The Results

The results of this study were presented in (23) tables. They included the following:

Part I.

   * Distribution of the study group according to their demographic characteristics at Benha University Hospital table (1).

Part II.

   * Mean scores of knowledge about leadership of head nurses at Benha University Hospital at different times of assessment table (2-6).

   * Mean scores of performance of head nurses at Benha University Hospital at different times of assessment table (7-10).

   * Mean scores of attitude of head nurses at Benha University Hospital at different times of assessment table (11-13).

Part III.

  * Number and percent of knowledge item about leadership among head nurses at Benha University Hospital at different times of assessment table (14).

  *Number and Percent of performance among head nurses at Benha University Hospital at different times of assessment table (15).

  *Number and Percent of attitude among head nurses at Benha University Hospital at different times of assessment table (16).

Part IV.

    * The relations between head nurses knowledge at Benha University Hospital at different times of assessment table (17).

    * The relations between head nurses performance at Benha University Hospital at different times of assessment table (18).

    * The relations between head nurses attitude related to style of leadership at Benha University Hospital at different times of assessment table (19).

Part (IV).

    * The relation between knowledge and their demographic characteristics table (20)

    * The relation between performance and their demographic characteristics table (21)

    * The relation between attitude and their demographic characteristics table (22)

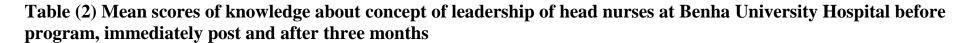   * Correlation between knowledge, performance and attitude scores table (23).

Part I: Characteristics of the study subjects

Table(1): Distribution of the study group according to their demographic characteristics at Benha University Hospital.

Items	Head nurse (n=60)	%
Department		
Medical	32	53.3
Surgical	28	46.7
Age		
24-	28	46.7
30-	21	35.0
< 40	11	18.3
$\overline{X} \pm SD = 31.65 \pm 8.20$		
Qualification		
Diploma	16	26.7
Technical institute	11	18.3
Bachelor	31	51.7
Master	2	3.3
Years of experience		
1-	27	45.0
10-	27	45.0
< 20	6	10.0
$\overline{X} \pm SD = 11.73 \pm 7.31$		
Marital status		
Married	45	75.0
Single	10	16.7
Divorce	3	5.0
Widowed	2	3.3
Administration course		
Yes	9	15
No	51	85

This table shows that more than half (53.3%) of head nurses are working in medical departments. As regarded to age (46.7%) of study subject ranged between 24-30 years. Meanwhile, nearly half of them (51.7%) graduated from baccalaureate degree of nursing. This table also illustrates that the majority (45%) of the study subjects are holders of concerning to their experience are having experience 1- 10 years and 10-20 years in nursing field, in relation to marital status about three quarter of subjects (75.0%) are married. Finally (85%) of them didn't attend any administration courses respectively.

Table (2) Mean scores of knowledge about concept of leadership of head nurses at Benha University Hospital before program, immediately post and after three months

Knowledge variables	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Concept of leadership							
The head nurse lead the nursing team	0.15±0.360	0.90±0.330	0.85±0.360	9.254	<0.001**	11.733	<0.001**
The situation need quick or secret decision found the head nurse used	0.22±0-415	0.88±0..324	0.67±0.475	7.587	<0.001**	4.535	<0.001**
Style of head nurse when take a decision without reference to her subordinate	0.28±0.454	0.83±0.376	0.62±0.490	5.543	<0.001**	3.013	<0.001**
Head nurse use style when subordinates participates in decision making	0.18±0.390	0.95±0.220	0.57±0.500	11.151	<0.001**	4.151	<0.001**
Head nurse inform the subordinate about the decisions before its implementation	0.12±0.324	0.93±0.252	0.72±0.454	11.791	<0.001**	6.699	<0.001**
Head nurse want to create anew leaders among her subordinates	0.18± 0.390	0.88±0.324	0.73±0.446	8.075	<0.001**	5.391	<0.001**
Head nurse creates a spirit of cooperation between her subordinates.	0.13±0.342	0.92±0.279	0.65±0.481	10.374	<0.001**	5.523	<0.001**
Head nurse follows the best way to lead the her subordinate	0.13± 0.343	0.95±0.220	0.55±0.502	12.553	<0.001**	4.483	<0.001**
Identified The administrative procedure carried out by the head nurse	0.13± 0.343	0.92±0.279	0.73±0.446	10.374	<0.001**	6.475	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (2) shows that there was a highly statistically significant improvement in knowledge mean scores regarding concept of leadership items during immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (3) Mean scores of knowledge about planning of leadership of head nurses at Benha University Hospital before program, immediately post and after three months

