RESULTS

The results obtained from the current study are classified and presented in the following four parts:

Part I: Characteristics of the studied nurses.

Part II: Assessment of the studied nurses' needs regarding pain management.

Part III: The nurses' knowledge and attitudes about post-operative pain management pre/post program implementation.

Part IV: Relation between nurses' knowledge and attitudes in relation to their socio-demographic characteristics.

Part I: Characteristics of the Studied Nurses

Table (II): Distribution of the Studied Nurses According to Their Socio-Demographic Characteristics

Characteristics	Number (55)	Percentage %
Age (years)		
<20	6	10.9
20-25	28	50.9
25-30	21	38.2
Gender		
Male	5	9.1
Female	50	90.9
Educational Qualification		
B.Sc. (Bachelor degree)	11	20
Technical nursing diploma	3	5.5
Diploma in nursing	41	74.5
Position		
Head nurse	2	3.6
Supervisor nurse	9	16.4
Bedside nurse	44	80
Experience (Years)		
<1	7	12.7
1-5	30	54.5
5-10	18	32.7
Attending Previous Educational Programs		
Yes	3	5.5
No	52	94.5

Part I: **Characteristics of the Studied Nurses**

Table (II) shows the socio-demographic characteristics of the studied nurses. Slightly more than half of the studied nurses' age ranged from 20-25 years (50.9%). Females were found to have the highest percentage as they represented 90.9%, while males represented only 9.1% of the study sample (fig.3).

Regarding the educational qualification, almost three-quarters of the studied sample (74.5%) had a diploma in nursing, while one-fifth of them (20%) had a bachelor degree in nursing (fig.4).

According to their position, more than three-quarters of the studied nurses (80%) were working as bedside nurses, while 16.4% and 3.6% of them were working as nursing supervisors and head nurses respectively (fig. 5).

Moreover, more than half of the studied nurses' years of experience ranged from 1-5 years (54.5%), and the majority of them (94.5%) didn't attend any previous educational programs (fig. 6).
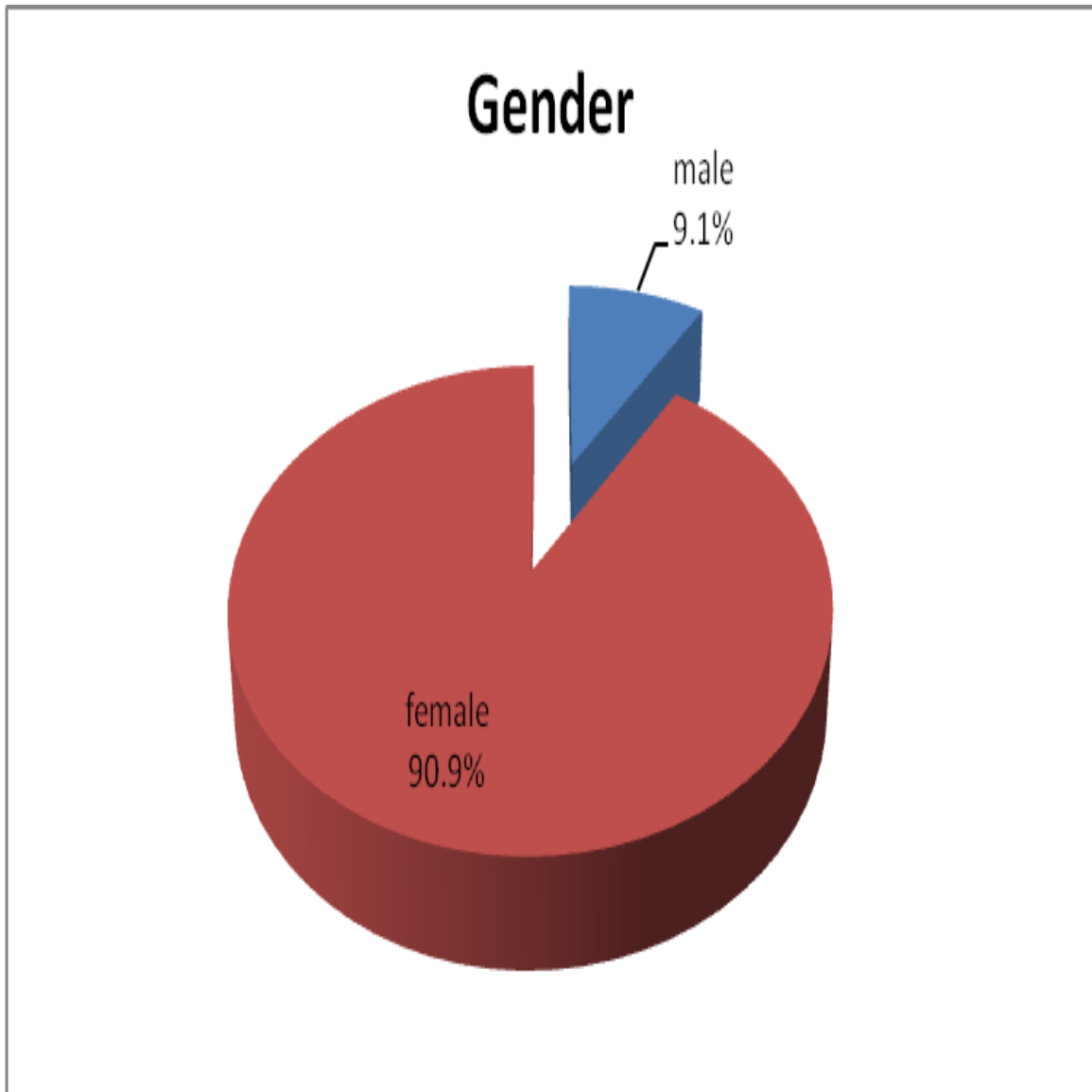
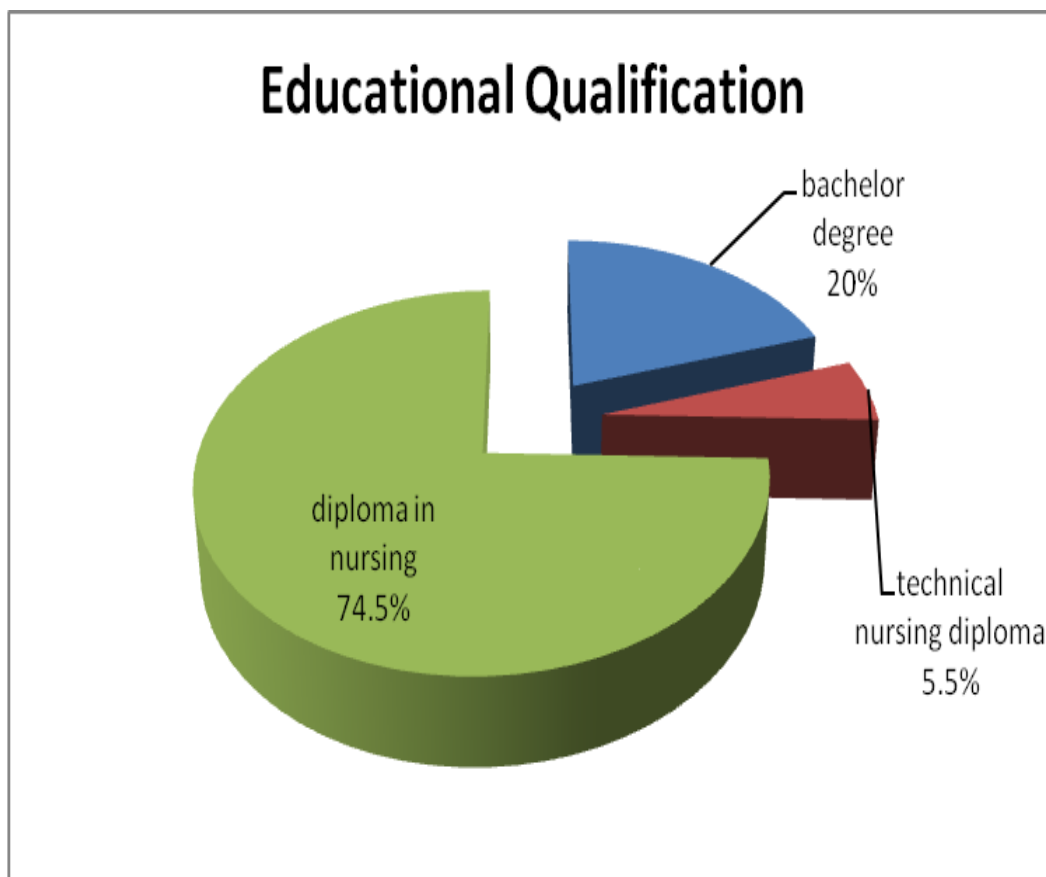**Figure (3): Distribution of the Studied Sample by Gender**

