RESULTS

The aim of the current study is to measure the effect of training program on staff nurses knowledge and practice and empowerment toward care of patient undergoing organs and tissues transplantation.. The results of this study were categorized as follow:

Part I: Sociodemographic characteristics (table 1).

Part II: Nurses' knowledge related to introduction for organ and tissue transplantation (kidney transplantation, bone marrow transplantation and liver transplantation) (tables 2-13)

Part III: Nurses' practice related to perioperative care for patient undergoing organs and tissues transplantation (tables 14-21)

Part IV: Means of nurse's scores of knowledge, practice and empowerment according to their sociodemographic data (tables 22- 26)

Part V: Correlations among knowledge, practice and empowerment (tables 27-29).

Part VI: Empowerment for nurses (tables 30-31).

PART I :SOCIODEMOGRAPHIC CHARACTERISTICS

Table (1): Distribution of the study group of nurses according to their sociodemographic characteristics (no= 100).

Frequency socio demographic data	Frequency	(%)
Age(years 22 < 24 years > 24 years	83 17	83 17
Pre nursing qualification Secondary school Technical institute	 70 30	 70 30
Previous practice in nursing Non Before enrollment Since first year Since second year	 92 0 0 8	 92 0 0 8%
Attending training course Non Less than 2years More than 2 years	 100 0 0	 100 0 0
Marital status Single Widow Married Divorced	 83 0 17 0	 83 0 17 0

It is clear from table (1) that the highest percentage of nurses(83%) were less than 24 years old, single,(83%) secondary school education(70%) with no previous practice (92%) and not attending any training program (100%).

PART II : NURSES KNOWLEDGE

Hypothesis1: stated that post mean knowledge scores of nurses will be higher than pre program mean scores. This part is related to this hypothesis.

Table (2): Mean and standard deviation of nurses' knowledge scores about introduction for organ and tissue transplantation between pre and immediate post program implementation.

Dimension	Before program		Immediate post program		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Definitions	9.98	1.56	14.77	2.33	18.38	0.002*
Terminology	3.13	1.38	9.88	1.81	28.62	0.001*
Introduction to immune system	13.91	2.92	32.23	4.94	33.75	0.001*
Immunosuppressive drugs	1.95	1.22	7.24	1.51	29.13	0.001*
Infection control	21.35	2.23	22.71	1.65	7.55	0.003*
Knowledge regard CVP	4.3	1.2	7.45	1.09	21	0.001*
Intravenous therapy	11.85	1.86	12.52	1.31	5.2	0.0003*
Knowledge regard prio operative care	7.88	1.69	10.01	1.24	10.79	0.002*

*highly significant

This table documents that there are highly statistically significant differences among the study group in all items of knowledge between pre and immediate post implementation of program ($p \leq 0.001$).Therefore, the highest means are through the immediate post program period which recorded (14.77, 9.88, 32.23, 7.24, 22.71, 7.45, 12.52, and 10.01). compared with the lowest means through the pre program period which recorded (9.98, 3.13, 13.91, 1.95 , 21.35, 4.3, 11.85, and 7.88) respectively

Table (3): Mean and standard deviation of nurses' knowledge scores about kidney transplantation through pre and immediate post program implementation.

Dimension	Before program		Immediate post program		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Anatomy and physiology of urinary system	9.83	1.85	14.51	1.68	25.88	0.001*
Renal failure	5.81	1.59	17.36	2.94	39.78	0.001*
Introduction to kidney transplantation	3.2	0.73	4.94	0.57	18.75	0.002*
Knowledge regarding to pre nursing car	3.22	0.77	4.91	0.51	16.54	0.002*
Knowledge regarding to post nursing care	3.2	0.83	4.97	0.99	13.76	0.002*
Designing nursing care plan	2.25	1.1	4.97	0.77	21.52	0.001*
Health teaching	2.68	0.98	10.0	1.64	37.67	0.0005*

*highly significant

This table reveals highly statistically significant differences detected among the study group in all items of knowledge between pre and immediate post implementation of program (P≤ 0.001). Therefore, the highest means are through the immediate post program period which recorded (14.51, 17.36, 4.94, 4.91, 4.97, 4.97, and 10.0). On other hand the lowest means are through the pre program period which recorded (9.83, 5.81, 3.2, 3.22, 3.2, 2.25, and 2.68) respectively.

Table (4): The Mean and standard deviation of nurses' knowledge scores about Bone marrow transplantation (B M T) through pre and immediate post program implementation.