Knowledge variables	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Planning							
The planning process undertaken by the President of the nursing unit	0.07±0.252	0.93±.0252	0.58±0.497	13.344	<0.001**	13.344	<0.001**
When you use the head nurse log for the planning time the outcome of the head nurse designing a time	0.08±0.279	0.92±0.279	0.55±0.502	11.580	<0.001**	11.580	<0.001**
the appropriate methods of assignment when the number of unit staff is (3) nursing personal will introduce care for (45)of patients	0.10±0.303	0.92±0.279	0.62±0.490	11.152	<0.001**	11.152	<0.001**
The appropriate methods of assignment when there are equal number of nurses with number of patient.	0.13±0.343	0.92±0.279	0.70±0.462	10.374	<0.001**	10.374	<0.001**
Making a nursing scheduling is the responsibilities	0.17±0.376	0.90±0.303	0.60±0.494	8.956	<0.001**	8.956	<0.001**
Head nurse doing nursing work schedule	0.22±0.415	0.82±0.390	0.60±0.494	5.917	<0.001**	5.917	<0.001**
Head nurse used her nursing participatory approach	0.15±0.360	0.92±0.279	0.53±0.503	10.018	<0.001**	10.018	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (3) shows that there was a highly significant improvement in knowledge mean scores regarding of planning items during immediately post test after and three months test as compared to before program mean scores p (<0.001**).

Table (4) Mean scores of knowledge about organizing of leadership of head nurses at Benha University Hospital before program, immediately post and after three months

Knowledge variables	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Organizing							
The organization is one of the elements of the management process by the President of the unit	0.12±0.324	0.92±0.279	0.48±0.504	10.751	<0.001**	4.128	<0.001**
The head and nursing staff must be aware of the organizational structure	0.15±0.360	0.90±0.303	0.43±0.500	9.254	<0.001**	3.068	<0.001**
Head of department make a delegation to subordinate.	0.07±0.252	0.95±0.220	0.42±0.497	15.057	<0.001**	4.475	<0.001**
Is one of the responsibility of ensure the safety and security of staff within the nursing unit	0.13±0.343	0.92±0.279	0.40±0.494	10.374	<0.001**	3.013	<0.001**
The orientation phase carried out by the President of the nursing unit	0.20±0.403	0.87±0.343	0.47±0.503	7.324	<0.001**	2.654	<0.001**
Aimed of learning the technical skill is one of the types of in services training program	0.07±0.252	0.97±0.181	0.43±0.500	17.465	<0.001**	4.658	<0.001**
Aimed of training programs on management and leadership	0.15±0.360	0.95±0.220	0.45±0.502	12.051	<0.001**	3.227	<0.001**
Learn about the process of the drivers used by the head nurse in the nursing unit	0.20±0.403	0.90±0.303	0.45±0.502	8.397	<0.001**	2.505	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (4) shows that there was a highly significant improvement in knowledge mean scores regarding of organizing items during immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (5) Mean scores of knowledge about coordinating and directing of leadership of head nurses at Benha University Hospital before program, immediately post and after three months

Knowledge variables	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Coordinating and directing							
The coordination process is carried out by the President of the nursing unit	0.17±0.376	0.83±0.376	0.50±0.504	6.870	<0.001**	3.435	<0.001**
The importance of coordination by the President of the unit	0.20±0.403	0.97±0.181	0.42±0.498	11.884	<0.001**	2.206	<0.001**
Types of internal reports being done by nursing president.	0.03±0.181	0.98±0.129	0.43±0.500	25.666	<0.001**	5.548	<0.001**
The responsibility of writing a report of the conditions of section	0.22±0.415	0.88±0.324	0.48±0.504	7.587	<0.001**	2.583	<0.001**
Report of the conditions of the first section on the rosary	0.23±0.427	0.77±0.427	0.50±0.504	4.843	<0.001**	2.517	<0.001**