Figure (4): Distribution of the Studied Sample Regarding Their Educational Qualification
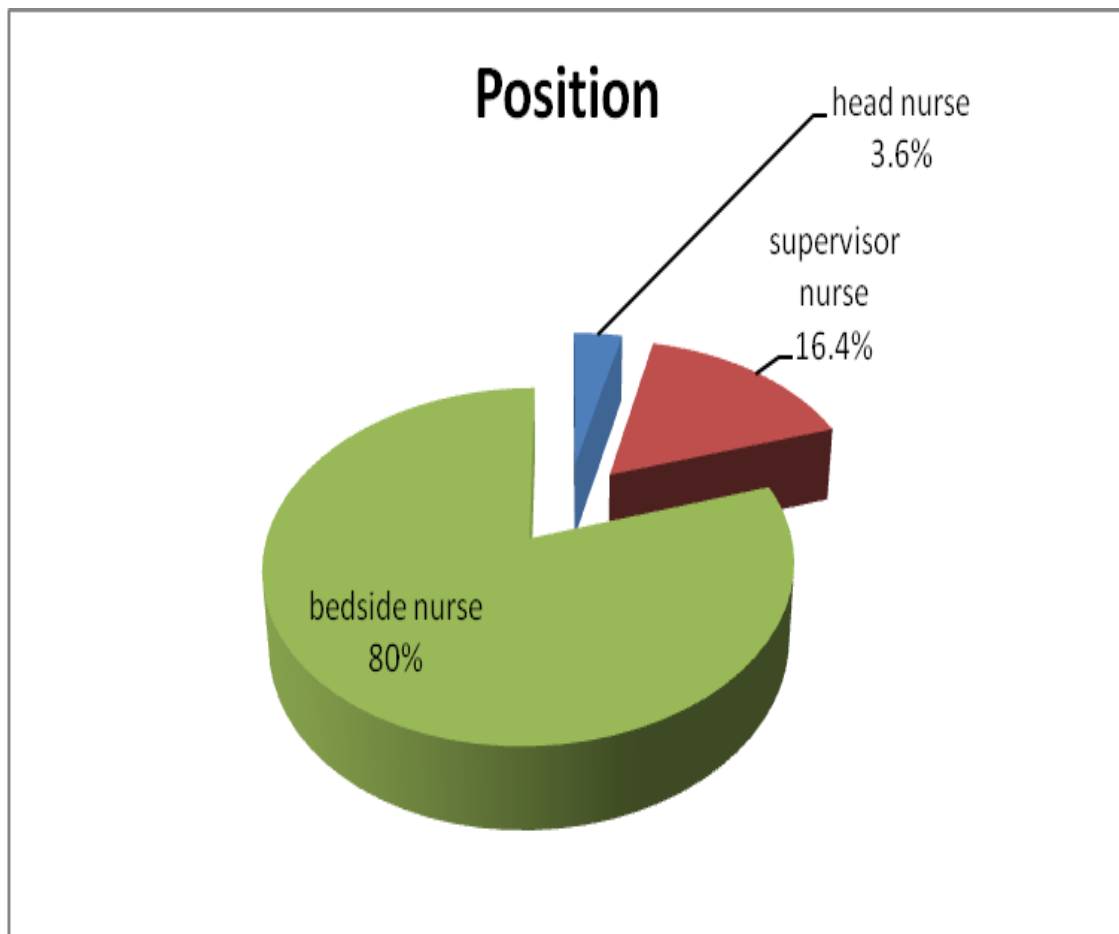
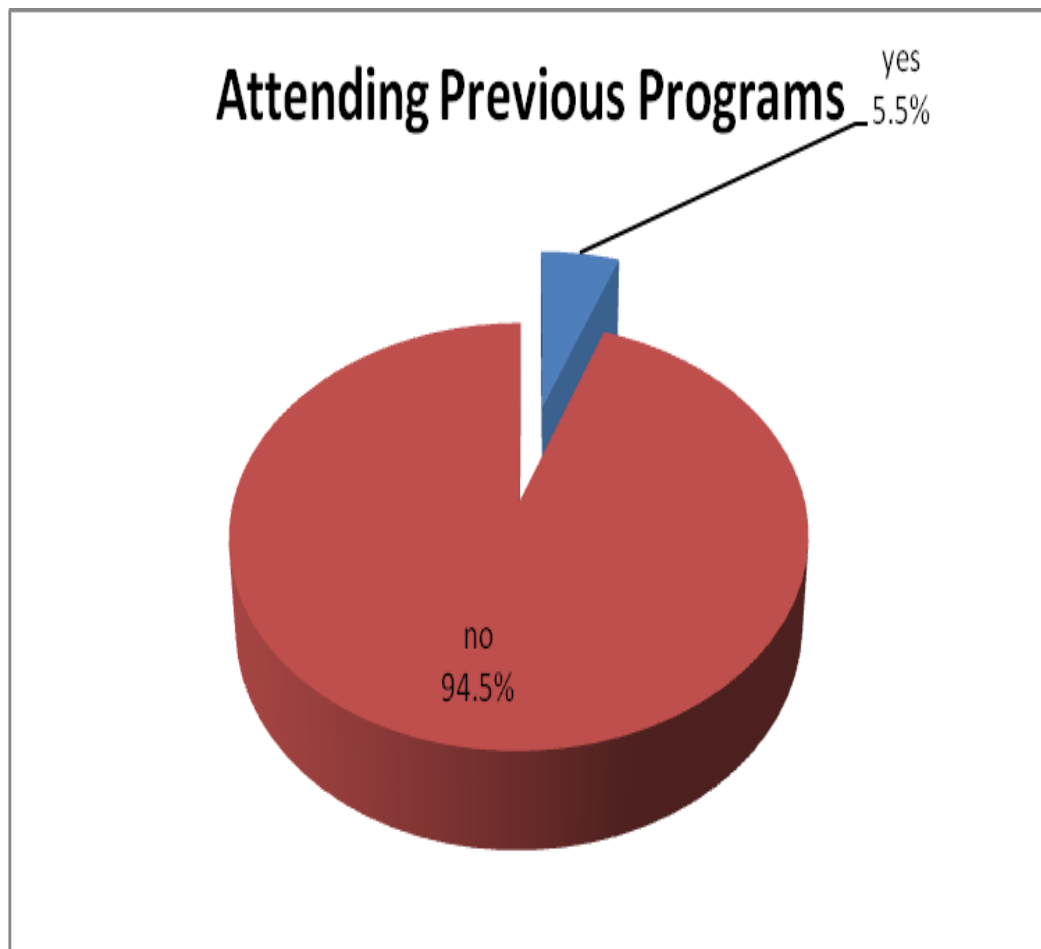**Figure (5): Distribution of the Studied Sample Regarding Their Positions**

Figure (6): Distribution of the Studied Sample Regarding the Attendance of Previous Educational Programs

Part II: Assessment of the Studied Nurses' Needs Regarding Pain Management.

Table (III): Distribution of the Studied Nurses Regarding the Three Most Important Information Needed Related to Pain Management

Needed Information Items	1st Priority		2nd Priority		3rd Priority		Not Selected		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Pain assessment	36	65.5	10	18.2	3	5.5	6	10.8	55	100
Pharmacologic management of pain	0	0	19	34.5	12	21.8	24	43.7	55	100
Non-pharmacologic interventions	5	9.1	3	5.5	7	12.7	40	72.7	55	100
Psychological issues in pain	5	9.1	14	25.5	11	20	25	45.4	55	100
Pain management in young children	9	16.4	9	16.4	22	40	15	27.2	55	100

Table (III) shows the frequency distribution of the studied nurses regarding the three most important information needed related to pain management.