Dimension	Before program		Immediate post program		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Introduction of BMT	0.64	0.86	4.93	0.85	32.68	0.0005*
Bone marrow harvest (collection) details	1.84	1.04	12.43	1.94	45.76	0.0001*
Bone marrow harvest (collection) conclusion	1.86	1.46	12.41	1.97	43.19	0.0001*
Complications of BMT	2.62	1.04	4.98	0.99	16.16	0.002*
Designing the nursing care plan	1.73	1.25	5.17	0.78	24.04	0.001*
Health teaching	1.64	1.41	4.95	0.81	20.14	0.001*

*highly significant

This table indicates that there are highly statistically significant differences among the study group in all items between pre and immediate post implementation of program (P≤ 0.001). Therefore, the highest means are through the immediate post program period which recorded (4.93, 12.43, 12.41, 4.98, 5.17, and 4.95). On other hand the lowest means are through the pre program period which recorded (0.64, 1.84, 1.86, 2.62, 1.73, and 1.64) respectively.

Table (5): Mean and standard deviation of nurses' knowledge scores about liver transplantation through pre program and immediate post program implementation.

Dimension	Before program		Immediate post program		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Anatomy and physiology of liver	6.0	1.32	9.95	1.69	19.25	0.002*
Liver cell failure	10.14	3.37	14.85	2.32	11.15	0.002*
Introduction to liver transplantation	7.5	2.08	17.92	1.77	39.92	0.0005*
Knowledge regarding pre nursing care	2.99	0.75	5.12	0.83	17.11	0.002*
Knowledge regarding post nursing care	2.24	1.07	5.11	0.71	19.83	0.002*
Design nursing care plan	3.0	0.68	5.18	0.82	19.42	0.002*
Health teaching	1.73	1.25	5.17	0.78	24.04	0.001*

*highly significant

This table shows that there are highly statistically significant differences among the study groups in all items during pre and immediate post implication of program (P≤ 0.001). Therefore, the highest means are through the immediate post program period ,which recorded (9.95, 14.85, 17.92, 5.12, 5.11, 5.18, and 5.17). On other hand, the lowest means are through the pre program period which recorded (6.0, 10.14, 7.5, 2.99, 2.24, 3.0, and 1.73) respectively.

Table (6): Mean and standard deviation of nurses' knowledge scores about introduction to organ and tissue transplantation through immediate post program and follow up implementation.

Dimension	immediate post program		After four months		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Definition	14.77	2.33	14.83	2.31	1.35	0.18
Terminology	9.88	1.81	9.87	1.81	1	0.32
Anatomy and physiology of immune system	32.23	4.94	32.03	5.15	1.67	0.0 8
Immune system transplantation	7.24	1.51	7.12	1.43	1.14	0.25
Immunosuppressive drugs	22.71	1.65	22.43	1.84	1.14	0.15
Infection control	7.45	1.69	7.39	1.14	1.42	0.16
Knowledge regarding to central venous pressure	12.52	1.31	12.46	1.27	0.524	0.6
Knowledge regardingto intravenous therapy	10.01	1.24	9.8	1.64	1.46	0.15

This table documents that there are no statistically significant differences among the study group in all items between immediate post test and followup test. ($p < 0.05$), recording the lowest means of definition through after four months period , however, all items except definition recorded the higher scores through immediate post program(9.88, 32.23, 7.24, 22.71, 7.45, 12.52, and 10.01).

Table (7): Mean and standard deviation of nurses' knowledge scores about kidney transplantation through immediate post program and follow up implementation.

Dimension	Immediate post program		After four months		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Anatomy and physiology of urinary system	14.51	1.68	14.4	1.46	0.803	0.42
Renal failure	17.36	2.94	17.26	3.02	1.64	0.11
Introduction to kidney transplantation	4.96	0.57	4.95	0.5	0.33	0.76
Knowledge regarding to pre operative nursing care	4.91	0.51	4.87	0.58	1.42	0.16
Knowledge regarding to postoperative nursing care	4.97	0.99	4.94	1.04	1.0	0.32
Design nursing care plan	4.97	0.77	4.92	0.84	1.52	0.13
Health teaching	10.0	1.64	9.91	1.74	1.58	0.48

This table documents that there are no statistically significant differences among the study group in all items between immediate post test and follow up test , ($p > 0.05$). Therefore, the highest means are through the immediate post program period which recorded (14.51 , 17.36, 4.96, 4.91, 4.97, 4.97, and 10.0)

On other hand the lowest means are through the after four months period which recorded (14.4, 17.26, 4.95, 4.87, 4.94, 4.92, and 9.91) respectively .

Table (8): The Mean and standard deviation of nurses' knowledge scores about bone marrow transplantation through immediate post program and follow up implementation.