Highly Statistically Significant at P<0.001

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (5) shows that there were highly significant improvement in knowledge mean scores regarding coordinating and directing items during immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (6) Mean scores of knowledge about evaluation &controlling of leadership of head nurses at Benha University Hospital before program, immediately post and after three months

Knowledge variables	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Evaluation &controlling							
The responsibility write an incident report within the unit	0.15±0.360	0.92±0.297	0.40±0.494	10.018	<0.001**	2.750	<0.001**
Detailed table of performance	0.20±0.403	0.83±0.376	0.53±0.503	6.469	<0.001**	3.246	<0.001**
Sign up using the unit head of the agenda is the detailed performance tracking	0.10±0.303	0.92±0.279	0.52±0.504	11.152	<0.001**	4.808	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).

t 2 = paired t test between before & after three months……………………….p2= p value of paired t test (2).

Table (6) shows that there were highly significant improvement in knowledge mean scores regarding evaluation and controlling items during immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (7) Mean scores of performance about planning of head nurses at Benha University Hospital before program, immediately post and after three months

Items	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Planning							
Write daily time planning	0.18±0.390	1.78±0.490	1.77±0.500	14.287	<0.001**	14.977	<0.001**
Posted patient care assignment methods to nursing personnel	0.27±0.446	1.72±0.555	1.70±0.561	11.649	<0.001**	11.531	<0.001**
Write time schedule of unit work	0.35±0.481	1.68±0.537	1.67±0.542	11.072	<0.001**	13.639	<0.001**
Head nurse determine assistant in unit	0.27±0.446	1.70±0.591	1.67±0.601	11.973	<0.001**	15.622	<0.001**

Highly Statistically Significant at P<0.001

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (7) shows that there was a highly significant improvement in mean scores of planning process items during immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (8) Mean scores of performance about organizing of head nurses at Benha University Hospital before program, immediately post and after three months

Items	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Organizing							
Attend initial nursing round	0.17±0.376	1.83±0.457	1.73±0.516	16.229	<0.001**	11.994	<0.001**
Writing shift report	0.27±0.446	1.73±0.482	1.60±0.527	12.475	<0.001**	13.923	<0.001**
Collect data for shift report	0.27±0.446	1.73±0.482	1.73±0.446	14.764	<0.001**	13.165	<0.001**
Exchange shift report with the inchange nurse in the upcoming shift	0.23±0.427	1.85±0.360	1.78±0.415	16.955	<0.001**	12.893	<0.001**
Submit daily conditional report	0.25±0.437	1.77±0.533	1.72±0.555	12.893	<0.001**	12.343	<0.001**
Write incident report	0.23±0.427	1.82±0.504	1.77±0.533	14.436	<0.001**	11.973	<0.001**
Attend physician round	0.22±0.415	1.77±0.500	1.73±0.516	13.473	<0.001**	10.863	<0.001**
Write unit supplies & equipments requisite	0.22±0.415	1.78±0.524	1.73±0.548	13.635	<0.001**	16.814	<0.001**
Allocation of supplies& equipments in the unit	0.23±0.427	1.72±0.585	1.68±0.537	11.691	<0.001**	12.624	<0.001**
Organize for unit equipment	0.27±0.446	1.75±0.541	1.70±0.561	12.360	<0.001**	13.639	<0.001**
Check equipment for maintenance	0.33±0.375	1.72±0.524	1.67±0.542	11.394	<0.001**	12.876	<0.001**
Check medication stock for (dose - storage …ect)	0.22±0.415	1.87±0.343	1.78±0.415	18.029	<0.001**	13.159	<0.001**
Check clean unit	0.30±0.462	1.77±0.427	1.72±0.454	13.318	<0.001**	16.292	<0.001**
Check patients beds	0.28±0.454	1.77±0.465	1.75±0.474	13.786	<0.001**	15.622	<0.001**
Organized unit	0.23±0.427	1.78±0.555	1.72±0.585	13.771	<0.001**	16.090	<0.001**
Clean bath room	0.27±0.446	1.83±0.493	1.75±0.541	14.605	<0.001**	14.512	<0.001**
Check the patient diet	0.25±0.437	1.87±0.343	1.82±0.390	17.508	<0.001**	13.786	<0.001**
Vital signs chart complete	0.22±0.415	1.85±0.444	1.77±0.500	17.197	<0.001**	14.838	<0.001**
Fluid balance recorded	0.25±0.437	1.87±0.430	1.80±0.480	17.508	<0.001**	14.453	<0.001**
Medication sheet complete	0.32±0.469	1.87±0.343	1.80±0.403	16.604	<0.001**	11.973	<0.001**
Nurses notes recorded	0.27±0.446	1.80±0.403	1.75±0.437	14.621	<0.001**	13.362	<0.001**
Patients file complete	0.28±0.454	1.83±0.376	1.80±0.403	15.622	<0.001**	13.786	<0.001**