About two-thirds of the studied nurses (65.5%) ranked the pain assessment issue as the first priority in which they need information about, followed by the pharmacologic management of pain issue which was ranked by 34.5% of them as the second priority, while the third priority was devoted to the pain management in young children issue which was selected by 40% of them (fig. 7).
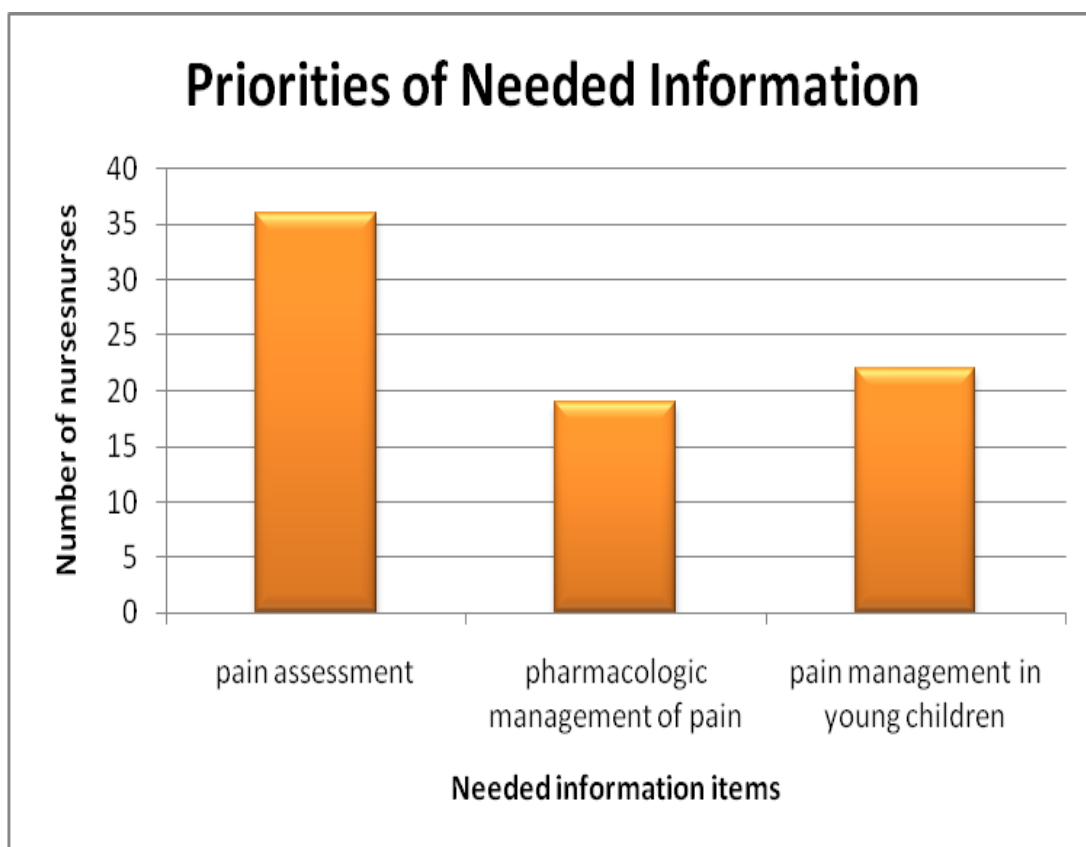
Figure (7): Distribution of the Studied Sample Regarding the Priorities of Needed Information

Table (IV): Distribution of the Studied Nurses Regarding Ranking the Top Pain Management Barriers Preventing Them from Providing Optimum Pain Relief

Pain Management Barriers	1st Rank		2nd Rank		3rd Rank		4th Rank		5th Rank		6th Rank		7th Rank		Not Selected		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Too many patients to care for, or not enough time	23	41.8	6	10.9	5	9.1	3	5.5	3	5.5	0	0	4	7.2	11	20	55	100
Do not know which medication to give if more than one is ordered "as required"	8	14.5	5	9.1	4	7.3	2	3.6	1	1.8	7	12.7	5	9.1	23	41.9	55	100
Not sure if the child is reporting pain intensity accurately	7	12.7	11	20	6	10.9	2	3.6	7	12.7	1	1.8	0	0	21	38.3	55	100
Do not believe child's pain intensity rating	1	1.8	5	9.1	8	14.4	4	7.3	5	9.1	4	7.3	3	5.5	25	45.5	55	100
Not sure what non-pharmacological interventions would be beneficial	1	1.8	6	10.9	6	10.9	8	14.5	5	9.1	1	1.8	1	1.8	27	49.2	55	100
Afraid of over-sedation	4	7.3	8	14.5	10	18.2	7	12.7	8	14.5	1	1.8	2	3.6	15	27.4	55	100
Afraid of respiratory suppression	10	18.2	6	10.9	6	10.9	13	23.6	5	9.1	3	5.5	0	0	12	21.8	55	100

Table (IV) shows the frequency distribution of the studied nurses regarding ranking the top pain management barriers preventing them from providing optimum pain relief.

Less than half of the studies nurses (41.8%) ranked the workload and insufficiency of time as the first problem for them when trying to provide optimum pain relief. Furthermore, one-fifth of them (20%) doubted if the child was reporting pain intensity accurately as the second barrier, while 18.2% and 14.5% of them stated that they feared over sedation as the third and fifth barrier respectively preventing them from managing pain properly.

Moreover, about one-quarter of the studied nurses (23.6%) reported their fright of respiratory suppression as the fourth barrier preventing them from providing optimum pain relief, while 12.7% and 9.1% of them ranked their confusion about which PRN to give if more than one is ordered as the sixth and seventh barrier respectively.

Table (V): Distribution of the Studied Nurses Regarding the Influence of Some Factors Inhibiting them from Administering Narcotic Analgesia

Items	No Influence		Little influence		Moderate Influence		Great Influence		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Too busy with other patients or duties	37	67.3	9	16.4	2	3.6	7	12.7	55	100
Reluctance of medical staff to order narcotic	15	27.3	4	7.3	6	10.9	30	54.5	55	100
Fear of opioid addiction	25	45.5	11	20	3	5.5	16	29	55	100
Lack of knowledge about drugs	27	49.1	11	20	6	10.9	11	20	55	100
Lack of assessment skills	26	47.3	4	7.3	10	18.1	15	27.3	55	100

Table (V) shows the frequency distribution of the studied nurses regarding the influence of some factors inhibiting them from administering narcotic analgesia.

The majority of the studied nurses (67.3%) felt that workload had no influence on their ability to administer narcotics, and one-fifth of them (20%) felt that their fright of opioid addiction and lack of knowledge about drugs had a little influence on their decision to administer narcotic analgesia.

Furthermore, 18.1% of the participants felt that lack of assessment skills had a moderate influence on their decision to administer narcotics, while more than half of them (54.5%) felt that the reluctance of medical staff to order narcotics inhibited them from administering narcotic analgesia.

Table (VI): Distribution of the Studied Nurses Regarding the Influence of Patients' Responses on Their Decisions to Provide Interventions for Pain Relief

Items	No Influence		Little influence		Moderate Influence		Great Influence		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Facial expression	16	29	9	16.4	10	18.2	20	36.4	55	100
Sleeping	33	60	5	9.1	9	16.4	8	14.5	55	100
Vital Signs	13	23.6	4	7.3	3	5.5	35	63.6	55	100
Increased motor movements	32	58.2	7	12.7	3	5.5	13	23.6	55	100
Decreased motor movements	34	61.9	12	21.8	1	1.8	8	14.5	55	100
Family report of infant / child discomfort	31	56.4	12	21.8	4	7.3	8	14.5	55	100
Child's report of pain	30	54.5	10	18.2	4	7.3	11	20	55	100

Table (VI) shows the frequency distribution of the studied nurses regarding the influence of patients' responses on their decisions to provide interventions for pain relief.

More than half of the studied nurses (61.9%) were not influenced by the decreased motor movements, while 21.8% of them were slightly influenced by the decreased motor movements and the family report of infant/child discomfort.

