RESULTS

Presentation and Analysis of Data:

The current study is aiming at examining the impact of a designed nursing clinical pathway guidelines on acute myocardial infarction patients' outcomes.

Finding of this study are presented in 4 different sections:

Section (I): Deals with description of the study and control groups on socio demographic variables and diagnosis (tables 1-9).

Section (II): Deals with findings related to hypothesis testing (tables, 10- 21).

Section (III): Correlational and additional findings (tables 22-26).

Section (IIII): Deals with findings related to analysis of variances in relation to patient, physician, hospital, nursing, and hospital discharge (table 27).

Section (I): Deals with description of the study and control groups on socio demographic variables and diagnosis (tables 1-9).

Table(1): Distribution of the study and control group subjects according to their sociodemographic characteristics (n=60).

Frequency Socio Demographic Data	Study group N= 30		Control group N= 30		Total N= 60		P-values
	N	%	N	%	N	%	
Sex							
Male	22	73.3	22	73.3	44	73.3	n.s
Female	8	26.7	8	26.7	16	26.7	
Age							
Less than 30	1	3.3	1	3.3	2	3.3	n.s
30 to less than 40	3	10	4	13.3	7	11.7	
40 to less than 50	10	33.3	11	36.7	21	35	
50 to 60	11	36.7	10	33.3	21	35	
more than 60	5	16.7	4	13.3	9	15	
$\overline{X}$ ±SD	50.73±10.34		50.1± 10.04		50.415±10.19		
Occupation							
Worker	5	16.7	5	16.7	10	16.7	
Housewife	3	10	3	10	6	10	n.s
Farmer	2	6.7	2	6.7	4	6.7	
Employee	8	26.7	7	23.3	15	25	
Free work	2	6.7	3	10	5	8.3	
retirement	10	33.3	10	33.3	20	33.3	
Education							
Illiterate	15	50	15	50	30	50	
Read and write	6	20	5	16.7	11	18.3	n.s
Secondary	5	16.7	6	20	11	18.3	
university	4	13.3	4	13.3	8	13.3	
Marital status							
Single	2	6.7	0	0.0	2	3.3	
Widow	3	10	5	16.7	8	13.3	n.s
Married	25	83.3	24	80	49	81.7	
divorced	0	0	1	3.3	1	1.7	
Income							
Less than 100	0	0.0	0	0.0	0	0.0	
100 to less than 200	6	20	5	16.7	11	18.3	n.s
200 to 500	22	73.3	23	76.7	45	75	
more than 500	2	6.7	2	6.7	4	6.7	
$\overline{X}$ ±SD	347.66±113.63		358.83±112.9		353.24±113.26		
Family size							
1-3	0	0	1	3.3	1	1.7	n.s
4-6	23	76.7	17	56.7	40	66.6	
7+	7	23.3	12	40	19	31.7	
$\overline{X}$ ±SD	6 ± 1.1		7 ± 2		6.36 ±1.49		

n.s=not significant * = statistical significant at 0.05 **= statistical significant at 0.001

It is clear from table (1) that the majority of both study and control group subjects were respectively males (73.3% & 73.3%), married (83.3% & 80%), illiterate (50% & 50%), their age above 50 years old (53.3% & 46.7%) with a mean of (50.73 ± 10.34 and 50.1 ± 10.04), their income was ranged between 200 to 500 Egyptian pounds per capita with a mean of (347.66±113.63 and 358.83±112.9). As regards occupation, it was found that more than one third (33.3%) of both groups were retired. Their family size ranged between 4 to 6 members (76.7% & 56.7%) with a mean number of (6 ± 1.1& 7 ± 2).

No significant statistical differences were seen between the two groups in relation to the above mentioned demographic variables which indicates that the two groups were nearly homogenous.

Table(2): Differences in diagnosis among study and control group subjects.

frequency / Diagnosis	Study group N = 30		Control group N = 30		Total N = 60		X^2/P
	No	%	No	%	No	%	
Diagnosis:							$X^2_{df\,4} = 000$ n.s
Inferior MI	10	33.3	10	33.3	20	33.3	
Posterior MI	7	23.3	8	26.7	15	25	
Anterior MI	5	16.7	4	13.3	9	15	
Anterioseptal MI	5	16.7	5	16.7	10	16.7	
Lateral MI	3	10	3	10	6	10	

n.s = not significant

As can be seen from table (2) that one third (33.3%) of both groups were having inferior myocardial infarction, however (10%) of both groups were having lateral myocardial infarction. No significant statistical differences were seen between the two groups which indicates that the two groups were nearly homogenous in relation to diagnosis.

Table (3): Differences in pain characteristics among the study and control group subjects.

Pain characteristics \ Frequency		Study group N=30		Control group N=30		total N=60		X^2/P
character	Crushing	19	63.3	10	33.3	29	48.3	$X^2_{df3} = 7.28$ n.s
	Tight	2	6.6	9	30	11	18.3	
	Compressing	21	70	23	76.6	44	73.3	
	others	0	0.0	0	0.0	0	0.0	
site	Central	25	83.3	24	80	49	81.6	$X^2_{df3} = 2.24$ n.s
	Epigastric	20	66.6	15	50	35	58.3	
	Right site	0	0.0	0	0.0	0	0.0	
	Left site	1	3.3	0	0.0	1	1.6	
Radiation	Right arm	0	0.0	0	0.0	0	0.0	$X^2_{df4} = 0.224$ n.s
	Left arm	30	100	28	93.3	58	96.7	
	Jaw	30	100	28	93.3	58	96.7	
	Back	22	73.3	22	73.3	44	73.3	
	Epigastric	0	0.0	0	0.0	0	0.0	
Intensity	Severe	28	93.3	25	83.3	53	88.3	$X^2_{df2} = 2.36$ n.s
	Moderate	2	6.6	3	10	5	8.3	
	Mild	0	0.0	2	6.6	2	3.3	
Duration	5minutes	0	0.0	0	0.0	0	0.0	t = 0.333 n.s
	15minutes	4	13.3	5	16.6	9	15	
	above15minutes	26	86.6	25	83.3	51	85	
	$\overline{X}$ **±SD**	**2.86 ± 0.339**		**2.83 ± 0.372**		**2.85 ±0.357**		
Onset of pain	At rest	28	93.3	25	83.3	53	88.3	$X^2_{df2} = 1.36$ n.s
	Crescendo	0	0.0	0	0.0	0	0.0	
	On exertion	2	6.6	5	16.6	7	11.7	
Effect of nitroglycerin	None	7	23.3	9	30	16	26.7	$X^2_{df3} = 0.39$ n.s
	Partial	14	46.6	12	40	26	43.3	
	Full	0	0.0	0	0.0	0	0.0	
	Not given	9	30	9	30	18	30	

* n.s = not significant

*** The total number is different because each subject has more than one item.**

Of note, table (3) cleared that the characteristics of acute myocardial infarction pain among both study and control group subjects was severe in (93.3 % & 83.3 %, respectively), compressing in (70 % & 76.6%, respectively), central in (83.3 % & 80%, respectively), radiated to jaw in (100% & 93.3, respectively), coming at rest in (93.3% & 83.3%, respectively) lasts for more than 15 minutes in (86.6% &83.3%, respectively) and the effect of taking nitroglycerin is partial in (46.6% & 40%, respectively).

No significant statistical differences were seen between the two groups in relation to the above mentioned pain characteristics variables.

Table (4): Differences in the associated symptoms among the study and control group subjects.

Frequency / symptoms	Study group N = 30		Control group N = 30		Total N = 60		X^2 / P
	No	%	No	%	No	%	
symptoms:							
sweating	27	90	27	90	54	90	
nausea and vomiting	16	53.3	16	53.3	32	53.3	$X^2_{df\,4} = 2.4$ n.s
palpitation	17	56.7	23	76.7	40	66.7	
dyspnea	27	90	28	93.3	55	91.7	
fatigue and fainting	19	63.3	25	83.3	44	73.3	

* n.s = not significant

*** The total number is more than (60) because each subject have more than one item.**

As can be seen from table (4), the majority of both groups respectively were having dyspnea (90 % & 93.3 %), sweating (90 % & 90 %), fatigue and fainting (63.3 % & 83.3%). It is evident that, more than half of study group (56.7%) have palpitation compared to (76.7%) of the control group subjects . Also, more than half of both groups have nausea and vomiting (53.3 % & 53.3 %, respectively). With no significant statistical differences between the two groups with X^2_{df4}= 2.4 and p = > 0.05.