Dimension	immediate post program		After four months		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Introduction to BMT	4.93	0.855	4.91	0.865	1.42	0.16
Bone marrow harvest (collection) details	12.43	1.94	12.32	2.03	1.88	0.06
Bone marrow harvest (collection) conclusion	12.41	1.97	12.3	2.08	1.52	0.13
Complications of BMT	4.98	0.99	4.94	1.04	1.27	0.21
Designing the nursing care plan	4.95	0.81	4.88	0.94	1.35	0.18
Health teaching	4.95	1.69	9.89	1.73	1.62	0.12

This table documents that there are no statistically significance differences among the study groups in all items between immediate post test and followup test ($p > 0.05$). Therefore, the highest means are usually through the immediate post program period which recorded (4.93, 12.43, 12.41, 4.98, 4.95, and 4.95). On other hand, the lowest means are through the after four months period which recorded (4.91, 12.32, 12.3, 4.94, 4.88, and 9.89) respectively .

Table (9): Mean and standard deviation of nurses' knowledge scores about liver transplantation through immediate post program and follow up implementation.

Dimension	immediate post program		After four months		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Anatomy and physiology of liver	14.85	2.32	14.79	2.34	1.35	0.181
Liver cell failure	18.03	1.69	17.92	1.77	1.03	0.307
Introduction to liver transplantation	5.12	0.83	5.11	0.84	0.575	0.56
Knowledge regard pre operative nursing care	5.11	0.78	5.09	0.71	0.705	0.482
Knowledge regards post operative nursing care	5.18	0.82	5.16	0.81	0.47	0.64
Designing nursing care plan	5.17	0.78	5.2	0.76	0.904	0.368

This table documents that there are no statistically significance differences among the study group in all items between immediate post test and followup test , ($p > 0.05$). Therefore, the highest means are through the immediate post program period which recorded (14.85, 18.03, 5.12, 5.11, 5.18, and 5.17). On other hand, the lowest means are through the after four months period which recorded (14.79, 17.92, 5.11, 5.09, 5.16, and 5.2) respectively .

Table (10): Respondents knowledge levels distribution of study group through program implementation related to introduction for organ and tissue transplantation.

Dimension	50% unsatisfactory			50%--75% satisfactory			>75% Good		
	Pre	post	follow	Pre	post	follow	Pre	post	follow
Definition	37.00	0.00	3.00	58.00	34.00	30.00	5.00	66.00	67.00
Terminology	90.00	1.00	And	5.00	50.00	51.00	5.00	49.00	48.00
Anatomy and physiology of Immune system	97.00	3.00	2.00	3.00	26.00	25.00	0.00	71.00	73.00
Immunosuppressive drugs	90.00	71.00	2.00	7.00	26.00	2.00	3.00	3.00	96.00
Infection control measure	5.00	0.00	1.00	23.00	9.00	13.00	72.00	91.00	86.00
Knowledge regard central venous pressure	55.00	5.00	2.00	43.00	25.00	26.00	2.00	70.00	72.00
intravenous therapy	0.00	4.00	0.00	41.00	24.00	25.00	59.00	72.00	75.00

This table documents at pre program period that most 97.00 of nurses had unsatisfactory knowledge level at anatomy and physiology of immune system as well as at terminology(90**%)** and immunosuppressive drugs(90**%)**. However, almost three fifth(59**%)** have good knowledge at intravenous therapy. Post program, the most (91.00) of nurses have a good knowledge level at infection control measures, while only (3.00) of them had good knowledge level at immunosuppressive drugs.

Table (11): Respondents knowledge level distribution of the study group program implementation related to kidney transplantation.

Dimension	50% unsatisfactory			50%--75% satisfactory			>75% Good		
	Pre	post	follow	Pre	post	follow	Pre	post	follow
Anatomy and physiology of urinary system	24.00	0.00	3.00	55.00	32.00	37.00	21.00	66.00	60.00
Renal failure	47.00	1.00	0.00	49.00	24.00	26.00	4.00	75.00	74.00
Introduction to kidney transplantation	98.00	3.00	01.00	1.00	44.00	43.00	1.00	54.00	56.00
Knowledge regard preoperative nursing care	62.00	7.00	1.00	38.00	76.00	14.00	0.00	17.00	85.00
Knowledge regard postoperative nursing care	57.00	0.00	2.00	43.00	18.00	18.00	0.00	80.00	80.00
Design nursing care	54.00	5.00	1.00	46.00	50.00	51.00	0.00	49.00	48.00
Health teaching	85.00	4.00	2.00	15.00	30.00	33.00	0.00	69.00	65.00

This table documents that the most of nurses (98.00) had un-satisfactory knowledge level at introduction to kidney transplantation during pre preprogram implementation. However, post program more than three quarter of nurses (76.00) are having satisfactory knowledge level regards preoperative nursing care. After four months the majority of them (85.00) have good retention knowledge as regards preoperative nursing care. However, no differences between immediate, after and follow up were found .