Highly Statistically Significant at P<0.001

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).
t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (8) shows that there was a highly significant improvement in mean scores of organizing items during immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (9) Mean scores of performance about coordinating and directing of head nurses at Benha University Hospital before program, immediately post and after three months

Items	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Coordinating and Directing							
Using x-ray log	0.27±0.446	1.80±0.403	1.78±0.415	14.621	<0.001**	13.498	<0.001**
Using lab log	0.30±0.462	1.73±0.446	1.70±0.462	12.475	<0.001**	17.266	<0.001**
Using sterilization log	0.30±0.462	1.78±0.415	1.73±0.446	13.786	<0.001**	14.359	<0.001**
Available job description from in the nursing unit	0.27±0.446	1.78±0.415	1.75±0.437	14.096	<0.001**	14.109	<0.001**
Conduct problem solving meeting	0.30±0.462	1.78±0.415	1.75±0.437	13.786	<0.001**	11.527	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (9) shows that there was a highly significant improvement in mean scores of coordinating and directing items during immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (10) Mean scores of performance about evaluation of head nurses at Benha University Hospital before program, immediately post and after three months

Items	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	**Immediately post**	**After three months**				
Evaluation							
Collect anecdotal notes about each nurse performance	0.22±0.415	1.90±0.303	1.82±0.390	20.038	<0.001**	10.971	<0.001**
Use evaluation format to make final evaluation for staff nurses.	0.35±0.481	1.82±0.390	1.82±0.390	14.359	<0.001**	11.507	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention…………….. ..p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (10) shows that there was a highly significant improvement in mean scores of head nurse regarding evaluation item immediately post test and after three months test as compared to before test P (<0.001**).

Table (11) Mean scores of attitude about autocratic leadership style of head nurses at Benha University Hospital before program, immediately post and after three months.

Items	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Autocratic leadership style							
Always retain the final decision making authority within my department or team.	2.27±0.899	4.27±0.972	4.02±0.854	10.057	<0.001**	9.379	<0.001**
Do not consider suggestions made by staff nurses in unit	2.33±0.705	4.30±0.962	3.60±0.807	11.705	<0.001**	8.548	<0.001**
Tell staff nurses what has to be done and how to do it.	2.43±0.890	4.30±0.962	4.23±0.831	9.101	<0.001**	9.197	<0.001**
Someone makes a mistake, I tell them not to ever do that again and make a note of it.	2.07±0.821	4.57±0.831	4.43±0.767	13.096	<0.001**	13.430	<0.001**
New hires are not allowed to make any decisions unless it is approved by me first.	2.10±0.896	4.50±0.873	4.40±0.764	11.802	<0.001**	12.259	<0.001**
Tell my employees when something goes wrong, that a procedure is not working correctly and I establish a new one.	2.08±0.889	4.53±0.853	4.30±0.766	12.283	<0.001**	12.030	<0.001**
Closely monitor my staff nurses to ensure they are performing correctly.	2.37±0.057	4.40±0.924	4.15±0.880	12.870	<0.001**	8.776	<0.001**
Like the power that my leadership position holds over subordinates.	2.08±0.078	4.67±0.752	4.45±0.769	9.507	<0.001**	11.990	<0.001**
Staff nurses must be directed or threatened with punishment in order to get them to achieve the organizational objectives.	2.03±0.938	4.60±0.807	4.48±0.701	13.056	<0.001**	13.845	<0.001**
Staff nurses in the unit seek mainly security.	2.17±0.942	4.53±0.853	4.37±0.802	13.060	<0.001**	12.281	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention…………….p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (11) shows that there was a highly significant improvement at knowledge mean score of autocratic leadership style items during immediately post test and after three months test as compared to before -program mean scores p (<0.001**).