Table (5): Differences in medical history among study and control group subjects.

frequency / Medical history	Study group N = 30		Control group N = 30		Total N = 60		X^2 /P values
	No	%	No	%	No	%	
Myocardial infarction	3	10	2	6.7	5	8.3	$X^2_{df17} = 20.5$ P> 0.05 n.s
Stable angina	4	13.3	6	20	10	16.6	
Hypertension	11	36.7	13	43.3	24	40	
Arrhythmia	1	3.3	3	10	4	6.6	
Ischemic heart disease	4	13.3	5	16.7	9	15	
Rheumatic fever	1	3.3	0	0.0	1	1.7	
NIDDM	10	33.3	11	36.6	21	35	
IDDM	5	16.6	5	16.6	10	16.6	
Chronic heart failure	2	6.7	3	10	5	8.3	
Valve disease	0	0.0	0	0.0	0	0.0	
Cerebrovascular stroke	0	0.0	2	6.7	2	3.3	
Renal disease	0	0.0	0	0.0	0	0.0	
Asthma	3	10	3	10	6	10	
Thrombophelibitis	1	3.3	3	10	4	6.6	
Allergy	0	0.0	0	0.0	0	0.0	
Prior PCI	0	0.0	1	3.3	1	1.7	
Prior CABG	3	10	4	13.3	7	11.7	

n.s = not significant
NIDDM= Non insulin dependent diabetes mellitus.
IDDM= Insulin dependent diabetes mellitus.
PCI= Percutaneous coronary intervention.
CABG= Coronary artery bypass graft

*** The total number is different because each subject has more than one disease.**

Table (5) illustrated that, the majority of both groups were respectively having a history of hypertension (36.7 %& 43.3%), non insulin dependent diabetes mellitus (33.3% & 36.6%), ischemic heart disease (13.3 % & 16.7 %). While the minority of both study and control group subjects have a medical history of arrhythmia (3.3% & 10%), chronic heart failure (6.7% & 10%), asthma (10% & 10%), a surgical history of percutaneous coronary angiography (0% & 3.3%) and prior coronary artery bypass graft (10% & 13.3).

There is no statistical significant differences between both groups with $X^2_{df17} = 20.5$ and p- value of > 0.05.

Table (6): Differences in risk factors among study and control group subjects.

frequency / Risk Factors	Study group N = 30		Control group N = 30		Total N = 60		X^2 -P values
	No	%	No	%	No	%	
Obesity	9	30	9	30	18	30	
Female over 35 year	3	10	4	13.3	7	11.6	
Smoking	15	50	16	53.3	31	51.6	
Alcohol intake	10	33.3	13	43.3	23	38.3	$X^2_{df\,9} = 4.791$
Lack of regular exercise	26	86.7	28	93.3	54	90	
High stress	24	80	27	90	51	85	P> 0.05
High – fat cholesterol diet	23	76.7	24	80	47	78.3	n.s
Family history of chronic heart disease	4	13.3	5	16.6	9	15	

n.s = not significant

*** The total number is different because each subject has more than one item.**

Table (6) revealed that, the majority of both groups were having lack of regular exercises in (86.7% & 93.3% , respectively), high stress in (80% & 90%), heavy smokers in (50 % & 53.3 %). It is also evident that, more than three quarters of the study group subjects (76.7%) have high – fat cholesterol diet compared by the majority of control group ones (80%).While the minority of both groups respectively were having a familial history as a risk factor (13.3% & 16.6%y. No significant statistical differences were put into evidence between the two groups in this respect with P – values > 0.05.

Table (7) : Differences in drug history among the study and the control group subjects.

Frequency / Drug history	Study group N = 30		Control group N = 30		Total N = 60		X^2 -P values
	No	%	No	%	No	%	
Streptokinase	3	10	2	6.7	5	8.3	
Heparin	10	33.3	15	50	25	41.6	
Beta blockers	16	53.3	20	66.6	26	43.3	$X^2_{df11} = 7.55$
Calcium blockers	8	26.6	7	23.3	15	25	P> 0.05
Nitrates	11	36.6	19	63.3	30	50	n.s
Aspirin	13	43.3	10	33.3	23	38.3	
ACEI	0	0.0	10	33.3	10	16.6	
Aspocid	14	46.7	10	33.3	24	40	
Insulin	8	26.6	16	53.3	24	40	
Antihypertensive	11	36.6	13	43.3	24	40	
Oral hypoglycemic	9	30	8	26.7	17	28.3	
Digoxin	5	16.7	4	13.3	9	15	

n.s = not significant ACEI= Angiotensin- converting enzyme inhibitors

***The total number is different because each subject has more than one item.**

This table shows that, the majority of study and control groups were having a past history of taking certain drugs such as beta blockers (53.3 % & 66.6%, respectively) , nitrates (36.6% & 63.3%), aspocides (46.7% & 33.3%), antihypertensive drugs (36.6% & 43.3%), insulin (26.6% & 53.3%) and heparin (33.3 % & 50%). No significant statistical differences were put into evidence between the two groups in this respect with P – values > 0.05.

جدول رقم (8)

This table shows a general increase in lipid profile such as (total cholesterol , LDL-cholesterol, Triglycerides) and a decline in HDL-cholesterol among both groups with a higher tendency of the control group subjects to have a higher mean scores{(221.266 ± 35.093, 150.5 ± 28.808, 145.3 ± 51.022) & 32.166 ± 4.442 } than study group ones{(208.8± 38.277, 139.766 ± 25.621, 119.266± 52.664) & 38.4± 11.339}. No significant statistical differences were found between the study and the control group subjects except in relation to HDL-cholesterol levels with T value of = 2.804 & $P < 0.01$

As well, The cardiac markers, which showed a higher increase in cardiac markers among both groups with higher tendency of control group subjects to have a higher mean scores in relation to CPK, CK-MB (242.2± 95.425 & 110.233 ± 32.499) than study group subjects (210.366 ± 59.187 & 97.7 ± 29.09).Without any significant statistical differences between the two groups.

جدول (9)

This table showed a general improvement in vital signs except for temperature and blood pressure in the first two days among both groups with a higher tendency of the study group subjects to have a higher improvement than control group ones following nursing clinical pathway guidelines implementation. A statistical significant differences was put into evidence between the two groups in all items with the following F- ratios & p – values (F= 18.0 at p = 0.001, F= 12.4 at p = 0.001, F= 14.3 at p = 0.001, F= 39.6 at p = 0.001, F= 41.4 at p = 0.001).

Section (II): Hypothesis testing. (tables, 10- 21 are related to this hypotheses).

H1 : The total mean knowledge scores of the study group subjects will be higher than that of the control group ones (tables 10-11).

Table (10): Difference between study and control group subjects in relation to knowledge mean scores all through the study period.

Assessment periods / variables	Before $\overline{X}$ ± SD	Immediately after $\overline{X}$ ± SD	After three months $\overline{X}$ ± SD	F- ratio
-Nature of patient disease				
Study	3.4 ± 1.8	9.4 ± 2.06	7. 23 ± 1. 819	**74 . 417*** **
Control	4. 266 ± 1. 289	4.2 ± 1.30	3.83 ± 0.969	**1. 1006 n.s**
T - value	**2. 1435***	**11. 711*** **	**9. 042*** **	
- Prescribed drugs				
Study				
Control	4. 966 ± 1. 448	10. 66 ± 1.79	8.3 ± 1. 715	**86 . 349*** **
T - value	5. 53 ± 1. 38	5.2 ± 1.35	4.43± 1. 20	**5 . 333***
	1. 544 n.s	**13. 349*** **	**10. 131*** **	
- Complications of disease				
Study	0. 966 ± 1. 048	3. 566 ± 0. 76	3 ± 0. 73	**73 . 589*** **
Control	1. 366 ± 1. 196	1. 366 ± 1. 196	1. 33 ± 1. 192	**0 . 003 n.s**
T- value	**1. 379 n.s**	**8. 527*** **	**6. 549*** **	
- Diet				
Study	6. 966 ± 1. 683	15. 466 ± 2. 39	12. 13 ± 2. 23	**117. 958*** **
Control	6. 73 ± 1. 526	6. 43 ± 1. 89	5. 566 ± 1. 667	**3. 674***
T - value	**0. 5700 n.s**	**16. 254*** **	**12. 946*** **	
- Physical activity				
Study	3.9 ± 1. 535	8.2 ± 1. 013	6. 53 ± 1. 147	
Control	4.33 ± 1. 325	4.4 ± 1. 33	4.1 ± 1. 164	**87. 043*** **
T- value	**1. 165 n.s**	**12. 459*** **	**8. 154*** **	**0. 433 n.s**
- Sexual activity				
Study	1. 93 ± 0.679	3.466 ± 0. 56	3.066 ± 0.73	**42. 101*** **
Control	2.43 ± 0.558	2.43 ± 0.615	2. 43 ± 0.15	**0. 0135 n.s**
T- value	**3. 125****	**6. 861*** **	**4.676*** **	
- Dealing with stressful situations				
Study	4.6 ± 0. 66	7. 53 ± 0. 618	6. 366 ± 0.836	**124. 723*** **
Control	4.766 ± 0.88	4.2 ± 0. 79	3.86 ± 0. 805	**8. 771****
T - value	**0. 826 n.s**	**18. 196*** **	**11.826*** **	
- Follow-up				
Study	5.766 ± 1. 11	11. 166 ± 1. 267	9. 266 ± 1.590	**121. 325*** **
Control	6. 03 ± 1. 39	5. 766 ± 1. 45	5 ± 1. 21	**4. 306***
T - value	**0. 815 n.s**	**15. 384*** **	**11. 719*** **	
- Total				
Study	32.5 ± 6.55	69.46 ± 8.71	56.13 ± 9.185	**33. 723*** **
Control	35.46 ± 8.019	34.03 ± 8.07	30.566 ± 7.05	**3. 081 n.s**
T- value	**1.566 n.s**	**16.342*** **	**12.092*** **	

n.s = not statistical significant
***** = statistical significant at p value = 0.05
** = statistical significant at 0.01
***= statistical significant at 0.001

From table (10) it is obvious that pre nursing clinical pathway guidelines implementation, the total and subtotal mean knowledge scores of both groups were markedly low with no significant statistical differences between them except in relation to knowledge about nature of the disease and sexual activity, control group subjects got slightly high mean scores (4.266 & 2. 43) compared to (3.4 & 1.93) for study group subjects with the following t = 2. 1435 & 3. 125 and p values of <0.05 & 0.001. However, post nursing clinical pathway guidelines implementation, an obvious improvement in all total & subtotal knowledge items among study group subjects with a high significant statistical differences between the two groups with p values of 0.001 for all items . However, a slight decline occurred after three months post nursing clinical pathway guidelines implementation among both groups subjects. with a high significant statistical differences between the two groups with p values of 0.001 for all items . So hypothesis 1 was supported .