Table (12): Respondents knowledge level distribution of the study group program implementation related to transplantation bone marrow.

Dimension	50% unsatisfactory			50%--75% satisfactory			>75% Good		
	Pre	post	follow	Pre	post	follow	Pre	post	follow
Introduction of BMT	100.00	2.00	2.00	0.00	71.00	69.00	0.00	29.00	29.00
Bone marrow harvest (collection) details	100.00	1.00	1.00	0.00	37.00	39.00	0.00	62.00	60.00
Bonemarrow harvest (collection) conclusion	100	2.00	0.00	0.00	43.00	45.00	0.00	55.00	55.00
Complications of BMT	100	1.00	1.00	0.00	42.00	43.00	0.00	57.00	56.00
Designing the nursing care	77.00	2.00	1.00	23.0	50.00	51.00	0.00	48.00	48.00
Health teaching	83.00	1.00	4.00	17.0	32.00	31.00	0.00	67.00	65.00

This table documents that the all nurses (100.0) had unsatisfactory knowledge level at introduction of BMT, Bone marrow harvest (collection) details, Bone marrow harvest (collection) conclusion, and complications of BMT during pre preprogram implementation. However, post program relatively high percentage 71.00of nurses having satisfactory knowledge level at introduction of BMT. after four months, (69.0) of them had satisfactory knowledge at introduction of BMT.

Table (13): Respondents knowledge levels distribution of the study group program implementation related to liver transplantation.

Dimension	50% unsatisfactory			50%--75% satisfactory			>75% Good		
	Pre	post	follow	Pre	post	follow	Pre	post	follow
Anatomy and physiology of liver	69.00	1.00	1.00	31.00	50.00	51.00	0.00	49.00	48.00
Liver cell failure	44.00	2.00	0.00	35	38.00	39.00	21	60.00	61.00
Introduction to liver transplantation	93.00	1.00	2.00	7.00	13.00	9.00	0.00	86.00	89.00
Knowledge as regards pre nursing care	73.00	1.00	1.00	27.00	28.00	29.00	0.00	71.00	70.00
Knowledge as regards post nursing care	88.00	1.00	1.00	12.00	19.00	20.00	0.00	80.00	79.00
Designing nursing care plan	77.00	1.00	3.00	23.00	23.00	23.00	0.00	76.00	74.00
Heath teaching	94.00	1.00	1.00	6.00	22.00	20.00	0.00	77.00	79.00

This table documents that the most (93.00) of nurses had un-satisfactory knowledge level during pre preprogram implementation as regards introduction to liver transplantation and health teaching. However, post program, the majority (86.00) of nurses are having a good knowledge level.as regards introduction to liver transplantation and after four months , the majority (89.00) of them have good knowledge.

PART III : NURSES PRACTICE

Hypothesis (2): stated that post mean practice scores of study group will be higher than pre program mean. This part is related to this hypothesis.

Table (14): Mean total practice scores of the study group related to pre transplantation care through before and immediately post program implementation.

Dimension	Before program		Immediately post program		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Assessment of PRE surgery patients	13.59	2.47	19.36	1.95	17.23	0.002*
Infection control measures	2.99	2.01	14.65	1.96	43.34	0.001*

*highly significant

This table indicates that highly statistically significant differences were detected among the study group in all items between pre and immediately post program implementation. ($P < 0.001$). Therefore, the highest means are through the immediate post program period which recorded (19.36, and 14.65). On other hand, the lowest means are through before program period which recorded (13.59, and 2.99) respectively .

Table (15): Mean practice scores of the study group related to post transplantation care through before and immediately post program implementation.