Table (12) Mean scores of attitude about democratic leadership style of head nurse at Benha University Hospital before program, immediately post and after three months.

Items	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Democratic leadership style							
Always try to include one or more staff nurses in determining what to do and how to do it.	1.42±0.766	4.77±0.647	4.47±0.676	11.819	<0.001**	19.039	<0.001**
Ask staff nurses for ideas and input on upcoming plans and projects.	1.75±0.856	4.57±0.831	4.45±0.769	19.578	<0.001**	14.166	<0.001**
When things go wrong and I need to create a strategy to keep a project or process running on schedule, I call a meeting to get staff nurses advice.	1.85±0.799	4.70±0.720	4.40±0.741	13.730	<0.001**	15.417	<0.001**
Head nurse want to create an environment where the employees take ownership of the project, allow them to participate in the decision making process.	1.75±0.816	4.73±0.686	4.50±0.701	16.194	<0.001**	16.944	<0.001**
Ask staff nurses for their vision of where they see their jobs going and then use their vision where appropriate.	2.14±0.877	4.43±0.909	4.37±0.802	17.161	<0.001**	12.124	<0.001**
Allow to my staff nurses to set priorities with my guidance	2.02±0.813	4.35±0.853	4.43±0.831	11.139	<0.001**	12.882	<0.001**
There are differences in role expectations; I work with them to resolve the differences.	2.18±0.965	4.57±0.831	4.38±0.804	12.794	<0.001**	11.498	<0.001**
Like to use your leadership power to help subordinates grow.	1.95±0.852	4.83±0.557	4.48±0.767	12.063	<0.001**	15.983	<0.001**
Staff nurse will exercise self-direction if they are committed to the objectives.	2.07±0.880	4.47±0.892	4.07±0.954	18.924	<0.001**	9.986	<0.001**
Know how to use creativity and ingenuity to solve organizational problems.	2.08±0.766	4.43±0.909	4.22±0.783	11.567	<0.001**	11.639	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention……………p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (12) shows that there was a highly significant improvement in knowledge mean scores of democratic leadership style items immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (13) Mean scores of attitude about laissez fair leadership style of head nurses at Benha University Hospital before program, immediately post and after three months.

Items	Mean ±SD			paired t test (1)	P Value(1)	paired t test (2)	P Value (2)
	Before program	Immediately post	After three months				
Laissez fair leadership style							
Head nurses and their staff always votes whenever a major decision has to be made.	2.13±0.965	4.53±0.853	4.40±0.718	11.585	<0.001**	12.536	<0.001**
For a major decision to pass in my department, it must have the approval of each individual or the majority	2.45±0.048	4.47±0.892	4.07±0.899	11.802	<0.001**	8.496	<0.001**
To get information out, I send it by email, memos, or voice mail; very rarely is a meeting called. staff nurses are then expected to act upon the information	2.17±0.905	4.40±0.924	4.10±0.175	9.897	<0.001**	9.101	<0.001**
Allow my staff to determine what needs to be done and how to do it.	2.10±0.915	4.47±0.892	4.17±0.181	10.547	<0.001**	8.789	<0.001**
workers know more about their jobs than me, so I allow them to carry out the decisions to do their job	1.73±0.936	4.63±0.780	4.13±0.833	11.349	<0.001**	13.014	<0.001**
Delegate tasks in order to implement a new procedure or process	2.08±0.944	4.33±0.951	4.00±0.823	14.409	<0.001**	9.904	<0.001**
Each individual is responsible for defining their job	1.97±0.780	4.53±0.853	4.15±0.899	9.999	<0.001**	11.099	<0.001**
Use my leadership power to help subordinates grow	1.98±0.911	4.60±0.807	4.27±0.821	13.060	<0.001**	12.497	<0.001**
Staff nursing has the right to determine their own organizational objectives.	2.18±0.892	4.40±0.924	4.13±0.812	13.341	<0.001**	11.224	<0.001**
Staff can lead themselves as well as I can.	2.07±0.710	4.53±0.853	4.35±0.880	10.553	<0.001**	12.604	<0.001**

Highly Statistically Significant at P<0.001**

t 1 =paired t test between before &immediate post intervention……………p1=p value of paired t test (1).

t 2 = paired t test between before & after three months………………………p2= p value of paired t test (2).