جدول رقم (11)

H2: Total Mean Practice Scores Of The Study Group Subjects Will Be Higher Than That of The Control Group ones (tables 12 to 13 are related to this hypothesis).

Table (12): Difference between study and control group subjects in relation to practice mean scores all through the study period.

Assessment Periods / Variables	Before $\overline{X}$ ± SD	Immediately after $\overline{X}$ ± SD	After three months $\overline{X}$ ± SD	F- ratio
- Measuring pulse				
Study	3. 6 ± 1. 0519	7 .3 ± 0. 862	5.866 ± 0.921	**112. 184*** **
Control	3. 866 ± 1. 28	3.93 ± 1.289	3.7 ± 1.187	**0. 264 n.s**
T - value	**0. 880 n.s**	**11. 908 *** **	**7. 905*** **	
- Measuring respiration				
Study	2.566 ± 1. 022	5.266 ± 0. 512	4.466 ± 0. 618	**98. 996*** **
Control	2.766 ± 1. 05	2.966 ± 0.948	2.8 ± 0.909	**0 . 348 n.s**
T- value	**0.749 n.s**	**11. 699*** **	**8. 309*** **	
- Measuring temperature				
Study	8.8 ± 4.118	28.7 ± 4.450	22.333 ± 3.952	**7. 1616 *** **
Control	10.03 ± 4.102	9.5 ± 3.575	8.633 ± 3.060	**1. 114 n.s**
T - value	**1. 1593 n.s**	**18. 426*** **	**15. 022*** **	
- Range of motion exercises				
Study	5.833 ± 1.551	16.3 ± 3.532	12.2 ± 3.350	**92. 687 *** **
Control	5.566 ± 1.96	5.4 ± 2.059	4.63 ± 1.99	**1. 7882 n.s**
T - value	**0. 585 n.s**	**14. 611 *** **	**10. 647*** **	
- Cough &deep breathing exe				
Study	5.8 ± 2.023	16.33 ± 3.737	13.433 ± 3.422	**90. 5261*** **
Control	6.266 ± 1.965	5.93 ± 2.080	5.43 ± 1.78	**1. 345 n.s**
T- value	**0. 905 n.s**	**13. 707 *** **	**11. 368 *** **	
- Elasticized stockings				
Study	3.666 ± 1.135	6.266 ± 0.512	5.766 ± 0.715	**80. 234*** **
Control	3.63 ± 0.91	3.9 ± 1.075	3.766 ± 0.955	**0. 529 n.s**
T- value	**0.1358 n.s**	**10.903*** **	**9.216*** **	
- AMI drugs				
Study	5.133 ± 0.884	8.366 ± 0.795	7.366 ± 0.912	**30. 858*** **
Control	4. 866 ± 0.88	4.8 ± 0.79	4.2 ± 0.83	**5. 580***
T- value	1.171 n.s	17. 395***	14.197***	
- Total				
Study	35.5 ± 9.615	88.833 ±12.712	71.766 ±12.104	**161. 119 *** **
Control	37.3 ± 10.48	36.43 ± 9.95	33.266 ± 8.977	**1. 354 n.s**
T- value	**0. 693 n.s**	**17.782*** **	**13.995*** **	

n.s = not statistical significant

***** = statistical significant at p value = 0.05

*** = very high statistical significant at p value = 0.001

Table (12) showed that, pre nursing clinical pathway guidelines implementation, the total and subtotal mean practice scores of both groups were markedly low with no significant statistical differences between them.

However, post nursing clinical pathway guidelines implementation, an obvious improvement in all total & subtotal practice items among study group subjects with a high significant statistical differences between the two groups with p-values of 0.001 for all items. However, a slight decline occurred after three months among both groups subjects. With a high significant statistical differences between the two groups with p-values of 0.001 for all items.

Thus hypothesis (2) was supported.

جدول رقم (13)

H3: The Total Compliance Mean Scores Of The Study Group Subjects Will Be Higher Than That Of The Control Group ones (table 14 to 15 are related to this hypothesis)

Table (14): Difference between study and control group subjects in relation to compliance mean scores all through the study period.

Assessment Periods / Variables	Before $\overline{X}$ ± SD	Immediately after $\overline{X}$ ± SD	After one month $\overline{X}$ ± SD	After three month $\overline{X}$ ± SD	F- ratio
- Diet					
Study	6.66 ±0.906	13.466±1.431	11.933±1.388	9.933±1.459	**144.367*** **
Control	6.1 ± 1.33	6.33 ± 1.619	6.566±1.498	6.033± 1.277	**0.831 n.s**
T - value	**1.931 n.s**	**18.111*** **	**14.427*** **	**11.048*** **	
- Smoking					
Study	6.833±0.897	13.933±1.152	11.866±1.499	9.933±1.982	**26.979*** **
Control	6.966±1.741	7.566±1.66	7.066 ±1.569	6.266±1.481	**3.175***
T- value	**0.372 n.s**	**17.301*** **	**12.1212*** **	**8.131*** **	
- Activity					
Study	6.1±1.445	12 ± 1. 612	10.233±1.406	8.833 ±1.439	
Control	5.933±1.842	5.766± 2. 076	5.833±1.827	5.5 ± 1.565	**82. 382*** **
T - value	**0.392 n.s**	**13. 0146*** **	**10. 451*** **	**8. 612*** **	**0. 294 n.s**
- Medication					
Study	7.066±1.030	14.5 ± 0.846	12.5 ± 1.0567	10.8 ± 1.580	**214.092*** **
Control	7.133±1.707	7.433 ± 1. 542	7.166±1.507	6.033± 1.448	**4. 616***
T - value	**0.1824 n.s**	**22. 0843*** **	**15. 875*** **	**12.192*** **	
- Stress					
Study	6.233±1.229	12.466±1.309	10.733±0.928	8.866± 1.175	**151.0353*** **
Control	5.733±1.730	5.6 ± 1.645	5.3 ±1.3699	4.833± 1.157	**2. 0711 n.s**
T- value	**1. 292 n.s**	**17. 927*** **	**17. 9900*** **	**13.398*** **	
- Total					
Study	32.9±3.780	66.2± 4.028	57.266±3.395	47.566±7.896	**411. 992*** **
Control	31.766±7.218	32.66± 7.381	31.933±6.657	28.666±5.838	**1. 967 n.s**
T- value	**0.7623 n.s**	**21. 848*** **	**18. 5685*** **	**10.542*** **	

n.s = not statistical significant * = statistical significant at p value = 0.05
*** = very high statistical significant at p value = 0.001

Table (14) showed that, pre nursing clinical pathway guidelines implementation, the total and subtotal mean compliance scores of both groups were markedly low with no significant statistical differences between them. However, post nursing clinical pathway guidelines implementation, the mean compliance scores of the study group subjects was higher than those of the control group in all total & subtotal items of compliance to therapeutic regimen with a high significant statistical differences between both groups at p – value of = 0.001 . However, a slight decline occurred after one and three months among both groups' subjects. With significant statistical difference at p- value = 0.001. Thus hypothesis 3 was supported.

جدول (15)

Table (16): Difference between study and control group subjects in relation to satisfaction mean scores all through the study period.