Moreover, about one-fifth of the studied nurses (18.2%) reported that they were moderately influenced by facial expression, while the majority of them (63.6%) were greatly influenced by vital signs when deciding to provide interventions for pain relief.

Table (VII): Distribution of the Studied Nurses Regarding the Preferred Top Three Methods of Education

Methods of Education	1st preference		2nd preference		3rd preference		Not Selected		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Case studies	24	43.6	10	18.2	10	18.2	11	20	55	100
Lectures	20	36.4	21	38.1	11	20	3	5.5	55	100
Journal articles	2	3.6	1	1.8	0	0	52	94.6	55	100
Video	4	7.3	5	9.1	6	10.9	40	72.7	55	100
Games	2	3.6	0	0	2	3.6	51	92.7	55	100
Self-learning books	3	5.5	12	21.8	22	40	18	32.7	55	100

Table (VII) shows the frequency distribution of the studied nurses regarding the preferred top three methods of education.

It was found that case studies, lectures, and self-learning books were the preferred top three methods of education as they were selected by 43.6%, 38.1%, and 40% of the studied nurses as the first, second, and third preferred methods of education respectively (fig. 8).
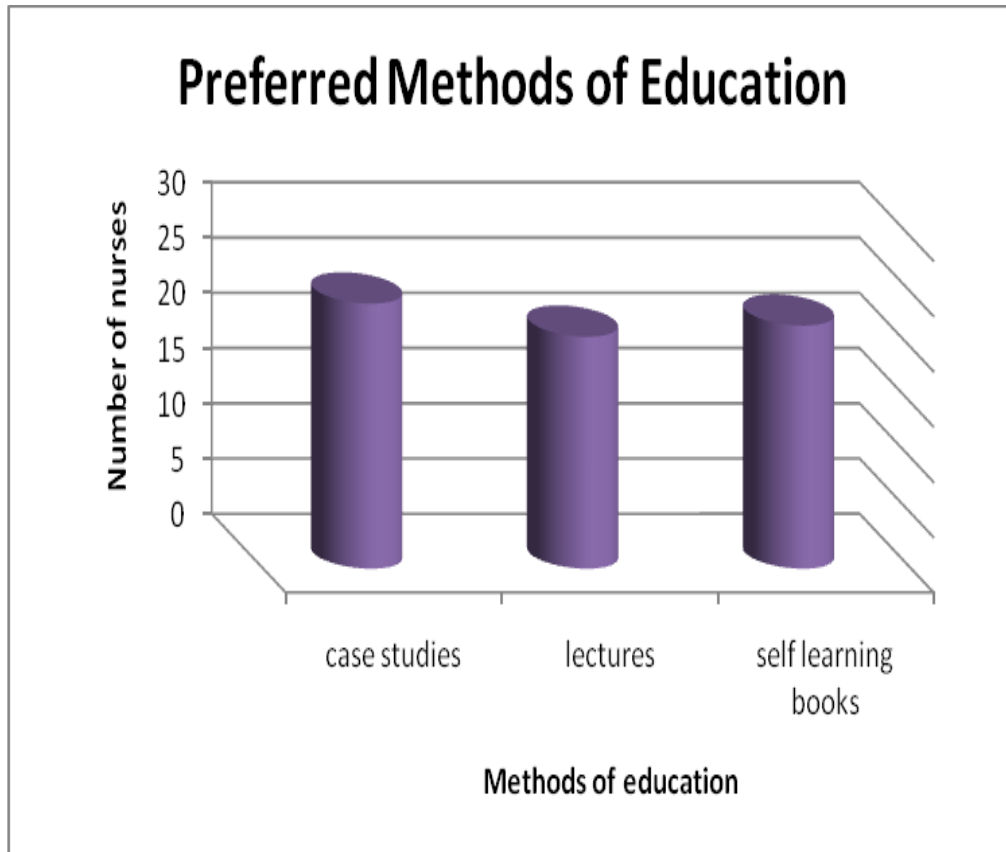
Figure (8): Distribution of the Studied Sample Regarding the Preferred Methods of Education

Table (VIII): Distribution of the Studied Nurses Regarding the Preferred Time of the Day to Attend the Educational Program

Time	No. (55)	Percent (%)
Morning Shift	38	69.1
Evening Shift	17	30.9
Total	55	100

Table (VIII) shows the frequency distribution of the studied nurses regarding the preferred time of the day to attend the educational program.

More than two-thirds of the studied nurses (69.1%) preferred attending the educational program during the morning shift, while 30.9% of them preferred attending it during the evening shift.

Part III: Nurses' Knowledge and Attitudes about Post-Operative Pain Management Pre/Post Program Implementation.

Table (IX$_a$): Distribution of the Studied Nurses Regarding Their Knowledge and Attitudes of Pain Assessment Pre and Post Program Implementation

Items	Pre program				Post program				Follow-up				X²	P-value
	Correct answer		Incorrect answer		Correct answer		Incorrect answer		Correct answer		Incorrect answer			
	No	%	No	%	No	%	No	%	No	%	No	%		
Q.1-Not to rely on V.S. for severe pain	4	7.3	51	92.7	49	89.1	6	10.9	31	56.4	24	43.6	74.643*	0.000
Q.17-Children <8 can reliably report pain	22	40	33	60	50	90.9	5	9.1	46	83.6	9	16.4	40.938*	0.000
Q.24-The potency of analgesics should be determined based on the child's / adolescent's report of pain intensity	10	18.2	45	81.8	45	81.8	10	18.2	18	32.7	37	67.3	49.579*	0.000
Q.26-Giving children/ adolescents a placebo is not a useful test to determine if the pain is real	10	18.2	45	81.8	55	100	0	0	47	85.5	8	14.5	96.120*	0.000
Q.30- The child / adolescent asks for increased doses of pain medication because of pain	41	74.5	14	25.5	54	98.2	1	1.8	49	89.1	6	10.9	14.077*	0.001
Q.31- 0-10% of patients over report the amount of pain	2	3.6	53	96.4	49	89.1	6	10.9	26	47.3	29	52.7	80.698*	0.000
Q.32- Cultural influences should be considered in caring for children in pain	22	40	33	60	42	76.4	13	23.6	39	70.9	16	29.1	18.035*	0.000

* Significant at p ≤ 0.05

Table (IX$_b$): Distribution of the Studied Nurses Regarding Their Knowledge and Attitudes of Pain Assessment Pre and Post Program Implementation (Continued)

Items	Pre program				Post program				Follow-up				X^2	P-value
	Correct answer		Incorrect answer		Correct answer		Incorrect answer		Correct answer		Incorrect answer			
	No	%	No	%	No	%	No	%	No	%	No	%		
Q.35- The most accurate judge of the intensity of the child / adolescent's pain is the child himself	13	23.6	42	76.4	52	94.5	3	5.5	52	94.5	3	5.5	89.375*	0.000
Q.37- Nurses' assessment of Ramy's pain	0	0	55	100	48	87.3	7	12.7	40	72.7	15	27.3	96.623*	0.000
Q.38- Ramy's medication dosage chosen by the nurses from the range mentioned by the doctor	1	1.8	54	98.2	50	90.9	5	9.1	31	56.4	24	43.6	88.779*	0.000
Q.39- Nurses' assessment of Karim's pain	13	23.6	42	76.4	49	89.1	6	10.9	43	78.2	12	21.8	58.457*	0.000
Q.40- Karim's medication dosage chosen by the nurses from the range mentioned by the doctor	5	9.1	50	90.9	49	89.1	6	10.9	35	63.6	20	36.4	73.962*	0.000

* Significant at p ≤ 0.05

Table (IX) shows the frequency distribution of the studied nurses regarding their knowledge and attitudes of pain assessment pre and post program implementation.

This table shows that there was a positive statistically significant difference among all the items related to nurses' knowledge and attitudes regarding pain assessment pre and post program implementation ($p<0.05$).