Table (13) shows that there was a highly significant improvement in knowledge mean scores of lazier fair leadership style items immediately post test and after three months test as compared to before program mean scores p (<0.001**).

Table (14): percent distribution of head nurses knowledge score regarding items of leadership before program, immediately post and after three months

Knowledge Variables	Before program						Immediately post						After three months						McNemar	P-Value
	poor		Average		good		poor		Average		good		poor		Average		good			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
Concept of leadership	51	85%	9	15%	0	0.0	0	0.0	4	6.7%	56	93.3%	15	25%	12	20%	33	55%	155.54	<0.001**
Planning	52	86.6%	8	13.4%	0	0.0	0	0.0	11	18.3%	49	81.7%	19	31.7%	12	20%	29	48.3%		
Organization	51	85%	9	15%	0	0.0	0	0.0	9	15%	51	85%	5	8.3%	25	41.7%	30	50%		
Directing and coordinating	50	83.3%	10	16.7	0	0.0	0	0.0	6	10%	54	90%	4	6.7%	36	60%	20	33.3%		
Evaluation and Controlling	39	65%	21	35%	0	0.0	0	0.0	15	25%	45	75%	17	28.3%	14	23.3%	29	48.4%		

Highly Statistically Significant at P<0.001**

Table (14) shows that the majority of the head nurses (86.6%) had a poor level of knowledge at before test assessment in relation to planning process. while the majority of them (93.3%) had a good level of knowledge immediately post the program in relation to concept of leadership but the majority (60%) had average level in relation to directing and controlling after three months test assessment, there was highly statistically significance difference (McNemar = 155.54, p, <0 .001**).

Table (15): percent distribution of head nurses performance score regarding items before program, immediately post and after three months

Performance	Before program						Immediate post						After three months						McNemar	P-Value
	Unsatisfactory		Satisfactory		Highly Satisfactory		Unsatisfactory		Satisfactory		Highly Satisfactory		Unsatisfactory		Satisfactory		Highly Satisfactory			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
Planning	37	61.7%	23	38.3%	0	0.0	0	0.0	18	30%	42	70%	0	0.0	19	31.7%	41	68.3%	153.29	<0.001**
Organization	55	91.7%	5	8.3%	0	0.0	0	0.0	18	30%	42	70%	0	0.0	20	33.3%	40	66.7%		
Coordinating &Directing	37	61.7%	23	38.3%	0	0.0	0	0.0	5	8.3%	55	91.7%	0	0.0	7	11.7%	53	88.3%		
Evaluation	45	75%	15	25%	0	0.0	0	0.0	15	25%	45	75%	0	0.0	20	33.3%	40	66.7%		

Highly Statistically Significant at P<0.001**

Table (15) shows that the majority of the head nurses had unsatisfactory performance before   program assessment (91.7%) in relation to organizing, while the majority of them had a highly satisfactory performance immediately post the program (91.7%) in relation to coordinating & directing, but the majority of head nurses (88.3%) had highly satisfactory performance after three months test assessments, there was highly statistically significance difference (McNemar = 153.29p, <0 .001**).