Assessment periods / Variables	Pre $\overline{X}$ ± SD	Immediately post $\overline{X}$ ± SD	T-P values
Admission process			
Study	2.2667 ± 0.727	3.9667 ± 0.1795	**12.395*** **
Control	2.266 ± 0.573	2.7 ± 0.640	**2.769****
T-value	**0.406 n.s**	**10.440*** **	
What was happening			
Study	2.4 ± 0.711	3.8667 ± 0.6182	**8.527*** **
Control	2.466 ± 0.561	2.9667 ± 0.4068	**3.958*** **
T-value	**0.399 n.s**	**6.667*** **	
Patient condition			
Study	2.8 ± 0.748	4.2 ± 0.6	**8.004*** **
Control	2.3667 ± 0.5467	2.833 ± 0.372	**3.886*** **
T-value	**2.564***	**10.605*** **	
Length of stay			
Study	1.833 ± 0.778	4.4 ± 0.536	**14.889*** **
Control	1.6333 ± 0.7063	1.333 ± 0.6498	**1.714 n.s**
T-value	**1.0412 n.s**	**19.980*** **	
Progress of pt medical condition			
Study	2.1667 ± 0.7341	4.133 ± 0.5617	**11.655*** **
Control	2.2667 ± 0.4422	2.4 ± 6110	**0.973 n.s**
T-value	**0.641 n.s**	**11.439*** **	
Health instructions			
Study	2.4667 ± 0.6699	.9 ± 0.538	**9.158*** **
Control	1.9667 ± 0.6046	2.4 ± 0.6110	**2.769****
T-value	**3.039***	**10.108*** **	
Coordination of care			
Study	2.733 ± 0.573	3.6 ± 0.663	**5.425*** **
Control	2.933 ± 0.4422	2.9 ± 0.6506	**0.230 n.s**
T-value	**1.515 n.s**	**4.142*** **	
Nurses knowledge			
Study	2.7 ± 0.586	3.7667 ± 0.667	**6.584*** **
Control	2.466 ± 0.561	2.9333 ± 0.5735	**3.196****
T-value	**1.575 n.s**	**5.189*** **	

Table (16) continue.

Plan of care Study Control **T-value**	2.8 ± 0.7023 2.3 ± 0.640 **2.883***	4.1± 0.396 2.7 ± 0.586 **10.844***	**8.843*** **2.531***
Nurses explanation Study Control **T-value**	2.7 ± 0.5859 2.667 ± 0.7453 **0.190 n.s**	3.5667 ± 0.6155 2.6 ± 0.663 **5.858***	**5.591*** **0.368 n.s**
Doctors explanation Study Control **T-value**	1.8667 ± 0.498 2.5667 ± 0.4955 **5.468***	3.366 ± 0.4819 2.333 ± 0.4714 **8.404***	**11.857*** **1.872 n.s**
Physicians knowledge Study Control T-value	2.4 ± 0.7118 2.9 ± 0.3958 **3.362***	.4667 ± 0.618 2.6 ± 0.7118 **5.039***	**6.201*** **2.027***
Discharge process Study Control **T-value**	2.3 ± 0.7810 2.133 ± 0.6528 **0.896 n.s**	3.9667 ± 0.6046 2.7 ± 0.737 **1.266 n.s**	**9.259*** **3.153****
Discharge arrangements Study Control **T-value**	2.533 ± 1.024 2.366 ± 0.7063 **0.732 n.s**	3.966 ± 0.657 2.4 ± 0.840 **8.075***	**6.458*** **0.166 n.s**
Quality of care Study Control **T-value**	1.6 ± 0.4899 2.667 ± 0.5375 **8.040***	4.2333 ± 4229 2.933 ± 0.249 **14.512***	**22.316*** **2.463***
Total scores Study Control **T-value**	35.566 ± 3.4223 36.133 ± 2.8952 **0.692 n.s**	57.866 ± 4.856 38.733 ± 3.0976 **18.195***	**20.572*** **3.358***

n.s = not statistical significant
***** = statistical significant at p value = 0.05
** = statistical significant at 0.01
*** = very high statistical significant at p value = 0.001

Of note, table (16) showed that, post nursing clinical pathway guidelines implementation, the study group subjects were found to be more satisfied compared to subjects in the control group in all total & subtotal satisfaction items .With a high significant statistical differences between the two groups with p-values of 0.001 for all items.

جدول (17)

H4: Patients with acute myocardial infarction who are exposed to the designed clinical pathway guidelines will have lesser hospital stay than those who will not Table 18, is related to this Hypothesis.

Table (18): Differences in hospital stay / Days among study and control group subjects.

Item	Study group N = 30		Control group N = 30		Total N = 60		T-P values
	No	%	No	%	No	%	
Hospital stay:							
Less than 5 days	**2**	**6.7**	**0**	**0.0**	**2**	**3.3**	
5-7 days	**28**	**93.3**	**8**	**26.7**	**36**	**60**	**18. 044*** **
more than 7 days	**0**	**0.0**	**22**	**73. 3**	**22**	**36.7**	
$\overline{X}$ **±SD**	**5. 133 ±0.498**		**7.966 ± 0.7063**		**6. 55 ± 1.54**		

***= statistical significant at 0.001

In relation to hospital stay / days among the two studied groups , 93. 3% of study group subjects compared to 26. 7 % of control group subjects stayed between 5- 7 days, with a mean hospital stay of 5. 133 ± 0. 498 &7. 966 ± 0. 7063 days respectively. A high significant statistical difference was found between the two groups with the following t & p values 18 .044 , p = 0.001. Thus hypothesis (4) is supported.

H5: The frequency of post acute myocardial infarction complications among study group subjects will be lower than that among the control group (tables 19,20,21 are related to this hypothesis).

Table (19): Comparison between the two studied groups as regards to complications developed throughout the study periods (n=60).

Study periods	Complications				X^2_{df2}	P- value
	Study group		**Control group**			
	N	**%**	**N**	**%**		
During hospitalization	14	46.6	21	70	7.84***	<0.001
After one month	8	26.7	17	56.6		
After three months	6	20	14	46.6		

***= significant statistical difference at 0.001

Table (19) demonstrated that(46.6 % compared to 70 %), (26.7% compared to 56.6%) and (20 % compared to 46.6%, respectively) of both study and control group subjects developed complications throughout the three assessments with a high significant statistical differences between them (X^2_{df2} = 7.84 & p- values of <0.001).

Table (20): Comparison between the two studied groups as regards to types of complications (ischemic & mechanical) developed throughout the study periods (n=60).

Study periods	Ischemic complications				X^2_{df2}	P value
	Study group		Control group			
	N	%	N	%		
During hospitalization	5	16.7	9	30	23.461***	<0.001
After one month	3	10	7	23.3		
After three months	2	6.7	5	16.6		
	Mechanical complications				X^2_{df2}	P value
	Study group		Control group			
	N	%	N	%		
During hospitalization	2	6.7	10	33.3	44.162***	<0.001
After one month	2	6.7	10	33.3		
After three months	4	13.3	11	36.7		

***= significant statistical difference at 0.001

Table (20) illustrated that (16.7 % compared to 30 %), (10% compared to 23.3%) and (6.7 % compared to 16.6% ,respectively) of both study and control group subjects developed ischemic complications throughout the three assessments with a high significant statistical differences between them (X^2_{df2} = 23.461 & p- values of <0.001.As well (6.7 % compared to 33.3%), (6.7% compared to 33.3%) and (13.3 % compared to 36.7% ,respectively) of both study and control group subjects developed mechanical complications throughout the three assessments with a high significant statistical differences between them (X^2_{df2} = 44.162 & p- values of <0.001.

Table (21): Comparison between the two studied groups as regards to types of complications (arrhythmic ,embolic & psychological) developed throughout the study periods (n=60).

Study periods	Arrhythmic complications				X^2_{df2}	P value
	Study group		Control group			
	N	%	N	%		
During hospitalization	4	13.3	7	23.3	51.609***	<0.001
After one month	2	6.7	5	16.7		
After three months	3	10	6	20		
	Embolic complications				X^2_{df2}	P value
	Study group		Control group			
	N	%	N	%		
During hospitalization	6	20	9	30	5.176**	<0.01
After one month	5	16.7	7	23.3		
After three months	4	13.3	6	20		
	Psychological complications				X^2_{df2}	P value
	Study group		Control group			
	N	%	N	%		
During hospitalization	2	6.7	6	20	4.20*	< 0.05
After one month	2	6.7	4	13.3		
After three months	3	10	7	23.3		

*= significant statistical difference at 0.05 ***significant statistical difference at 0.001

**significant statistical difference at 0.01

Table (21) demonstrated that (13.3 % compared to 23.3 %), (6.7% compared to 16.7%) and (10 % compared to 20% , respectively} of both study and control group subjects developed arrhythmic complications throughout the three assessments with a high significant statistical differences between them (X^2_{df2} = 51.609 & p- values at 0.001).

Also, (20 % compared to 30 %), (16.7% compared to 23.3%) and (13.3% compared to 20% , respectively) of both study and control group subjects developed embolic complications throughout the three assessments with A significant statistical differences between them (X^2_{df2} =5.176 & p- values < 0.001).

As well, (6.7% compared to 20 %), (6.7% compared to 13.3%) and (10% compared to 23.3%, respectively) of both study and control group subjects developed psychological complications throughout the three assessments with a significant statistical differences between them (X^2_{df2} = 4.20 & p- values at 0.05). Thus hypothesis (4) was supported.