Table (X): Distribution of the Studied Nurses Regarding Their Knowledge and Attitudes toward Pharmacological Interventions Pre and Post Program Implementation

Items	Pre program				Post program				Follow-up				X^2	P-value
	Correct answer		Incorrect answer		Correct answer		Incorrect answer		Correct answer		Incorrect answer			
	No	%	No	%	No	%	No	%	No	%	No	%		
Q.8-Paracetamol 650mg PO= codeine 32mg PO	0	0	55	100	50	90.9	5	9.1	43	78.2	12	21.8	108.374*	0.000
Q.9-The (WHO) pain ladder suggests using a combined classes of drugs	16	29.1	39	70.9	50	90.9	5	9.1	34	61.8	21	38.2	44.068*	0.000
Q.11- Promethazine doesn't potentiate opioid analgesia	11	20	44	80	46	83.6	9	16.4	42	76.4	13	23.6	55.606*	0.000
Q.19-Adjuvant drugs are not appropriate medications for pain relief	22	40	33	60	48	87.3	7	12.7	34	61.8	21	38.2	26.425*	0.000
Q.23-Combining 2 classes of drugs is a logical method of increasing pain relief	19	34.5	36	65.5	49	89.1	6	10.9	31	56.4	24	43.6	34.545*	0.000
Q.28- Morphine 5mg i.v=morphine 15mg orally	11	20	44	80	43	78.2	12	21.8	22	40	33	60	38.689*	0.000
Q.29- Analgesics for post-operative pain should be given on a fixed schedule	15	27.3	40	72.7	50	90.9	5	9.1	29	52.7	26	47.3	46.034*	0.000
Q.34- The recommended route of administration of opioid analgesics to patients with postoperative pain is the i.v. route	54	98.2	1	1.8	55	100	0	0	55	100	0	0	2.012	0.366

* Significant at p ≤ 0.05

Table (X) shows the frequency distribution of the studied nurses regarding their knowledge and attitudes toward pharmacological interventions.

This table shows that there was a positive statistically significant difference among all the items related to nurses' knowledge and attitudes toward pharmacological interventions pre and post program implementation (p=0.000), except for the item number (34) regarding the recommended route for administering opioid analgesia to patients having post-operative pain as no statistically significant difference was found pre and post program implementation (p=0.366).

Table (XI): Distribution of the Studied Nurses Regarding Their Knowledge and Attitudes toward Narcotics, Side Effects, and Addiction Pre and Post Program Implementation

Items	Pre program				Post program				Follow-up				X^2	P-value
	Correct answer		Incorrect answer		Correct answer		Incorrect answer		Correct answer		Incorrect answer			
	No	%	No	%	No	%	No	%	No	%	No	%		
Q.10- Morphine I.V duration of analgesia is not 4 – 5 hours	14	25.5	41	74.5	47	85.5	8	14.5	40	72.7	15	27.3	46.304*	0.000
Q.13-Adolescents with a history of substance abuse can be given opioids	11	20	44	80	49	89.1	6	10.9	44	80	11	20	66.531*	0.000
Q.14-Morphine has no ceiling dosage	7	12.7	48	87.3	44	80	11	20	37	67.3	18	32.7	56.445*	0.000
Q.15-Young infants, less than 6 months of age, can tolerate opioids	36	65.5	19	34.5	53	96.4	2	3.6	48	87.3	7	12.7	19.700	0.000
Q.20-Patients' analgesic doses should be adjusted in accordance with their response	32	58.2	23	41.8	54	98.2	1	1.8	34	61.8	21	38.2	27.133*	0.000
Q.22-Respiratory depression in not a common side effect of morphine	9	16.4	46	83.6	48	87.3	7	12.7	38	69.1	17	30.9	61.087*	0.000
Q.25-Clock-watching doesn't equal addiction	20	36.4	35	63.6	51	92.7	4	7.3	41	74.5	14	25.5	41.750*	0.000
Q.36- Less than 1% of patients are likely to develop opioid addiction as a result of treating pain with opioid analgesics	4	7.3	51	92.7	47	85.5	8	14.5	37	67.3	18	32.7	73.977*	0.000

* Significant at p ≤ 0.05

Table (XI) shows the frequency distribution of the studied nurses regarding their knowledge and attitudes toward narcotics, side effects, and addiction pre and post program implementation.

This table shows that there was a positive statistically significant difference among all the items related to nurses' knowledge and attitudes toward narcotic analgesia, its side effects, and addiction pre and post program implementation (p=0.000).

Table (XII): Distribution of the Studied Nurses Regarding Their Knowledge and Attitudes toward Non Pharmacological Interventions Pre and Post Program Implementation

Items	Pre program				Post program				Follow-up				X^2	P-value
	Correct answer		Incorrect answer		Correct answer		Incorrect answer		Correct answer		Incorrect answer			
	No	%	No	%	No	%	No	%	No	%	No	%		
Q.3-Distraction doesn't necessarily equate with mild pain levels	21	38.2	34	61.8	47	85.5	8	14.5	45	81.8	10	18.2	35.269*	0.000
Q.6-Non-drug interventions are helpful for severe pain	6	10.9	49	89.1	38	69.1	17	30.9	21	38.2	34	61.8	39.042*	0.000
Q.21-Not to advice patients to use non-drug techniques alone	16	29.1	39	70.9	49	89.1	6	10.9	46	83.6	9	16.4	55*	0.000
Q.27-Heat and cold should not be applied only to the painful area	26	47.3	29	52.7	54	98.2	1	1.8	50	90.9	5	9.1	49.899*	0.000

* Significant at p ≤ 0.05

Table (XII) shows the frequency distribution of the studied nurses regarding their knowledge and attitudes toward non pharmacological interventions pre and post program implementation.

This table shows that there was a positive statistically significant difference among all the items related to nurses' knowledge and attitudes toward non pharmacological interventions pre and post program implementation (p=0.000).

Table (XIII): Distribution of the Studied Nurses Regarding Their Knowledge and Attitudes toward the Concept of Pain Pre and Post Program Implementation

Items	Pre program				Post program				Follow-up				X^2	P-value
	Correct answer		Incorrect answer		Correct answer		Incorrect answer		Correct answer		Incorrect answer			
	No	%	No	%	No	%	No	%	No	%	No	%		
Q.2-Children under 2 years of age don't have decreased pain sensitivity	33	60	22	40	51	92.7	4	7.3	50	90.9	5	9.1	24.389*	0.000
Q.4-Infants/ children/ adolescents may sleep despite pain	10	18.2	45	81.8	50	90.9	5	9.1	36	65.5	19	34.5	61.576*	0.000
Q.5-Comparable stimuli produce different levels of pain in patients	25	45.5	30	54.5	48	87.3	7	12.7	29	52.7	26	47.3	23.263*	0.000
Q.7-Children should receive maximum treatment for the pain and anxiety to minimize the development of anticipatory anxiety before other procedures	25	45.5	30	54.5	55	100	0	0	42	76.4	13	23.6	42.713*	0.000
Q.12-Parents should be present during painful procedures	11	20	44	80	48	87.3	7	12.7	44	80	11	20	63.923*	0.000
Q.16-The child / adolescent should not be encouraged to endure pain	14	25.5	41	74.5	45	81.8	10	18.2	42	76.4	13	23.6	44.773*	0.000
Q.18-Based on one's religious beliefs a child / adolescent may think that pain and suffering is necessary	11	20	44	80	43	78.2	12	21.8	13	23.6	42	76.4	48.450*	0.000
Q.33- The goal of giving narcotics during the first 48hours postoperative is to relieve as much pain as possible	34	61.8	21	38.2	50	90.9	5	9.1	46	83.6	9	16.4	15.086*	0.001

* Significant at p ≤ 0.05

Table (XIII) shows the frequency distribution of the studied nurses regarding their knowledge and attitudes toward the concept of pain pre and post program implementation.

This table shows that there was a positive statistically significant difference among all the items related to nurses' knowledge and attitudes toward the concept of pain pre and post program implementation ($p < 0.05$).

Table (XIV): Distribution of the Studied Nurses According to Their Satisfactory and Unsatisfactory Levels of Knowledge and Attitudes toward Postoperative Pain Management Pre and Post Program Implementation

Knowledge and Attitudes Score	Satisfactory (> 80%)		Un satisfactory (< 80%)		X^2	P-value
	No	%	No	%		
Pre program implementation	0	0	55	100	97.137*	0.000
Post program implementation	51	92.7	4	7.3		
Follow-up	21	38.2	34	61.8		

* Significant at p ≤ 0.05

Table (XIV) shows the frequency distribution of the studied nurses according to their satisfactory and unsatisfactory levels of knowledge and attitudes towards post-operative pain management pre and post program implementation.