Table (16): percent distribution of head nurses attitude score at different time regarding items before program, immediately post and after three months

Attitude	Before program						Immediate post						After three months						McNemar	P-Value
	Negative		Positive		Highly positive		Negative		Positive		Highly positive		Negative		Positive		Highly positive			
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%		
Autocratic leadership	19	31.7%	41	68.3%	0	0.0	0	0.0	7	11.7%	53	88.3%	0	0.0	16	26.7%	44	73.3%	120.53	<0.001**
Democratic leadership	40	66.7%	20	33.3%	0	0.0	0	0.0	3	5%	57	95%	0	0.0	13	21.7%	47	78.3%		
Laissez faire leadership	24	40%	36	60%	0	0.0	0	0.0	11	18.3%	49	81.7%	0	0.0	23	38.3%	37	61.7%		

Highly Statistically Significant at P<0.001**

Table (16) shows that the highest percent of the head nurses had positive attitude (68.3%) related to autocratic leadership before program. While the majority (95%) had a highly positive attitude immediately post the program related to democratic leadership style, but the highest percent of the head nurses had highly positive attitude (78.3%) related to Laissez faire leadership style after three months test assessments , there was highly statistically significance difference (McNemar = 120.53p, <0 .001**).

Table (17): The relations between head nurses knowledge before program, immediately post and after three months, at Benha University Hospital

Time of assessment / Knowledge	Before program		Immediately post		After three months		$*X^2$	P value
	No	%	No	%	No	%		
Poor	53	88.3	0	0.0	0	0.0		
Average	7	11.7	9	15	16	26.7	158.46	<0.001**
Good	0	0.0	51	85	44	73.3		
Total	60	100%	60	100%	60	100%		

Highly Statistically Significant at P<0.001**

Adjusted Chi Square Test

This table shows that in total knowledge, the majority of head nurses had good knowledge immediately post- program (85%) ,as compared to before program had poor knowledge none of them gain knowledge ($X^{2=}$158.46 , P <0.001**).

Table (18): The relations between head nurses performance at before program, immediately post and after three months, at Benha University Hospital

Time of assessment / Knowledge	Before program		Immediately post		After three months		*X^2	P value
	No	%	No	%	No	%		
Unsatisfactory	49	81.7	0	0.0	0	0.0	142.68	<0.001**
Satisfactory	11	18.3	20	33.3	28	46.7		
Highly Satisfactory	0	0.0	40	66.7	32	53.3		
Total	60	100%	60	100%	60	100%		

Highly Statistically Significant at P<0.001**

Adjusted Chi Square Test

This table shows that in total performance of head nurses, the majority had highly satisfactory performance immediately post program (66.7%),as compared to before program had unsatisfactory (81.7%),(X^2 =142.68 , P <0.001**).

Table (19): The relations between head nurses attitude before program, immediately post and after three months, at Benha University Hospital

Time of assessment	Before program		Immediately post		After three months		$*X^2$	P value
Knowledge	No	%	No	%	No	%		
Negative	14	23.3	0	0.0	0	0.0		
Positive	46	76.7	10	16.7	9	15		
Highly positive	0	0.0	50	83.3	51	85	119.53	<0.001**
Total	60	100%	60	100%	60	100%		

Highly Statistically Significant at P<0.001**

Adjusted Chi Square Test

This table shows that the total attitude of the majority of head nurses had highly positive immediately post and after three months (83.3%, 85 %), (X^2 =119.53, P <0.001**).

Table (20): The relation between knowledge and their demographic characteristics among head nurses at Benha University Hospital before program

Score	Before program					
variable	Poor		Average		Good	
Age	No	%	No	%	No	%
24-	24	40	4	6.7	0	0.0
30 -	20	33.3	1	1.7	0	0.0
<40	9	15	2	3.3	0	0.0
	$*X^2 =$ 1.61			P >0.05		
Qualification						
Diploma	14	23.3	2	3.3	0	0.0
Technical institute	10	16.7	1	1.7	0	0.0
Bachelor	28	46.7	3	5	0	0.0
Master	1	1.7	1	1.7	0	0.0
	$*X^2 =$ 3.05			P >0.05		
Years of experience						
1-	23	38.3	4	6.7	0	0.0
10-	26	43.3	1	1.7	0	0.0
<20	4	6.7	2	3.3	0	0.0
	$*X^2 =$ 4.65			P >0.05		
Marital status						
Married	40	66.7	5	8.3	0	0.0
Single	8	13.3	2	3.3	0	0.0
Divorce	3	5	0	0.0	0	0.0
Widowed	2	3.3	0	0.0	0	0.0
	$*X^2 =$ 1.34			P >0.05		
Administration course						
No	47	78.3	4	6.7	0	0.0
Yes	6	10	3	5	0	0.0
	$*X^2 =$ 4.82			P >0.0 5		

No Statistically Significant at P >0.05
    Adjusted Chi Square Test

Table (20) shows that there is no a significant relation between head nurses' knowledge scores and socio demographic characteristics before program.