جدول (22)

جدول (22)

جدول (23)

جدول (23)

جدول 24

جدول 24

جدول (25)

جدول (25)

Table (26): Correlation coefficient for study and control group knowledge , practice , compliance , satisfaction , age , and income.

r-p value / variables	Study group		Control group	
	r	**p-values**	**r**	**p-values**
Age with knowledge				
Pre guidelines	- 0.3043	n.s	- 0.2014	n.s
Immediately post	0.5423	<0.001	- 0.3472	n.s
After three months	0.5267	<0.001	- 0.2902	n.s
Age with practice				
Pre guidelines	- 0.308006	n.s	- 0.213479	n.s
Immediately post	0.7041101	<0.001	- 0.126875	n.s
After three months	0.72225	<0.001	- 0.121281	n.s
Age with compliance				
Pre guidelines	0.23624	n.s	- 0.24956	n.s
Immediately post	0.25395	n.s	- 0.22972	n.s
After one month	0.49479	<0.01	- 0.20008	n.s
After three months	0.45706	<0.05	- 0.15819	n.s
Age with satisfaction				
Pre guidelines	0.23976	n.s	0.3342	n.s
Immediately post	0.400798	>0.05	0.13286	n.s
Income with knowledge				
Pre guidelines	-0.2369	n.s	0.4720	<0.05
Immediately post	-0.0066	n.s	0.4572	<0.05
After three months	-0.1911	n.s	0.4457	<0.05
Income with practice				
Pre guidelines	0.29845	n.s	0.41801	<0.05
Immediately post	- 0.1143	n.s	0.3594	n.s
After three months	- 0.023123	n.s	0.33706	n.s
income with compliance				
Pre guidelines	0.03376	n.s	0.39111	<0.05
Immediately post	- 0.025526	n.s	0.36145	n.s
After one month	- 0.02796	n.s	0.32273	n.s
After three months	- 0.10254	n.s	0.3958	<0.05
Income with satisfaction				
Pre guidelines	- 0.302753	n.s	0.02716	n.s
Immediately post	-0.1449797	n.s	- 0.02357	n.s

n.s = not statistical significant.

It is clearly shown from table (26) that, there was a positive correlation between immediately post and three months study group subjects Knowledge, practice, compliance, satisfaction and age as compared with the control group ones. With significant statistical difference at p values of <0.001.

Moreover, the results revealed that, income is negatively correlated with knowledge, practice, compliance and satisfaction scores of study group subjects all through the different assessment periods following nursing clinical pathway guidelines implementation Without significant statistical difference at p values of >0.05.

Regarding control group subjects, income is positively correlated with knowledge, practice, compliance scores of control group subjects pre, immediately post and after three months of nursing clinical pathway guidelines implementation with p – values of < 0.05 .

Section (IIII): Deals with findings related to analysis of variances in relation to patient, physician, hospital, nursing, and hospital discharge (tables 27).

Table (27) : Comparison of variance numbers developed among the study and control group subjects during hospitalization (n= 60).

Types / Variables	Study group		Control group		X^2	p-value
	N	%	N	%		
+ patient variances	5	16.6	3	10	3.737*	<0.05
- patient variances	9	30	17	56.6		
+ physician variances	5	16.6	3	10	3.655*	<0.05
- physician variances	8	26.6	11	36.6		
+ Hospital variances	3	10	2	6.7	0.072	>0.05
- Hospital variances	17	56.6	15	50		
+ Nursing variances	5	16.6	1	3.3	6.65	<0.001
- Nursing variances	4	13.3	13	43.3		
+ Hospital discharge variances	5	16.6	4	13.3	0.318	>0.05
- Hospital discharge variances	13	43.3	16	53.3		

n.s = not statistical significant
* = statistical significant at p value = 0.05
** = statistical significant at 0.01
*** = very high statistical significant at p value = 0.001

N.B . Every subject might have one, more than one or no variance.

- (- ve patient's variances) means having infection or co- existing morbidities or non compliance to the prescribed treatment.
- (+ ve patient's variances) means early discharge, compliance to the prescribed treatment.
- (- ve physician's variances) means delays in consultation, evaluation, investigation orders, follow up, explanation to patient.
- (+ ve physician's variances) means early consultation, accurate procedures practices by physician.
- (- ve hospital variances) means equipment unavailability, delay in investigation results, delay in performing diagnostic or treatment procedures, delay in support services.
- ($_+$ ve hospital variances) means providing adequate supplies for patient care.
- (- ve nursing variances) means incomplete documentation, plan of care not discussed with patient, physician orders not carried out , delay in patient education.
- (+ ve nursing variances) means accurate procedures practices by nurse.
- (- ve hospital discharge variances) means prolonged discharge orders, lack of availability of health insurance or social support.
- (+ ve hospital discharge variances) means early discharge procedures , an availability of home care or social support.

Table (27) documented that during hospitalization the (56.6%) of the control group had negative patient variance as compared (30%) of the study group ones, while the minority of both study and control groups (16.6 % & 10%, respectively) had positive patient variance. with a significant statistical differences between them ($X^2 = 3.737$ at P = 0.05).

Concerning physician variances , the same table demonstrated that the (16.6% & 26.6%) of the study and control groups had negative physician variances. Whereas the (16.6% & 10%) of the study and control groups had positive physician variances . with a significant statistical differences between them ($X^2 = 3.655$ at P = 0.05).

As regards to hospital variances, the same table shows that the majority of the study and control group subjects (56.6 % & 50 %) had negative hospital variance. With no significant statistical differences between them ($X^2 = 0.072$ at P >0.05).

Concerning nursing variances, the (43.3 %) of the control group had negative nursing variance as compared (13.3 %) of the study group ones, while the minority of both study and control groups (16.6% & 3.3%) had positive nursing variance. with a significant statistical differences between them ($X^2 = 6.65$ at P = 0.001).

As regards to hospital discharge variances, the (53.3 %) of the control group had hospital discharge variances as compared (43.3 %) of the study group ones, while the minority of both study and control groups (16.6% & 13.3%) had positive hospital discharge variances. with no significant statistical differences between them ($X^2 = 0.318$ at P >0.05).

Table(8): Comparison between the two studied groups in relation to lipid profile and cardiac markers.

Item	Lipid profile				Cardiac markers						
	Cholesterol (mg/dl)	LDLc (mg/dl)	HDLc (mg/dl)	Triglycerides (mg/dl)	CPK (u/l)	CK-MB (u/l)	F- ratio	Troponin I			
								Positive		Negative	
	$\overline{X}$ ± SD	$\overline{X}$ ± SD	$\overline{X}$ ± SD	$\overline{X}$ ± SD	$\overline{X}$ ± SD	$\overline{X}$ ± SD		No	%	No	%
Study	208.8±38.277	139.766±25.621	38.4±11.339	119.266±52.664	210.366±59.187	97.7±29.09	82.112*** P< 0.001	30	100	0	0.0
Control	221.266±35.093	150.5± 28.808	32.166±4.442	145.3± 51.022	242.2± 95.425	110.233± 32.499	68.133*** P< 0.001	30	100	0	0.0
T-P value	1.315 n.s	1.525 n.s	2.804** p< 0.01	1.944 n.s	1.553 n.s	1.574 n.s		$X^2_{df1} = 000$ n.s			

CPK = Creatine Phosphokinase
CK-MB= Creatine Kinase IsoenzymeMB
LDL= Low Density Lipoprotein
HDL= High Density Lipoprotein
N.S = Not Significant .
** = Statistical Significant at 0.01
***= Statistical Significant at 0.001

Table (9): Differences in vital signs between study and control group subjects all through the hospitalization period (five days)following nursing clinical pathway implementation.

Group / Vital signs	1st day $X \pm SD$	2 nd day $X \pm SD$	3 rd day $X \pm SD$	4th day $X \pm SD$	5th day $X \pm SD$	F - ratio	P-value
Temperature							
Study	37.71 ±.0.52	37.54 ± 0.446	37.3 ± 0.35	37.12 ± 0.24	37.01 ± 0.16	18.0	<0.001
Control	37.79 ±0.523	37.65 ± 0.43	37.55 ± 0.39	37.36 ± 0.4	37.3 ± 0.41	5.88	<0.001
T-P value	**0.550** > 0.05	**1. 029** > 0.05	**2. 50** < 0.05	**2. 96** < 0.01	**3. 89** < 0.001		
Pulse							
Study	115.26± 17.27	109.36± 13.12	103.2 ± 12. 68	97 ± 13.4	93.4 ± 10. 43	12.4	< 0.001
Control	125.33± 18.92	124.2± 17. 36	123.2± 16.92	121.6± 18. 1	118.8 ± 16. 89	0.59	> 0.05
T-P value	**2. 152** < 0.05	**3. 743** < 0.001	**5. 181** < 0.001	**5. 960** < 0.01	**7. 008** < 0.001		
Respiration							
Study	25.766± 5.142	24.3 ± 4. 86	22. 26 ± 4. 35	19. 96 ± 3. 64	18. 53 ± 2. 75	14.3	< 0.001
Control	29. 466± 3.211	28.96 ± 4. 13	27. 56 ± 4. 21	25. 8 ± 4. 58	26. 13 ± 4.47	8.45	< 0.001
T-P value	**3. 343** < 0.001	**4. 008** < 0.001	**4. 796** < 0.001	**5. 488** < 0.001	**7. 925** < 0.001		
Systolic							
Study	149.66± 17.22	137.3± 9. 98	127.3± 11. 53	120.3± 9.48	115.66± 8.03	39.6	<0.001
Control	148 ± 11. 94	142 ± 8.72	139.66 ± 15.2	139.6 ± 15.16	131.66± 14.85	133.9	<0.001
T-P value	**0. 435** > 0.05	**1. 930** > 0.05	**3. 547** < 0.001	**5. 923** < 0.001	**5. 923** < 0.001		
Diastolic							
Study	93.3 ± 5. 96	87 ± 5.860	79.66 ± 6.046	77.33 ± 6.798	74.66± 7.180	41.4	< 0.001
Control	94.66± 4.99	87.66 ± 6.15	85 ± 6.191	85 ± 6.191	84 ± 8.406	13.09	< 0.001
T-P value	**0. 938** > 0.05	**0. 537** > 0.05	**3. 376** < 0.001	**4. 569** < 0.001	**4. 624** < 0.001		