Before program implementation, no one (0%) of the studied nurses has achieved a satisfactory level of knowledge and attitudes, while after the program implementation, the majority of them (92.7%) achieved a satisfactory level but it dropped down to 38.2% after implementing the program by three months (fig. 9).

A positive statistically significant difference was found between nurses' satisfactory and unsatisfactory levels of knowledge and attitudes towards postoperative pain management pre and post program implementation (x^2= 97.137, p=0.000).
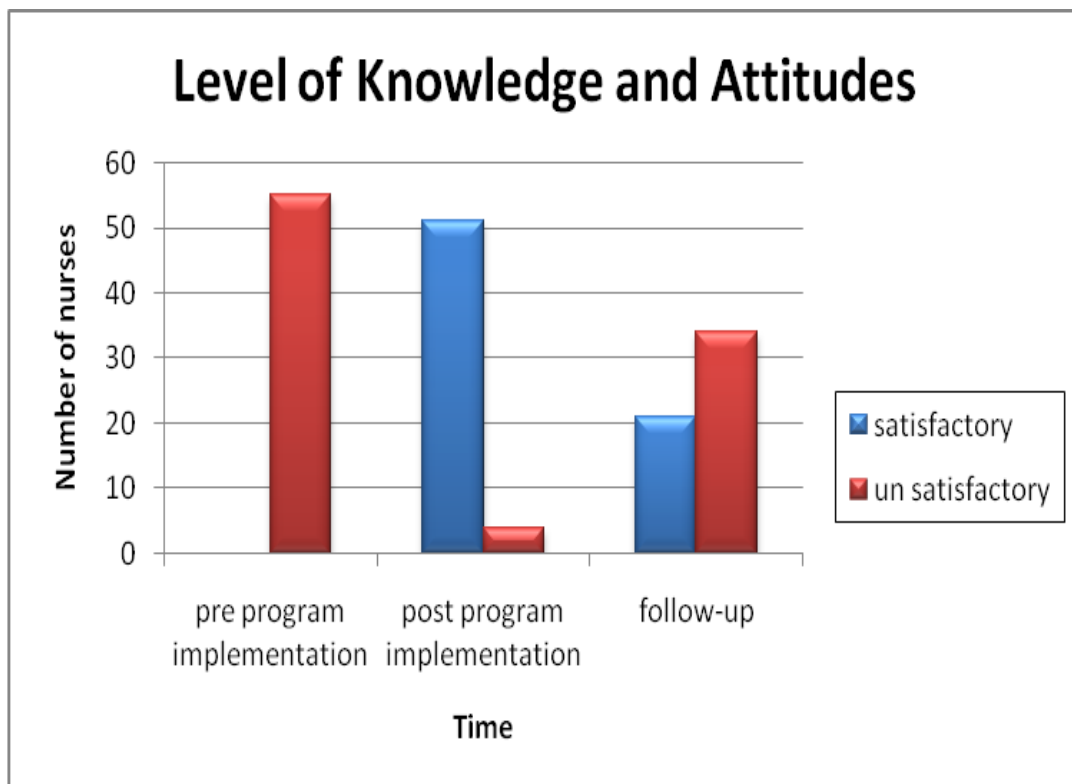
Figure (9): Distribution of the Studied Sample Regarding their Satisfactory and Un Satisfactory Level of Knowledge and Attitudes

Table (XV): Studied Nurses' Knowledge and Attitudes about Postoperative Pain Management Pre and Post Program Implementation (Mean Score ± Standard Deviation)

Items	Pre program X±SD	Post program X±SD	Follow up X±SD	F-test	P-value
Section 1 (true and false statements)	8.02±3.263	23.93±2.638	18.65±4.019	320.954*	0.000
Section 2 (multiple choice statements)	3.56±1.198	8.04±1.551	6.45±1.214	159.651*	0.000
Section 3 (case studies)	0.35±0.480	3.56±0.938	2.71±1.272	168.085*	0.000
Total Score	11.93±3.839	35.53±3.532	27.82±5.030	455.048*	0.000

* Significant at p ≤ 0.05

Table (XV) shows the mean score and standard deviation of the studied nurses' knowledge and attitudes about postoperative pain management pre and post program implementation.

The mean value of the total score of the studied nurses' knowledge and attitudes before implementing the program was 11.93±3.839, and it increased to 35.53±3.532 directly after program implementation. Then it decreased to 27.82±5.030 after implementing the program by three months but it was still higher than the pre program mean score (fig. 10). A positive statistically significant difference was found between the mean values of the nurses' knowledge and attitudes scores before and after the program implementation (f= 455.048, p= 0.000).
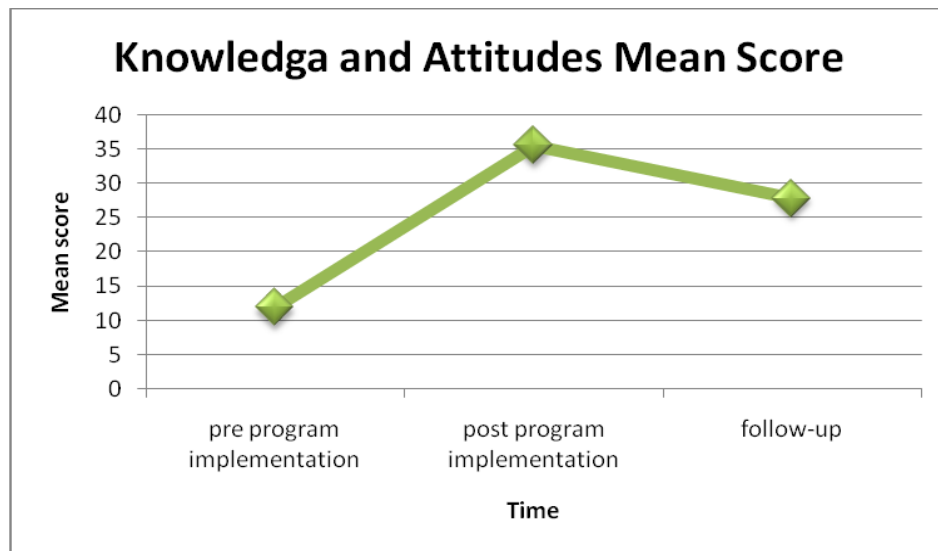
Figure (10): Distribution of the Studied Sample Regarding their Mean Score of Knowledge and Attitudes Pre and Post Program Implementation

Part IV: Relation between Nurses' Knowledge and Attitudes in Relation to Their Socio-Demographic Characteristics.

Table (XVI): Studied Nurses' Knowledge and Attitudes in Relation to Their Age and Years of Experience Pre and Post Program Implementation (Mean Score$\pm$Standard Deviation)

Knowledge and Attitudes Scores	Age/Year	X$\pm$SD	Experience/Year	X$\pm$SD
Pre Program	<20	11.33$\pm$4.546	<1	11.43$\pm$5.412
	20-25	11.29$\pm$3.952	1-5	11.90$\pm$3.537
	25-30	12.95$\pm$3.427	5-10	12.17$\pm$3.869
F-value	1.222		0.092	
p-value	0.303		0.913	
Post Program	<20	35.17$\pm$4.916	<1	38.14$\pm$1.464
	20-25	35.93$\pm$3.506	1-5	35.47$\pm$3.902
	25-30	35.10$\pm$3.254	5-10	34.61$\pm$3.032
F-value	0.360		2.687	
p-value	0.699		0.078	
Follow-up	<20	28.17$\pm$5.345	<1	29.29$\pm$2.498
	20-25	28.11$\pm$5.021	1-5	28$\pm$5.620
	25-30	27.33$\pm$5.170	5-10	26.94$\pm$4.746
F-value	0.153		0.580	
p-value	0.858		0.564	

Table (XVI) shows the mean score and standard deviation of the studied nurses' knowledge and attitudes in relation to their age and years of experience pre and post program implementation.

