick decisions for their actions, and control their own work environment. Also the effective utilization of more than one teaching media to enhance knowledge and performance of nurse managers regarding adaptive leadership nurse managers increase proper adaptive leadership and supervision pattern, developing and implementing nurse managers' educational program is a necessary strategy to adapt nurse managers. The decline that occurred in the follow up phase could be explained by gradual decrease in nurse managers' performance over time due to many causes such as there is no continuing training, educational programs and increasing workload.

The result is supported by **Clesen, (2017)**, who showed that there was a highly statistically significant improvement of head nurses' performance toward adaptive leadership methods. Also, the result is in accordance with **Yang et al., (2020)**, who found that the majority of total levels of performance of nurse managers were good level and showed that the high percent of good level of adaptive leadership techniques

of nurse managers for give the work back to nurses at post and follow up program phases. The result is in contrast with **Seah et al., (2017)**, who noticed that total adaptive leadership performance were at the intermediate level based on mean and standard. in the same line the result is in disagreement with **Eubank et al., (2022)**, who emphasized that there was low statistically significant improvement of nurse managers' performance toward adaptive leadership activities through program phases.

The result indicated that there was a highly statistically significant improvement in staff nurses' outcome levels. More than one third of staff nurses had low level of outcomes at pre-program which, it improved to be more than three fifths of them had high level of outcomes at immediate post program with slightly decreased to be more than half of them at follow up phase but still more than preprogram phase. The highest total mean score of staff nurses' outcomes at immediate post program and follow up phase was related to turnover & job satisfaction respectively compared with pre-program phase regarding organizational commitment. While, the lowest mean scores of staff nurses' outcomes at immediate post and follow up phase was related to participation in decision making compared with pre-program phase.

From the researcher's point of view the improvement of job satisfaction of staff nurses after implementation the program might be due to success of adaptive leadership program in improving knowledge, skills and attitude of nurse managers regarding adaptive leadership that consequently improve job satisfaction among staff nurses.

The finding matches with **Nwaorgu & Lazarus, (2021)**, who revealed that there was a highly statistically significant improvement in nurse's outcomes throughout program

phases. This result is in disagreement with **Chen et al., (2020)**, who found that that majority of nurses have showed decreased outcomes in all dimensions.

The foregoing findings of the current study revealed that there were a highly statistically significant positive correlation between nurse managers' total knowledge scores and total performance scores regarding adaptive leadership and staff nurses' outcomes at pre-program, immediate post and follow up program phases.

From researcher's point of view, this result may be due to the knowledge and performance is basic for practice as improvement in adaptive leadership may be due to their information and approaches that had been improved through the program. It was also noted that there was a marked improvement in staff nurses outcomes after the program, and this indicated the success of the program and its impact on staff nurses outcomes. Also, an adaptive work environment for staff nurses is related to structural and psychological outcomes in the workplace and this support the hypotheses.

Conclusion:

Based on the findings of the current study, it can be concluded that was a marked improvement and the result of the present study supported the hypothesis. The nurse managers' knowledge and performance regarding adaptive leadership as well as staff nurses' outcomes improved during the immediate post & follow up program phases.

Furthermore, there was a highly statistically significant positive correlation between nurse managers' knowledge, performance regarding adaptive leadership and staff nurses' outcomes after program implementation.

Recommendations:

- Initiating in-service education and training programs for refreshing and

increasing nurse managers' knowledge and performance especially about adaptive leadership.

- Developing a new promotion system depend on competence, performance and experience.
- Put annual assessment of staff nurses' outcomes is considered the key for improving nurses' performance and achieve hospital goals.
- Conducting periodic meetings with staff nurses to discuss their needs to create a motivated environment and improve their outcomes.
- Focusing on staff motivation at work to achieve synergy between nursing and their work environment for enhancing satisfaction Study the relation between adaptive leadership and hospital outcomes.
- Study the relation between adaptive leadership and staff nurses turnover and fringe benefits.

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تأثير برنامج تعليمي عن القيادة التكيفية لمديري التمريض علي نتائج الممرضين رضا اسماعيل عنتر الدش- رضا عبد الفتاح أبو جاد - هويدا حسن السيد محفوظ

أسلوب القيادة لمديري التمريض من الممكن أن يعزز الحافز لديهم ويوجههم و يقوي الممرضين معهم للحصول علي نتائج إيجابية لدي الممرضين، لذلك هدفت هذه الدراسة إلي تقييم تأثير البرنامج التعليمي حول القيادة التكيفية لمديري التمريض على نتائج الممرضين. التصميم: تم استخدام التصميم الشبه التجريبي في هذه الدراسة. وقد أجريت الدراسة في جميع الوحدات الداخلية بمستشفى بنها الجامعي . تكونت عينة الدراسة من مجموعتين: مجموعة مديري التمريض (١٣٠) ومجموعة الممرضين (٣٢٦). وظهرت النتائج ان اكثر من النصف (٦٠,٨٪) من مديري التمريض لديهم ضعف في المعلومات عن التكيف قبل تنفيذ البرنامج والتي تحسنت ليكون الأغلبه (٨٤,٦٪) لديهم معلومات جيدة عن التكيف بعد تنفيذ البرنامج والتي قلت بنسبة بسيطة لتكون حوالى الثلث (٧٨,٥٪) في مرحلة المتابعة، أكثر من خمسي (٦٧,٧٪) رؤساء التمريض لديهم انخفاض في مستوى مهارات التكيف قبل تنفيذ البرنامج والتي تحسنت ليكون الغالبية (٨١,٥) منهم لديهم مستوى عالي عن أداء القيادة التكيفيه في مرحله بعد تنفيذ البرنامج مع الانخفاض الى ثلاثة أربع (٧٦,٩٪) في مرحلة المتابعة ، ثلثي الممرضين (٦٤,١٪ & ٥٩,٨٪) كان لديهم مستوى عالي من التكيف في مرحلتى بعد تنفيذ البرنامج والمتابعة مقارنة بقبل تنفيذ البرنامج والتي كانت خمسهم (٣٦,٨٪) . كما أدى تنفيذ برنامج تعليمي عن القيادة التكيفيه لمديري التمريض علي نتائج الممرضين إلى تحسن كبير في معرفة مديري التمريض وممارستهم فيما يتعلق بنتائج الممرضين. واوصت الدراسة في البدء في برامج التعليم والتدريب في جميع الأقسام لتحديث وزيادة معرفة ومهارات رؤساء التمريض خاصة فيما يتعلق بالقيادة التكيفيه.