Table (11): Total knowledge score levels of the study and control group subjects in percentage distribution all through the three assessments

Knowledge level / Items	Study group						Control group							
	<60 %		60- 80 %		> 80 %		<60 %		60- 80 %		> 80 %		$X^2_{df=2}$	- P value
	Unsatisfactory		Satisfactory		Good		Unsatisfactory		Satisfactory		Good			
	No	%	No	%	No	%	No	%	No	%	No	%		
Pre- program	30	100	0	0.0	0	0.0	30	100	0	0.0	0	0.0	0.00	>0.05 n.s
Immediately post	14	46.7	13	43.3	3	10	30	100	0	0.0	0	0.0	21.82	<0.001***
After three months	24	80	6	20	0	0.0	30	100	0	0.0	0	0.0	6.66	<0.001***

n.s = no statistical significance . ** *= statistical significant at 0.001

Table (11) Documented an unsatisfactory knowledge level among 100 % of both study and control group subjects pre-nursing clinical pathway guidelines implementation. However, immediately post nursing clinical pathway guidelines implementation, less than half (46.7%) got an un satisfactory knowledge level Compared to 100 % of control group . With an increment to (80%) by the end of third month among the study group subjects as compared to 100 % of the control group subjects . A significant statistical differences was put into evidence between the two groups ($X^2_{df\,2}$ = 21.82 at p = 0.001 & $X^2_{df\,2}$ = 6.66 at p= 0.001. Thus hypothesis (1) was supported.

Table (13): Total practice score levels of the study and control group subjects in percentage distribution all through the three assessments .

Practice level / Items	Study group						Control group							
	<60 %		60- 80 %		> 80 %		<60 %		60- 80 %		> 80 %		$X^2_{df=2}$	P value
	Unsatisfactory		Satisfactory		Good		Unsatisfactory		Satisfactory		Good			
	No	%	No	%	No	%	No	%	No	%	No	%		
Pre- program	30	100	0	0.0	0	0.0	30	100	0	0.0	0	0.0	**0.00**	**<0.05 n.s**
Immediately post	13	43.3	15	50	2	6.7	30	100	0	0.0	0	0.0	21.72	<0.001***
After three months	25	83.3	5	16.7	0	0.0	30	100	0	0.0	0	0.0	4.158	<0.05*

n.s = no statistical significance. *= statistical significant at 0.05 ** *= statistical significant at 0.001

Table (13) Documented an unsatisfactory practice level among 100 % of both study and control group subjects pre-nursing clinical pathway guidelines implementation. However, immediately post nursing clinical pathway guidelines implementation, less than half (43.3%) got an un satisfactory practice level Compared to 100 % of control group. With an increment to (83.3%) by the end of third month among the study group subjects as compared to 100 % of the control group subjects. A significant statistical differences was put into evidence between the two groups ($X^2_{df\ 2}$= 21.72 at p = 0.001 & $X^2_{df\ 2}$ = 4.158 at p= 0.001. Thus hypothesis (2) was supported.

Table (15): Total compliance score levels of the study and control group subjects in percentage distribution all through the four assessments.

Compliance level / Items	Study group						Control group						$X^2_{df=2}$	P value
	<60 % Unsatisfactory		60- 80 % Satisfactory		> 80 % Good		<60 % Unsatisfactory		60- 80 % Satisfactory		> 80 % Good			
	No	%	No	%	No	%	No	%	No	%	No	%		
Pre- program	25	83.3	5	16.7	0	0.00	26	86.7	4	13.3	0	0.0	0.129	>0.05 n.s
Immediately post	2	6.7	4	13.3	24	80	24	80	6	20	0	0.0	43.00	<0.001***
After 1 month	6	20	9	30	15	50	27	90	3	10	0	0.0	31.36	<0.001***
After three months	10	33.3	20	66.3	0	0.0	28	93.3	2	6.7	0	0.0	23.24	<0.001***

n.s = no statistical significance. ** *= statistical significant at 0.001

Table (15) Demonstrated an unsatisfactory compliance level among the majority (83.3 % & 86.7 %, respectively) of both study and control group subjects pre-nursing clinical pathway guidelines implementation. However, immediately post nursing clinical pathway guidelines implementation, (6.7%) got an un satisfactory compliance level Compared to (80) % of the control group . With an increment to (20% , 33.3%) by the end of the first & third month among the study group subjects as compared to (90 % & 93.3 %) of the control group subjects . A significant statistical differences was put into evidence between the two groups ($X^2_{df\,2}$ = 43.00 at p = 0.001 , $X^2_{df\,2}$ = 31.36 at p= 0.001 & $X^2_{df\,2}$ = 23.24 at p= 0.001. Thus hypothesis (3) was supported.

Table (17): Total satisfaction score levels of the study and control group subjects in percentage distribution all through the four assessments.

Satisfaction level / Items	Study group						Control group							
	<60 %		60- 80 %		> 80 %		<60 %		60- 80 %		> 80 %		$X^2_{df=2}$	P value
	Unsatisfactory		Satisfactory		Good		Unsatisfactory		Satisfactory		Good			
	No	%	No	%	No	%	No	%	No	%	No	%		
Pre- program	21	70	9	30	0	0.0	23	76.7	7	23.3	0	0.0	0.340	>0.05 n.s
Immediately post	5	16.7	20	66.6	5	16.7	20	66.7	10	33.3	0	0.0	17.20	<0.001***

n.s = no statistical significance. ** *= statistical significant at 0.001

Table (17) Documented, nearly three quarters (70 %& 76.7%, respectively) of both study and control group subjects were having unsatisfactory scores before nursing clinical pathway guidelines implementation. However, immediately post nursing clinical pathway guidelines implementation, less than one fourth (16.7%) got an unsatisfactory level among the study group subjects as compared to (66.7 %) of the control group subjects. A significant statistical differences was put into evidence between the two groups ($X^2_{df\,2}$ = 17.20 at p = 0.001 .

Section (III): Correlational and additional findings (tables 22-26).

Table (22): The relationship between total knowledge scores and selected socio-demographic variables of study and control group subjects through the different three assessments.

	Study group							control group						
Assessment period / Items	**Before**	**Immediately after**	**Paired t**	**P -value**	**After 3 months**	**Paired t**	**P -value**	**Before**	**Immediately After**	Paired t	**P - value**	**After 3 months**	**Paired t**	**P - value**
Knowledge with														
Education														
Illiterate N1 = 15 N2 =15	28.4 117 ± 5.423	63.353± 5.920	17.943	<0.001	49.941± 5.307	11.700	< 0.001	28.769± 2.693	28.1538 ±3.6129	0.492	> 0.05	25.615 ±3.0009	2.823	<0.01**
Read & write N1 = 6 N2 =5	36.444± 2.2166	75.888± 3.142	30.791	< 0.001	62.222 ± 6.0143	12.068	< 0.001	37.571± 6.945	34.1428± 7.395	0.894	> 0.05	30.285±7.004	1.954	> 0.05
Secondary education N1 = 5 N2 =6	38± 0	77.5 ± 0.5	111.898	< 0.001	64 ± 1	36.775	< 0.001	40±4.0414	38.333± 5.217	0.618	> 0.05	34.166± 4.259	2.434	< 0.05*
University education N1 = 4 N2 =4	43.5± 2.5	84.5 ± 1.5	19.888	< 0.001	73.5 ± 2.5	12	< 0.001	46.75± 6.179	46.5±3.775	0.069	> 0.05	41.75±2.487	1.501	> 0.05
Marital status														
Single N1 = 2 N2 =0	39± 1	77.5 ± 3.5	14.957	< 0.001	69 ± 2	18.975	< 0.001	40 ± 6	39.5 ± 8.5	0.068	> 0.05	35 ± 6	0.833	> 0.05
Married N1 = 25 N2 =24	33.24 ± 5.846	69.92 ± 8.380	17.949	< 0.001	55.96 ± 8.865	10.701	< 0.001	36.217±8.309	34.913±7.895	0.545	> 0.05	31.347±7.0501	2.143	< 0.05*

Table (22) continue.