Before implementing the program, the mean score of the nurses less than 20 years old was 11.33 ± 4.546, then it changed to 35.17 ± 4.916 and 28.17 ± 5.345 immediately after implementing the program and three months later respectively. While the mean score of the nurses whose ages ranged from 20-25 years was 11.29 ± 3.952 before implementing the program, then it changed to 35.93 ± 3.506 and 28.11 ± 5.021 immediately after implementing the program and three months later respectively. Furthermore, the mean score of the nurses with ages ranging from 25-30 years was 12.95 ± 3.427 before implementing the program then it changed to 35.10 ± 3.254 and 27.33 ± 5.170 immediately after implementing the program and three months later respectively.

As regards the years of experience, the mean score of the nurses who had less than one year experience was 11.43 ± 5.412 before implementing the program, then it changed to 38.14 ± 1.464 and 29.29 ± 2.498 immediately after implementing the program and three months later respectively. While the mean score of the nurses who worked for one to five years was 11.90 ± 3.537 before implementing the program, then it changed to 35.47 ± 3.902 and 28 ± 5.620 immediately after implementing the program and three months later respectively. Furthermore, the mean score of the nurses who worked for five to ten years was 12.17 ± 3.869 before implementing the program then it changed to 34.61 ± 3.032 and 26.94 ± 4.746 immediately after implementing the program and three months later respectively. No statistically significant difference was found between nurses age and years of experience and their scores pre and post program implementation.

Table (XVII): Studied Nurses' Knowledge and Attitudes in Relation to Their Gender Pre and Post Program Implementation (Mean Score ± Standard Deviation)

Gender	Knowledge and Attitudes Scores	X±SD	F -value	P- value
Female	Pre program implementation	12.34±3.767		
	Post program implementation	35.88±3.515	449.315*	0.000
	Follow-up	28.34±4.658		
Male	Pre program implementation	7.80±1.304		
	Post program implementation	32	55.815*	0.000
	Follow-up	22.60±6.189		

* Significant at p ≤ 0.05

Table (XVII) shows the mean score and standard deviation of the studied nurses' knowledge and attitudes in relation to their gender pre and post program implementation.

Before program implementation, the mean score of the female nurses' knowledge and attitudes was 12.34±3.767, and it rose to 35.88±3.515 immediately after program implementation, then it dropped down to 28.34±4.658 three months later but it was still greater than the pre program mean score. As regard male nurses, their mean score was 7.80±1.304 before the program, then it increased to 32 immediately after implementing the program, but it decreased to 22.60±6.189 three months later but it was still higher than the pre program mean score (fig. 11). A positive statistically significant difference was found between male and female nurses' knowledge and attitudes scores pre and post program implementation (F=449.315 for females and 55.815 for males).
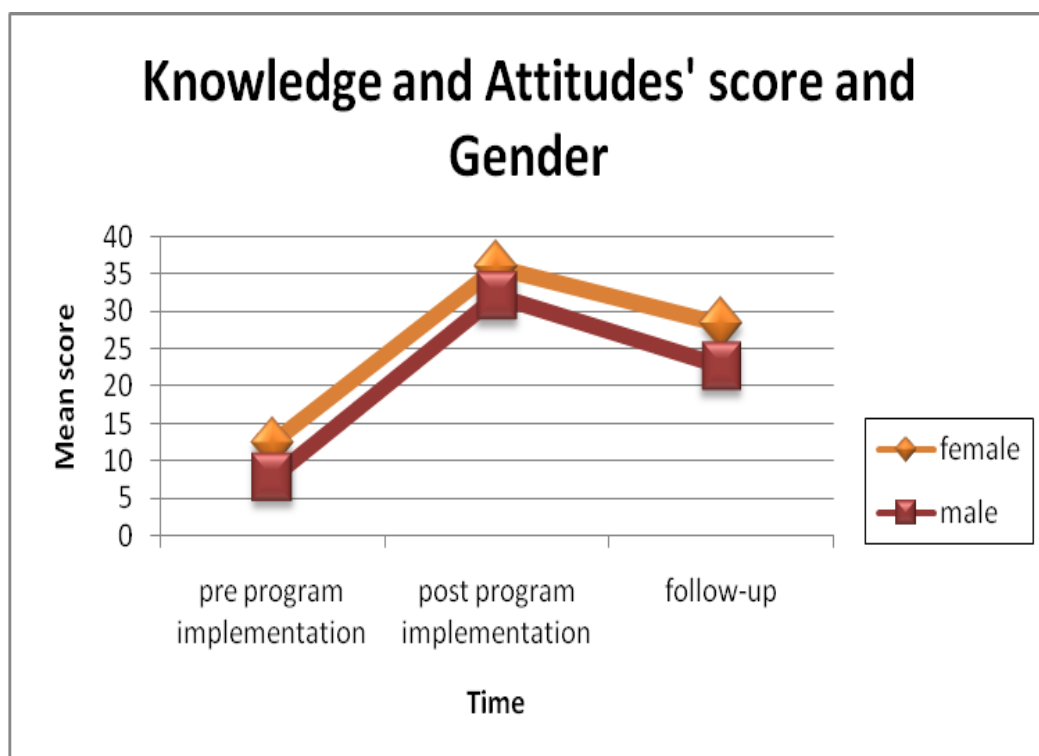
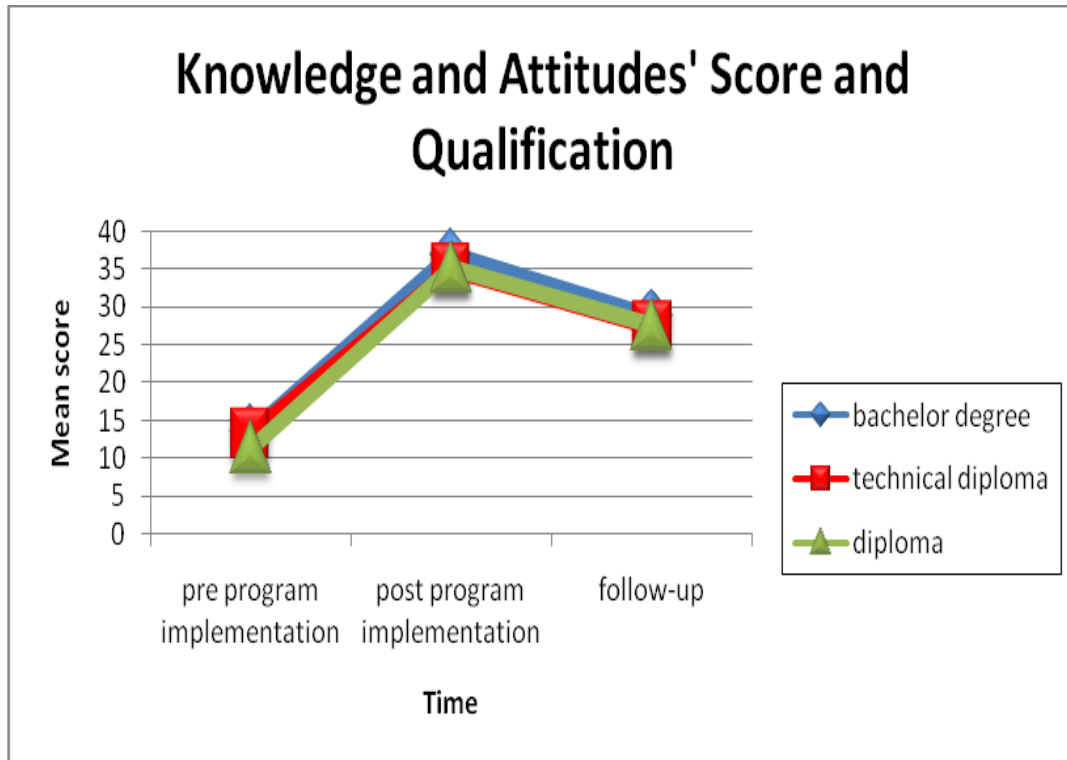**Figure (11): Distribution of the Studied Sample Regarding their Level of Knowledge and Attitudes in Relation to their Gender**

Table (XVIII): Studied Nurses' Knowledge and Attitudes in Relation to Their Educational Qualification Pre and Post Program Implementation (Mean Score±Standard Deviation)

Educational Qualification	Knowledge and Attitudes Scores	X±SD	F -value	p- value
Bachelor degree	Pre program implementation Post program implementation Follow-up	13.55±3.532 36.91±2.427 28.73±4.962	107.908*	0.000
Technical nursing diploma	Pre program implementation Post program implementation Follow-up	13±3 35±8.660 27.33±8.622	7.088*	0.026
Diploma in nursing	Pre program implementation Post program implementation Follow-up	11.41±3.905 35.20±3.311 27.61±4.898	361.513*	0.000

* Significant at p ≤ 0.05

Table (XVIII) shows the mean score and standard deviation of the studied nurses' knowledge and attitudes in relation to their educational qualification pre and post program implementation.