Post transplantation	Before program		Immediate post program		t-test	P value
	$\overline{X}$	SD	$\overline{X}$	SD		
Suctioning	14.29	2.92	19.27	2.44	15.5	0.002*
Central venous pressure monitoring	2.11	0.96	2.75	0.44	6.38	0.003*
Central venous catheter care	1.85	0.63	2.47	0.52	7.19	0.003*
General care for patient during extubation	1.62	0.49	2.48	0.52	12.35	0.002*
Extubation technique	1.63	0.49	2.48	0.52	12.94	0.002*
Different method of oxygen administration:	11.71	1.98	14.54	1.63	10.89	0.002*
Initiating cardiac monitoring:	0.7	0.64	2.24	0.73	15.41	0.002*
Recording 12- Leads ECG	1.36	0.68	2.16	0.79	7.88	0.003*
Sampling arterial blood gases	0.7	0.64	2.15	0.74	13.24	0.002*
Drawing arterial blood gases from arterial line	0.72	0.64	2.47	0.52	21.98	0.001*
Removal of arterial or central line	0.7	0.64	2.47	0.52	20.79	0.001*
Blood transfusion	1.31	0.68	2.48	0.52	12.55	0.002*
Wound dressing	2.98	0.89	4.94	0.86	16.15	0.002*

* Highly significant

This table indicates that highly statistically significant differences were found among the study groups in all items between pre and immediate post program implementation. ($P < 0.001$). Therefore, the highest means are usually through the immediate post program period which recorded (19.27, 2.75, 2.47, 2.48, 2.48, 14.54, 2.24, 2.16, 2.15, 2.47, 2.47, 2.48, and 4.94). On other hand, the lowest means are through

the pre program period which recorded (14.29, 2.11, 1.85, 1.62, 1.63, 11.71, 0.7, 1.36, 0.7, 0.72, 0.7, 1.31, and 2.98)

Table (16): Mean practice scores of study group through before and immediate post program implementation related to rehabilitation.

Rehabilitation	Before program		Immediate post program		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Patient education during post surgery period	1.44	1.03	4.94	1.04	25.07	0.001*
Psychological care	1.54	0.5	7.32	0.91	57.18	0.0001*

This table indicates that highly statistically significant differences were detected among the study group in all items between pre and immediate post program implementation. (P< 0.001). Therefore, the highest means are through the immediate post program period, which recorded (4.94, and 7.32). On other hand the lowest means are through the pre program period which recorded (1.44, and 1.54) respectively.

Table (17): Mean practice scores of the study group through immediate post program implementation and after four months related to pre operative nursing care for patient undergoing organ and tissue transplantation.

Dimension	Immediate post program		After four months		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Assessment of pre surgery patient	19.36	1.95	19.24	1.82	0.843	0.401
infection control measures	14.65	1.96	14.54	1.63	1.21	0.229

This table indicates that there are no statistically significant differences between study group in all items during immediate post program and after four months of program implementation.(P <0.05). Therefore, the highest means are through the immediate post program period which recorded (19.36, and 14.65).On other hand, the lowest means are through the after four months period which recorded (19.24, and14.54) respectively .

Table (18): Mean practice scores of study group subject through immediate post program implementation and after four months related to post operative nursing care for patient under going organs and tissue transplantation.

Dimension	Immediate post program		After four months		T	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Suctioning	19.27	2.44	19.36	1.95	0.458	0.648
Central venous pressure monitoring	2.75	0.44	2.66	0.48	1.75	0.083
Central venous catheter care	2.47	0.521	2.57	0.517	1.79	0.077
General care for patient during extubation	2.48	0.52	2.46	0.54	1	0.32
Extubation technique	2.48	0.52	2.45	0.54	1.35	0.18
Different methods oxygen administration	14.54	1.62	14.37	163	1.87	0.06
Inetiating cardiac monitoring	2.24	0.73	2.26	0.72	1	0.32
Recording 12- leads ECG	2.16	0.79	2.13	0.77	1.75	0.08
Sampling arterial blood gases	2.15	0.74	2.17	0.73	1	0.32
Drawing arterial blood gases from arterial line	2.47	0.52	2.44	0.51	1.75	0.08
Removal of arterial or central line	2.47	0.52	2.45	0.51	0.815	0.41
Blood transfusion	2.48	0.52	2.47	0.52	1	0.32
Wound dressing	4.94	0.86	4.9	0.87	1.65	0.10

This table indicates that there are no statistically significant differences among study group in all items during immediate post program and after four months of program implementation. (P >0.5). Therefore, the means through the immediate post program period recorded (19.27, 2.75, 2.47, 2.48, 2.48, 14.54, 2.24, 2.16, 2.15, 2.47, 2.47,

2.48, and 4.94) on other hand, the means through the after four months period recorded (19.36, 2.66, 2.57, 2.46, 2.45, 14.37, 2.26, 2.13, 2.17, 2.44, 2.45, 2.47, and 4.9) respectively .

Table (19): Total practice scores of the study group through immediate post program implementation and follow up related to post - operative nursing care for patient under going organ and tissue transplantation.