	Study group							control group						
Widowed N1 = 3 N2 =5	22± 0.816	60.333± 6.128	10.740	< 0.001	49± 4.966	9.294	< 0.001	22± 0.816	27.8± 4.578	2.789	<0.01**	25.2±3.969	1.766	> 0.05
Sex														
Male N1 = 22 N2 =22	33.363 ± 6.678	70.545± 9.4903	15.029	< 0.001	57.6818± 10.0787	9.436	< 0.001	36.333± 8.659	34±8.8425	0.864	> 0.05	30.0476±7.901	2.458	< 0.05*
Female N1 = 8 N2 =8	30.125± 5.532	67.75 ± 6.299	12.698	< 0.001	51.875± 3.5156	9.387	< 0.001	33.444±5.794	33.444±6.718	0.00	> 0.05	30.666± 5.228	1.068	> 0.05
Occupation														
Housewife N1 = 3 N2 =3	30.125± 5.5325	67.75± 6.299	12.694	< 0.001	51.875± 3.515	9.387	< 0.001	32.428± 5.827	33.428 ± 5.525	0.329	> 0.05	29.857±4.485	0.925	> 0.05
Worker N1 = 5 N2 =5	38.5± 0.866	76.4 ± 2.8	28.931	< 0.001	65.8 ± 3.8678	15.406	< 0.001	33.25 ±9.2025	31.25± 9.0104	0.310	> 0.05	28 ± 7.582	0.880	> 0.05
Employee N1 = 8 N2 =7	41.666± 3.299	82 ± 3.7416	14.009	< 0.001	70± 5.354	7.805	< 0.001	43.75 ±6.2199	42.5 ± 5.979	0.409	> 0.05	38.25±5.0435	1.942	> 0.05
Farmer N1 = 2 N2 =2	24.666± 3.8586	59± 6.4807	7.885	< 0.001	46.333± 4.784	6.106	< 0.001	29.5±1.6072	27.666±1.490	2.051	>0.05*	25.333±1.490	4.661	<0.001***
Free work N1 = 2 N2 =3	38± 0	78 ± 0	0.00	>0.05	65± 0	0.00	>0.05	36.666±2.867	32.333±5.9066	1.143	> 0.05	28.333± 5.906	2.198	<0.05*
On retirement N1 = 10 N2 =10	31 ± 5.329	65.9 ± 6.992	12.558	< 0.001	52.6± 7.227	7.608	< 0.001	33.5± 8.5	29.5± 7.5	0.499	> 0.05	26.5± 6.5	0.925	> 0.05

n.s = no statistical significant *** = very high statistical significant at p value = 0.001 ** = high statistical significant at p value = 0.01

Table (22) revealed that, the male, single, employee, with university education obtained a high mean scores in the different assessment periods as compared to control group ones. A statistical significant differences occurred at p – values of < 0.001.

Table (23): The relationship between total practice scores and selected socio-demographic variables of study and control group subjects through the different three assessments.

	Study group							control group						
Assessment periods / **Items**	**Before** $\overline{X}$ ± SD	**Immediately after** $\overline{X}$ ± SD	**Paired t**	**P - value**	**After 3 months** $\overline{X}$ ± SD	**Paired t**	**P -value**	**Before** $\overline{X}$ ± SD	**Immediately After** $\overline{X}$ ± SD	**Paired t**	**P - value**	**After 3 months** $\overline{X}$ ± SD	Paired t	P -value
Practice with														
Education														
Illiterate N1 = 15 N2 =15	30± 4.765	80.529± 7.546	23.343	<0.001	63.941± 6. 821	16.819	< 0.001	29. 384± 5.540	30.384 ±6.6046	0.418	> 0.05	28 ±6.2757	0.596	>0.05
Read & write N1 = 6 N2 =5	38.333± 7.1336	97.222 ± 10.282	14.118	< 0.001	77.555 ± 8.0706	10.925	< 0.001	40.571 ± 7.925	37.571± 9.499	0.6415	> 0.05	34.142±8.475	1.466	> 0.05
Secondary education N1 = 5 N2 =6	50 ± 0	102 ± **1**	73.550	< 0.001	89.5 ± 2.5	22.354	< 0.001	41.333±8.034	40 ± 7.979	0.288	> 0.05	37± 7.659	0.956	> 0.05
University education N1 = 4 N2 =4	55 ± 9	108.5 ± 0.5	8.394	< 0.001	94.5 ± 0.5	6.198	< 0.001	51.25± 8.728	48.75±7.462	0.435	> 0.05	43.25±7.119	1.420	> 0.05
Marital status														
Single N1 = 2 N2 =0	46± 5	106 ± 6	10. 865	< 0.001	86.5 ± 6.5	6.985	< 0.001	41.5±6.5	34.5± 9.5	0.860	> 0.05	31 ± 8	1.440	> 0.05
Married N1 = 25 N2 =24	35.4 ± 9.7036	88.36 ± 12.152	17.029	< 0.001	71.32 ± 11.834	11.735	< 0.001	37.782±11.061	37.565±9.968	0.0700	> 0.05	34.260±8.959	1.186	> 0.05

Table (23) continue.

	Study group							control group						
Widowed N1 = 3 N2 =5	29.333 ± 3.3993	81.333± 10.3387	8.276	< 0.001	65.666 ± 9.2855	6.364	< 0.001	33.4± 7.499	32± 8.6023	0.274	> 0.05	29.6±8.2849	0.760	> 0.05
Sex														
Male N1 = 22 N2 =22	36.909 ± 10.496	88.727 ± 13.073	14. 498	< 0.001	72.772 ± 13.232	9.960	< 0.001	37.952± 11.590	36.285±11.1275	0.475	> 0.05	32.952±9.945	1.500	> 0.05
Female N1 = 8 N2 =8	31.625 ± 4.820	89.125 ± 11.655	12.895	< 0.001	69 ± 7.582	11.768	< 0.001	35.888±7.187	36.777±6.4079	0.275	> 0.05	34 ± 6.0918	0.601	> 0.05
Occupation														
Housewife N1 = 3 N2 =3	31. 625± 4.820	89.125 ± 11.655	12.895	< 0.001	69 ± 7.582	11.768	< 0.001	36.571± 6.945	38 ± 5.8309	0.417	> 0.05	35.4285±5.602 4	0.338	> 0.05
Worker N1 = 5 N2 =5	39.6 ± 6.621	99.8 ± 7.082	13.887	< 0.001	83 ± 5.477	11.296	< 0.001	36 ± 8.660	32.25 ± 8.642	0.613	> 0.05	29.25 ± 7.495	1.178	> 0.05
Employee N1 = 8 N2 =7	53.333± 7.717	106.666 ± 2.624	11.333	< 0.001	93.666± 1.247	8.937	< 0.001	47.5 ± 10.476	45.125 ± 9.2254	0.481	> 0.05	40.625±8.3207	1.453	> 0.05
Farmer N1 = 2 N2 =2	30.333± 2.624	73.333± 8.956	7.980	< 0.001	58.333± 7.542	6.0738	< 0.001	27.833±5.145	28.666±6.315	0.250	> 0.05	26.333±5.5577	0.485	> 0.05
Free work N1 = 2 N2 =3	50 ± 0	101 ± 0	0.00	>0.05	87 ± 0	0.00	>0.05	36.333±6.599	36±9.899	0.048	> 0.05	33 ± 9.2014	0.051	> 0.05
On retirement N1 = 10 N2 =10	31.3 ± 7.376	81.2 ± 4.915	17.808	< 0.001	64.3 ± 3.848	12.547	< 0.001	31.5± 4.5	28.5± 4.5	0.666	> 0.05	25.5± 4.5	1.333	> 0.05

As can be seen from table(23) that , the male , single, employee , with university education obtained a high mean scores in the different assessment periods as compared to control group ones. A statistical significant differences occurred at p – values of < 0.001.