Table (21): The relation between performance and their demographic characteristics among head nurses at Benha University Hospital before program

Score	Before program					
variable	Poor		Average		Good	
Age	No	%	No	%	No	%
24-	23	38.3	5	8.3	0	0.0
30 -	18	30	3	5	0	0.0
<40	8	13.3	3	5	0	0.0
	$*X^2 = 0.821$ P >0.05					
Qualification						
Diploma	14	23.3	2	3.3	0	0.0
Technical institute	10	16.7	1	1.7	0	0.0
Bachelor	23	38.3	8	13.3	0	0.0
Master	2	3.3	0	0.0	0	0.0
	$*X^2 = 2.59$ P >0.05					
Years of experience						
1-	21	35	6	10	0	0.0
10-	24	40	3	5	0	0.0
<20	4	6.7	2	3.3	0	0.0
	$*X^2 = 2.11$ P >0.05					
Marital status						
Married	37	61.6	8	13.3	0	0.0
Single	9	15	1	1.7	0	0.0
Divorce	2	3.3	1	1.7	0	0.0
Widowed	1	1.7	1	1.7	0	0.0
	$*X^2 = 2.26$ P >0.05					
Administration course						
No	40	66.7	11	18.3	0	0.0
Yes	9	15	0	0.0	0	0.0
	$*X^2 = 2.37$ P >0.05					

No Statistically Significant at P >0.05
     Adjusted Chi Square Test

Table (21) shows that there is no a significant relation between head nurses' performance scores and socio demographic characteristics before program.

Table (22): The relation between attitude and their demographic characteristics among head nurses at Benha University Hospital before program

Score variable	Before program					
	Poor		Average		Good	
Age	No	%	No	%	No	%
24-	4	6.7	24	40	0	0.0
30 -	6	10	15	25	0	0.0
<40	4	6.7	7	11.6	0	0.0
	$*X^2 =$ 517.76 $\qquad$ P >0.05					
Qualification						
Diploma	7	11.7	9	15	0	0.0
Technical institute	1	1.7	10	16.6	0	0.0
Bachelor	6	10	25	41.7	0	0.0
Master	0	0.0	2	3.3	0	0.0
	$*X^2 =$ 20.49 $\qquad$ P<0.05 *					
Years of experience						
1-	4	6.7	23	38.3	0	0.0
10-	7	11.7	20	33.3	0	0.0
<20	3	5	3	5	0	0.0
	$*X^2 =$ 27.36 $\qquad$ P <0.05*					
Marital status						
Married	7	11.7	38	63.4	0	0.0
Single	5	8.3	5	8.3	0	0.0
Divorce	2	3.3	1	1.7	0	0.0
Widowed	0	0.0	2	3.3	0	0.0
	$*X^2 =$ 27.36 $\qquad$ P >0.05					
Administration course						
No	12	20	39	65	0	0.0
Yes	2	3.3	7	11.7	0	0.0
	$*X^2 =$ 27.36 $\qquad$ P >0.05					

Statistically Significant at P <0.05*
Adjusted Chi Square Test

Table (22) shows that there is a significant relation between head nurses' attitudes scores and their qualification and year of experience before program at (P <0.05*).

Table (23) Correlation between knowledge, performance and attitude scores each others at before program, immediately post and after three months, at Benha University Hospital

Items	Performance					
Time of assessment	Before program		Immediately post		After three months	
	r	P value	r	P value	r	P value
Knowledge	0.038	>0.05	0.495	<0.001**	0.267	<0.05*
Attitude	0.044	>0.05	0.126	>0.05	0.112	>0.05

Highly Statistically Significant at P<0.001**   Statistically Significant at P <0.05*

This table revealed that there was no statically significant difference (P >0.05) between knowledge and performance scores at before program, while there was a highly positive correlation between them immediately post (<0.001**) and after three months of program with a significant difference (P<0.05*).This table revealed that there was no statically significant difference (P >0.05) between attitude and performance scores at before program, immediately post and three months after program.