Dimension	Immediate post program		After four months		t-test	P value
	$\overline{X}$	±SD	$\overline{X}$	±SD		
Patient education during post surgery period	4.94	1.04	4.89	1.03	1.68	0.096
Psychological care	7.32	0.91	7.29	0.92	1.75	0.083

This table indicates that there are no statistically significant differences among the study group in all items during immediate post and after four months of program implementation ,(P > 0.05). Therefore, the means through the immediate post program period recorded (4.94,and 7.32) on other hand, the means through the after four month period recorded (4.89, and 7.29).

Table (20): Total practice scores of the study group through pre and immediate post program implementation related to intraoperative nursing care for patients undergoing organ and tissue transplantation.

Intraoperative care	Pre program		Immediate postprogram		t-test	PValue
	X	±SD	X	±SD		
scrubbing	13.59	2.47	19.36	1.95	17.23	0.002*
Gowning	13.54	2.37	19.36	1.95	17.23	0.002*
Gloving	12.59	2.47	19.36	1.95	17.23	0.002*
Removing gowning	14.30	3.48	20.36	1.88	19.25	0.001*
Removing gloves	12.55	1.89	18.35	1.91	16.23	0.001*
Draping operative site	2.99	2.01	14.65	1.96	43.32	0.001*
Draping back table	7.29	1.92	9.77	1.28	7.55	0.001*
Draping patient	12.55	1.89	18.35	1.91	16.25	0.001*
Preparation and arrangement of instrument	14.52	2.92	19.27	2.44	15.5	0.002*
Sponge ,sharp count	11.59	2.47	18.32	1.68	16.23	0.002*

* Highly significant

This table indicates that highly statistically significant differences are detected among the study group in all items during pre and immediate post implication of program. ($P < 0.001$). Therefore, the highest means are through the immediate post program period which recorded (19.36, 19.36, 19.36, 20.36, 18.35, 14.65, 9.77, 18.35, 19.27, and 18.32). On other hand, the lowest means are through the pre program period which recorded (13.59, 13.54, 12.59, 14.30, 12.55, 2. 99, 7.29, 12.55, 14.52, and 11.59) respectively .

Table (21): Total practice score of the study group through immediate post program implementation and follow up related to intra operative nursing care for patient undergoing organ and tissue transplantation.

Intraoperative care	Immediate post program		After four months		t-test	P value
	X	±SD	X	±SD		
Scrubbing	19.36	1.95	19.26	1.25	0.458	0.6
Gowning	19.36	1.95	19.26	1.55	0.458	0.6
Gloving	19.36	1.95	19.16	1.65	0.458	0.6
Removing Gowning	20.36	1.88	20.26	1.58	0.546	0.6
Removing gloves	18.35	1.91	18.15	1.51	0.442	0.6
Draping operative site	14.65	1.96	14.65	1.66	43.12	0.5
Draping back table	9.77	1.28	9.77	1.18	7.35	0.5
Draping patient	18.35	1.91	18.35	1.51	0.442	0.7
Preparation and arrangement instrument	19.27	2.44	19.27	2.24	0.457	0.6
Sponge,sharp count	18.32	1.68	18.32	1.58	0.442	0.7

This table indicates that there are no statistically significant differences found among study group in all items during immediate post and after four months of program implementation ,($P > 0.05$). Therefore, the means through the immediate post program period recorded (19.36, 19.36, 19.36, 20.36, 18.35, 14.65, 9.77, 18.35, 19.27, and 18.32) on other hand the means through the after four months period recorded (19.26, 19.26, 19.16, 20.26, 18.15, 14.65, 9.77, 18.35, 19.27, and 18.32) respectively .

Part IV: nurse's scores of knowledge, practice and empowerment according to their sociodemographic data

Table (22): Means of nurses' scores of knowledge, practice and empowerment according to their age group.

Period of test	Age group					
	22-24 (n=83)		More24 (n=17)			
	X	±SD	X	±SD	t-test	P- value
information before program	146.9	6.32	145.9	6.8	.62	.52
information after program	277.3	28.12	301.8	25.3	3.6	.002*
information after four months	275.7	28.9	299.7	26.5	3.3	.003*
practice before program	59.9	5.6	57.8	4.8	1.5	.11
practice after program	105.5	11.2	112.3	9.5	2.6	.01*
Practice after four months	107.5	8.9	114.2	9.3	2.8	.001*
Empowerment before program	35.9	1.4	36.5	1.2	1.3	.12
Empowerment post program	42.2	3.2	42.2	1.9	.013	.9
Empowerment post four month	42.3	3.1	41.8	2.03	. 84	. 4*

This table documents that no statistically significant differences were found in relation to knowledge before program, practice before program, empowerment before and post program (p>0.05) on other side, there were highly statistically significant differences in other items. The highest means were (301.8) in age group more than 24 years for information after program and (299.7) knowledge after four months. and 112 .3 for practice after program.