Table (24) : The relationship between total compliance scores and selected socio-demographic variables of study and control group subjects through the different three assessments

Assessment period / Compliance level	Study group										Control group									
	Before $\bar{X}$ **±SD**	**After** $\bar{X}$ **±SD**	**Paired t**	**p-value**	**After one month** $\bar{X}$ **±SD**	**Paired t**	**p-value**	**After three months** $\bar{X}$ **±SD**	**Paired t**	**p-value**	**Before** $\bar{X}$ **±SD**	**After** $\bar{X}$ **±SD**	**Paired t**	**p-value**	**After one month** $\bar{X}$ **±SD**	**Paired t**	**p-value**	**After three months** $\bar{X}$ **±SD**	**Paired t**	**p-value**
Education																				
Illiterate N1 = 15 N2 =15	32.235 ± 3.638	65.23 ±3.888	33.945	<0.001	56.059 ±3.208	27.81	<0.00	46 ±4.13	13.41	<0.001	26± 2.689	27 ±2.935	0.906	>0.05	29.230 ±5.699	1.85	>0.05	26.154 ±4.77	0.101	>0.05
Read & write N1 = 6 N2 =5	33.222 ± 3.794	66.66 ±3.887	33.741	<0.001	58.444 ±3.235	21.534	<0.001	49.11 ±2.42	17.123	<0.001	32.43 ±4.135	33.43 ±4.065	0.456	>0.05	30.43 ±4.169	0.901	>0.05	26.571 ±3.156	2.98	**<0.01**
Secondary education N1 = 5 N2 =6	33 ±0	68.5 ±1.5	33.47	<0.00	59 ±0	26	<0.001	50 ±1	24.045	<0.001	34.833 ± 5. 014	34.66 ±4.422	0.142	>0.05	31.833± 3.531	0.996	>0.05	29.66 ±2.981	2.034	**<0.05**
University education N1 = 4 N2 =4	37 ± 4	70 ± 4	31.964	<0.001	60.5 ±2.5	11.263	<0.001	51.5 ±1.5	9.338	<0.001	44.75 ±2.861	46.75 ±3.562	0.875	>0.05	43.5 ±4.031	0.505	>0.05	39 ± 3.808	2.415	**<0.05**
Marital status																				
Single N1 = 2 N2 =0	35± 5	70 ±3	32.894	<0.001	62 ±1	15.49	<0.001	51.5 ±1.5	9.216	<0.001	36±5	37±5	0.22	>0.05	31.5 ±6.5	0.776	>0.05	28±6	1.448	>0.05
Married N1 = 25 N2 =24	32.92 ± 3.783	66.04 ±4.14	32.375	<0.001	57.36 ±3.02	35.37	<0.001	47.92 ±3.08	21.89	<0.001	32.478±7.5749	33.304±7.821	0.415	>0.05	33.174 ±6.709	0.416	>0.05	29.652 ±5.835	1.345	>0.05
Widowed N1 = 3 N2 =5	31.33 ±1.24	65 ±1.414	28.435	<0.001	53.33 ±2.86	12.19	<0.001	43 ±6.53	3.04	<0.01	26.8±2.135	28± 2.097	0.897	>0.05	26.4 ±2.059	0.301	>0.05	24.2 ±2.315	1.846	>0.05
Sex																				
Male N1 = 22 N2 =22	33.272 ± 3.744	67.136 ±3.817	34. 732	<0.001	57.591 ±3.651	28.837	<0.001	47.277 ±4.443	14.55	<0.001	32.333 ± 7.402	33.190 ±7.632	0.441	>0.05	31.619 ±7.306	0.308	>0.05	28.423± 6.45	1.754	>0.05
Female N1 = 8 N2 =8	31.875 ± 3.689	63.625 ±3.425	34. 559	<0.001	56.37 ±2.342	24.64	<0.001	48.37 ±1.317	22.594	<0.001	30.444±6.584	31.44 ±6.60	0.322	>0.05	30.66 ±4.737	0.082	>0.05	29.222 ±4.0215	0.475	>0.05

Table (24) continue.

Assessment period / Compliance level	Study group										Control group									
	Before $\overline{X}$ ±SD	After $\overline{X}$ ±SD	Paired t	p-value	After one month $\overline{X}$ ±SD	Paired t	p-value	After three months $\overline{X}$ ±SD	Paired t	p-value	Before $\overline{X}$ ±SD	After $\overline{X}$ ±SD	Paired t	p-value	After one month $\overline{X}$ ±SD	Paired t	p-value	After three months $\overline{X}$ ±SD	Paired t	p-value
Occupation																				
Housewife N1 = 3 N2 =3	31.875 ± 3.689	56.125 ±1.618	32.993	<0.001	56.37 ±2.34	24.64	<0.001	48.375 ±1.317	22.588	<0.001	29.143±4.421	30.14 ±4.454	0.421	>0.05	32.143 ±3.398	1.423	>0.05	28.714 ±3.057	0.211	>0.05
Worker N1 = 5 N2 =5	34.8 ±4.308	68.6 ±3.44	33.588	<0.001	60.4 ±2.94	14.96	<0.001	50.6 ±2.06	14.92	<0.001	32.75±5.974	33.25 ±6.219	0.116	>0.05	29.75 ±5.889	0.715	>0.05	25.75 ±4.815	1.825	>0.05
Employee N1 = 8 N2 =7	35.667 ±3.771	70 ± 3.266	37.728	<0.001	60 ± 2.160	15.50	<0.001	49.5 ±0.5	13.47	<0.001	39.125±7.096	40 ±7.794	0.453	>0.05	36.875 ±7.440	0.479	>0.05	33.375 ±6.382	1.548	>0.05
Farmer N1 = 2 N2 =2	31 ± 0.816	65.66 ±2.055	27.16	<0.001	52.33 ±1.67	19.59	<0.001	41 ± 4.32	3.94	<0.001	25.167±1.863	26.1666 ± 1.572	1.005	>0.05	28.5 ±6.652	1.182	>0.05	25.833 ±5.698	0.272	>0.05
Free work N1 = 2 N2 =3	33 ± 0	67 ± 0	0.00	>0.05	59 ± 0	0.00	>0.05	51 ± 0	0.00	>0.05	28.667±0.943	29.66 ± 0.471	1.643	>0.05	27.666 ±0.471	1.646	>0.05	24.666 ±0.471	6.576	**<0.001**
On retirement N1 = 10 N2 =10	32.5 ± 3.471	66 ± 4.025	41.770	<0.001	56.9 ±2.84	23.67	<0.001	46.1 ±3.36	11.89	<0.001	34±6	35±6	0.166	>0.05	32.5 ±5.5	0.260	>0.05	30±4	0.784	>0.05

Table (24) demonstrated that, the male, single, employee ,with university education obtained a high compliance mean scores in the different assessment periods as compared to control group ones. A statistical significant differences occurred at p – values of < 0.001.

Table (25): The relationship between total satisfaction scores and selected socio-demographic variables of study and control group subjects through the different two assessments.

Assessment periods / Satisfaction with	Before	Immediately after	Paired t	P -value	Before	Immediately After	Paired t	P -value
	$\overline{X}$ ± SD	$\overline{X}$ ± SD			$\overline{X}$ ± SD	$\overline{X}$ ± SD		
Education								
Illiterate N1 = 15 N2 =15	37.235 ± 3.039	55.941 ± 5.252	12.711	<0.001	36.846 ±2.597	39.461 ± 3.053	2.352	<0.05
Read & write N1 = 6 N2 =5	33.666 ± 1.885	61.111 ± 1.286	36.083	< 0.001	34.714 ± 1.829	40.714 ± 3.194	4.313	<0.001
Secondary education N1 = 5 N2 =6	32.5 ± 0.5	61.5 ± 0.5	58	< 0.001	36.166 ± 3.715	36.5 ± 0.763	0.215 n.s	> 0.05
University education N1 = 4 N2 =4	33 ± 5	56 ± 4	50.80	< 0.001	36.25 ± 3.031	36.25 ± 0.829	0.00 n.s	> 0.05
Marital status								
Male N1 = 22 N2 =22	35.5 ± 0.5	61 ± 0	72.238	< 0.001	31.5 ± 0.5	37 ± 0	15.580	<0.001
Female N1 = 8 N2 =8	35.68 ± 3.619	57.04 ± 4.894	17.547	< 0.001	36.478 ± 2.857	38.478 ± 2.961	2.331	<0.05

Table (25) continue.

	Study group				control group			
Widowed N1 = 3 N2 =5	34.66± 2.624	62.666±0.942	17.395	< 0.001	36.4 ± 1.8547	40.8 ± 3.762	2.346	<0.05
Sex								
Male N1 = 22 N2 =21	35.591±3.676	57.227±5.393	15.548	< 0.001	36.57 ± 2.518	38.428 ± 3.110	2.127	<0.05
Female N1 = 8 N2 =9	35.5±2.5980	59.625±2.0577	20.595	< 0.001	35.111 ±3.414	39.444 ±2.948	2.883	<0.001
Occupation								
Housewife N1 = 3 N2 =3	35.5 ± 2.5980	59.625±2.0577	20.589	< 0.001	35.285 ±3.368	40.143 ±2.996	2.851	<0.001
Worker N1 = 5 N2 =5	34.6±1.3564	61.4 ± 1.0198	35.319	< 0.001	35.5 ±3.2015	40 ± 4.123	1.724 n.s	> 0.05
Employee N1 = 8 N2 =7	32.66± 4.1096	57.667±4.027	7.525	< 0.001	36 ± 3.2787	36.875±2.088	0.636 n.s	> 0.05
Farmer N1 = 2 N2 =2	33.33±2.0548	61.33± 2.494	15.013	< 0.001	37.1667±1.572	38.333± 2.981	0.847 n.s	> 0.05
Free work N1 = 2 N2 =3	33 ± 0	62 ± 0	0.00	>0.05	35.667±1.247	40.667±0.943	5.543	<0.001
On retirement N1 = 10 N2 =10	37.9 ± 3.448	53.3± 5.021	7.996	< 0.001	38.5 ± 0.5	37 ± 0	12.00	<0.001

n.s = indicate no statistical significant at 0.05

Table (25) revealed that, the secondary school education, female, widowed, free work obtained a high satisfaction mean scores in the different assessment periods as compared to control group ones. A statistical significant differences occurred at p – values of < 0.001.