Table (23): Means of nurse' scores of knowledge, practice and empowerment according to their previous qualification.

test Period	Previous Qualification				t-test	p-value
	Secondary (n=70)		Technical (n=30)			
	X	±SD	X	±SD		
knowledge before program	147.7	6.2	144.5	6.03	2.390	.01*
knowledge after program	277.3	27.4	291.2	30.8	2.143	. 04*
knowledge after four months	275.5	27.6	289.7	30.8	2.169	0.4
practice before program	60.0	5.5	58.6	5.3	1.167	.3
practice after program	105.3	11.4	110.0	9.9	2.113	. 04*
Practice after four months	107.2	9.0	111.9	9.1	2.404	.02*
Empowerment before program	35.9	1.4	36.4	1.3	1.732	.1*
Empowerment post program	42.0	2.4	42.6	4.2	.696	.51
Empowerment post four month	42.20	2.4	42.3	3.9	.174	. 9

This table documents that statistically significant differences were found in relation to knowledge before program recording the highest mean (147.7) for secondary nurses, knowledge after program recorded highest mean (291.27) for tech nurse, practice after program also recorded highest mean (110.027)for technical nurse, Practice after four months recorded the highest mean (291.27)for technical nurse (111.9), Empowerment before program which recorded highest means(36.4) for technical nurse with highly statistically significant different ($p<0.001$). However no statistically significant differences in other items were detected therefore,($P > 0.05$).

Table (24): Means of nurse' scores of knowledge, practice and empowerment according to their previous practice in nursing.

Period of test	Previous practice in nursing					
	Non (n=92)		Four years (n=8)		t	Sig
	X	±SD	X	±SD		
information before program	146.9	6.3	145.0	6.05	.82	.42
information after program	282.1	29.2	274.4	28.4	.72	.52
information after four months	280.5	29.4	271.8	28.1	. 83	. 41
practice before program	59.7	5.6	58.6	3.8	.73	.52
practice after program	106.7	11.5	107.0	6.4	.13	. 8
Practice after four months	108.6	9.6	109.0	4.5	.20	. 8
Empowerment before program	36.0	1.4	36.9	1.13	1.73	.12
Empowerment post program	42.1	3.1	42.5	2.1	.32	.71
Empowerment post four month	42.2	2.9	42.4	2.4	.14	.9

This table documents that no statistically significant differences were found mean score in relation to all items; between no practice in nursing which recorded means (146.9, 282.1, 280.5, 59.7, 106.7, 108.6, 36.0, 42.1, and 42.2).and those who had previous practice for four years recorded means (145.0, 274.4, 271.8, 58.6, 107.0, 109.0, 36.9, 42.5, and 42.4) respectively.

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Table (25): Means of nurse' scores of knowledge, practice and empowerment according to their job type.

Period of test	Job Type					
	No job (n=92)		**Assistants (n=8)**			
	X	**±SD**	**X**	**±SD**	**t**	**Sig**
information before program	146.9	6.3	145.0	6.0	.81	.45
information after program	282.0	29.1	274.3	28.4	.71	.52
information after four months	280.5	29.4	271.8	28.0	.83	. .53
practice before program	59.7	5.6	58.6	3.8	.73	. .52
practice after program	106.7	11.5	107.0	6.4	.1	.8
Practice after four months	108.6	9.6	109.0	4.5	.20	. 8
Empowerment before program	36.0	1.4	36.9	1.1	1.7	.17
Empowerment post program	42.1	3.0	42.5	2.1	.45	. 6
Empowerment post four month	42.2	2.9	42.4	2.4	.14	.9

This table documents that no statistically significant differences were detected between job type in relation to all items where means for no job in nursing which recorded 146.9, 282.0, 280.5, 59.7, 106.7, 108.6, 36.0, 42.1, and 42.2). But for assistant nurse recorded means (145.0, 274.3, 271.8, 58.6, 107.0, 109.0, 36.9, 42.5, and 42.4) respectively .

Table (26): Means of nurse's scores of knowledge, practice and empowerment according to their marital status.

Period of test	Marital status				t-test	p-value
	Single (n=83)		Married (n=17)			
	X	±SD	X	±SD		
information before program	147.2	5.9	144.5	7.6	1.4	.22
information after program	282.0	28.9	278.5	30.3	.46	.6
information after four months	280.0	29.1	278.6	30.5	.18	.9
practice before program	58.8	4.9	61.6	6.6	2.9	.52
practice after program	107.2	11.1	103.9	11.1	1.1	.35
Practice after four months	109.0	9.1	106.5	9.5	1.0	.32
Empowerment before program	35.9	1.4	36.5	1.1	1.3	.21
Empowerment post program	42.2	3.18	41.9	2.0	45	.6
Empowerment post four month	42.42	3.07	41.4	1.6	2.0	.04

This table documents that no statistically significant differences were found as regards to marital status in relation to all items; for single nurses recorded means were (147.2, 282.0, 280.0, 58.8, 107.2, 109.0, 35.9-42.2, and 42.42). But who married nurse recorded means (144.5, 278.5, 278.6, 61.6, 103.9, 106.5, 36.5, 41.9, and 41.4) respectively .

Part: V: Correlations amonge knowledge, practice and empowerment

Table (27): Correlations among knowledge , practice and empowerment of nurses before program.

	practice before program	**Empowerment before program**
Knowledge before program	.048 p=.633	.090 p.=372
practice before program		.078 p=.441

This table shows no correlations between knowledge with practice before program ($p > 0.05$), but shows correlations between empowerment with practice and knowledge before program in which; $p < 0.05$.

Table (28): Correlations among knowledge and practice and empowerment of nurses immediately after program.

	Knowledge after program	**Empowerment After program**
Knowledge after program		.002 p= .981
practice after program	.854 p= 0.00	.016 p= .874

This table shows no correlations between knowledge with empowerment after program, and empowerment with practice After program ($p > 0.05$). however, shows correlations between knowledge with practice ($p < 0.05$).

Table(29): Correlations among knowledge , practice and empowerment of nurses after four months program.

	Knowledge after four months	Empowerment After four months
Knowledge after program		-.025- p= .807
practice after four months	.843 p= .000	-.022- p= .831

This table shows no correlations between knowledge with empowerment after four month program, and practice with empowerment after four month program ($p > 0.05$). however the same table shows a positive correlation between knowledge with practice after four months ($p < 0.05$).

Empowerment for nurses

Table (30): Main score of nurses' knowledge before program and immediately after program implementation

Period of test	knowledge before program		knowledge immediate after program			
	X	±SD	X	±SD	t	Sig
	146.7	6.3	281.5	29.05	-47.3	.000*

This table shows that a highly statistically significant differences between information before program and information immediately after program ($P < 0.001$), which recorded a high mean at knowledge immediately after program (29.05).

Table (31): Main score of nurses knowledge immediately after program and after four months of program implementation

Period of test	Knowledge after program		Knowledge after four months			
	X	±SD	X	±SD	t	Sig.
	281.5	29.05	279.8	29.2	2.7	. 71

This table shows no statistically significant differences between knowledge immediately after program and knowledge after four months later. (P > 0,05).

Table (32): Main score of nurses' practice before program and immediately after program implementation.

Period of test	Practice before program		practice after program		t	Sig.
	X	±SD	X	±SD		
	59.6	5.5	106.7	11.14	39.5	,000*

This table shows that a highly statistically significant differences between Practice before program and practice immediately after program (P < 0.001), which recorded high mean at practice immediately after program (106.7).

Table (33): Main score of nurses' practice immediately after program and after four months of program implementation.

Period of test	Practice after program	practice after four months		

	X	±SD	X	±SD	t	Sig.
	106.7	11.14	108.7	9.25	-5.2	.14

This table shows no statistically significant difference between practice immediately after program and practice after four months. (P > 0,05).

PART VI: NURSES EMPOWERMENT

Hypothesis (3); stated that post program mean empowerment of nurses will be higher than pre program implementation mean scores and this part is related to this hypothesis.

Table (34): Total empowerment level score of the study group before implementation and immediately post program implementation.

Dimension	Before program		Immediately post program		t-test	P value
	$\overline{X}$	SD	$\overline{X}$	SD		
Total empowerment level	36.07	1.39	42.17	3.01	20.09	0.001*

*high significant

This table indicates that there is a highly statistically significant between difference between study group in all items during before and immediately post program implementation ($P < 0.05$) recorded high mean at immediately post program implementation (42.17).

Table (35): The total mean empowerment level score of the study group immediately post program and after four months of program implementation.

Dimension	Immediate post program		After four months		t-test	P value
	$\overline{X}$	SD	$\overline{X}$	SD		
Total empowerment level	42.17	3.01	42.24	2.9	0.422	0.672

This table indicates that there is no statistically significant difference between the study group in all items during pre and immediately post implication of program. (P >0.05**).**