Before program implementation, the mean knowledge and attitudes scores of bachelor degree nurses, technical nurses, and diploma degree nurses were 13.55±3.532, 13±3, and 11.41±3.905 respectively. While immediately after implementing the program, the mean knowledge and attitudes score of the bachelor degree nurses, technical nurses, and diploma degree nurses increased to 36.91±2.427, 35±8.660, and 35.20±3.311 respectively.

Three months later after the program implementation, the mean knowledge and attitudes scores of bachelor degree nurses, technical nurses, and diploma degree nurses decreased to 28.73 ± 4.962, 27.33 ± 8.622, and 27.61 ± 4.898 respectively, but it was still higher than the pre program mean score (fig. 12). A positive statistically significant difference was found between the studied nurses' knowledge and attitudes score and their educational qualifications pre and post program implementation (F= 107.908, 7.088, and 361.513 for bachelor degree nurses, technical nurses, and diploma nurses respectively).

Figure (12): Distribution of the Studied Sample Regarding their Level of Knowledge and Attitudes in Relation to their Educational Qualification

Table (XIX): Studied Nurses' Knowledge and Attitudes in Relation to Their Positions Pre and Post Program Implementation (Mean Score ± Standard Deviation)

Job	Knowledge and Attitudes Scores	X±SD	F -value	p- value
Head Nurse	Pre program implementation	16	19.033*	0.020
	Post program implementation	35.50±3.536		
	Follow-up	28±4.243		
Supervisor Nurse	Pre program implementation	13±3.708	86.433*	0.000
	Post program implementation	37.22±2.279		
	Follow-up	28.89±5.326		
Bedside nurse	Pre program implementation	11.52±3.843	355.156*	0.000
	Post program implementation	35.18±3.700		
	Follow-up	27.59±5.078		

* Significant at p ≤ 0.05

Table (XIX) shows the mean score and standard deviation of the studied nurses' knowledge and attitudes in relation to their positions pre and post program implementation.

Before implementing the program, the mean score of the head nurses' knowledge and attitudes was 16, while the mean scores of the supervisor nurses' and the bedside nurses' knowledge and attitudes were 13±3.708 and 11.52±3.843 respectively.

After the program implementation, the mean score of the head nurses' knowledge and attitudes raised to 35.50±3.536, while the mean

scores of the supervisor nurses' and the bedside nurses' knowledge and attitudes increased to 37.22 ± 2.279 and 35.18 ± 3.700 respectively.

Three months later after implementing the program, the mean knowledge and attitudes score of the head nurses, supervisor nurses, and bedside nurses decreased to 28 ± 4.243, 28.89 ± 5.326, and 27.59 ± 5.078 respectively but it was still greater than the pre program mean score (fig. 13).

A positive statistically significant difference was found between the studied nurses' knowledge and attitudes score and their positions pre and post program implementation (F= 19.033, 86.433, and 355.156 for head nurse, supervisor nurse, and bedside nurse respectively).
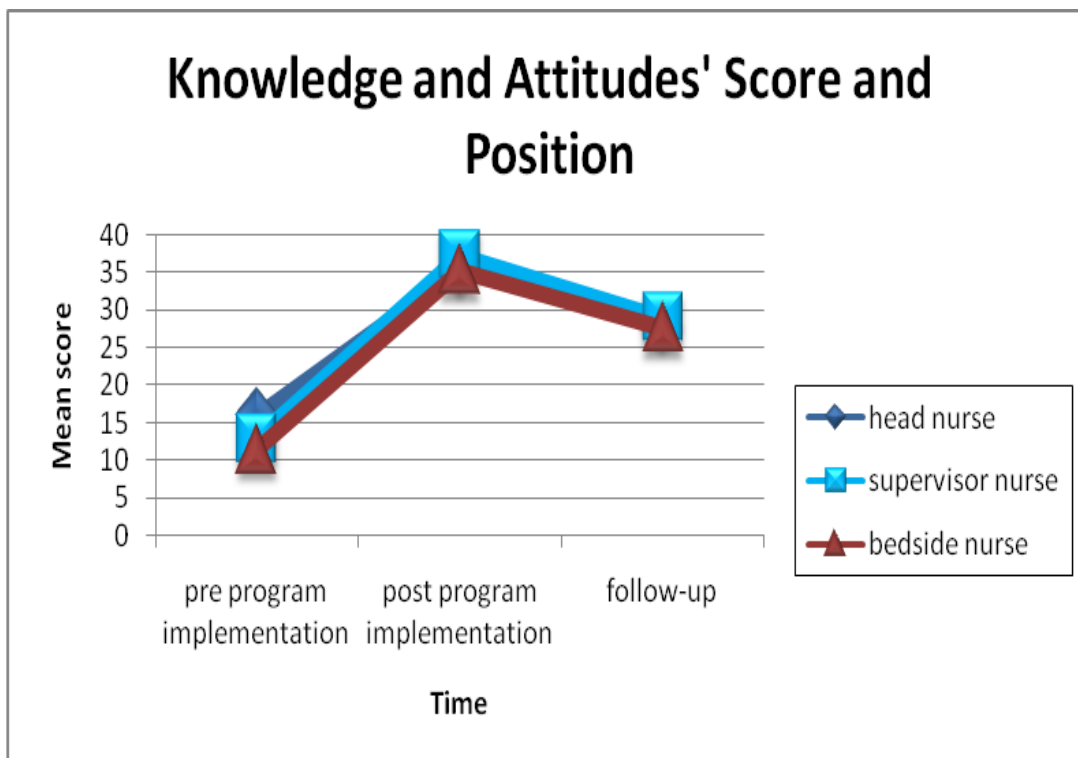
Figure (13): Distribution of the Studied Sample Regarding their Level of Knowledge and Attitudes in Relation to their Position

Table (XX): Studied Nurses' Knowledge and Attitudes in Relation to Attending Previous Programs Pre and Post Program Implementation (Mean Score$\pm$Standard Deviation)

Attending Previous Programs	Knowledge and Attitudes Scores	X$\pm$SD	F-value	p- value
Yes	Pre program implementation	9.67$\pm$4.163		
	Post program implementation	32$\pm$5.292	13.601*	0.006
	Follow-up	25.67$\pm$6.506		
No	Pre program implementation	12.06$\pm$3.822		
	Post program implementation	35.73$\pm$3.367	447.172*	0.000
	Follow-up	27.94$\pm$4.984		

* Significant at p ≤ 0.05

Table (XX) shows the mean score and standard deviation of the studied nurses' knowledge and attitudes in relation to attending previous educational programs pre and post program implementation.

Before program implementation, the mean score of the studied nurses' knowledge and attitudes who attended previous educational programs was 9.67$\pm$4.163, and it increased to 32$\pm$5.292 after implementing the program. Then it decreased to 25.67$\pm$6.506 three months later after the program implementation but it was still better than the pre program mean score.

While, before program implementation, the mean score of the studied nurses' knowledge and attitudes who didn't attend previous

educational programs was 12.06±3.822, and it increased to 35.73±3.367 after implementing the program, then it decreased to 27.94±4.984 three months later after the program implementation but it was still greater than the pre program mean score (fig. 14).

A positive statistically significant difference was found between the studied nurses' knowledge and attitudes score and attending previous educational programs pre and post program implementation (F= 13.601 for nurses who attended previous programs and 447.172 for nurses who didn't attend any previous programs).
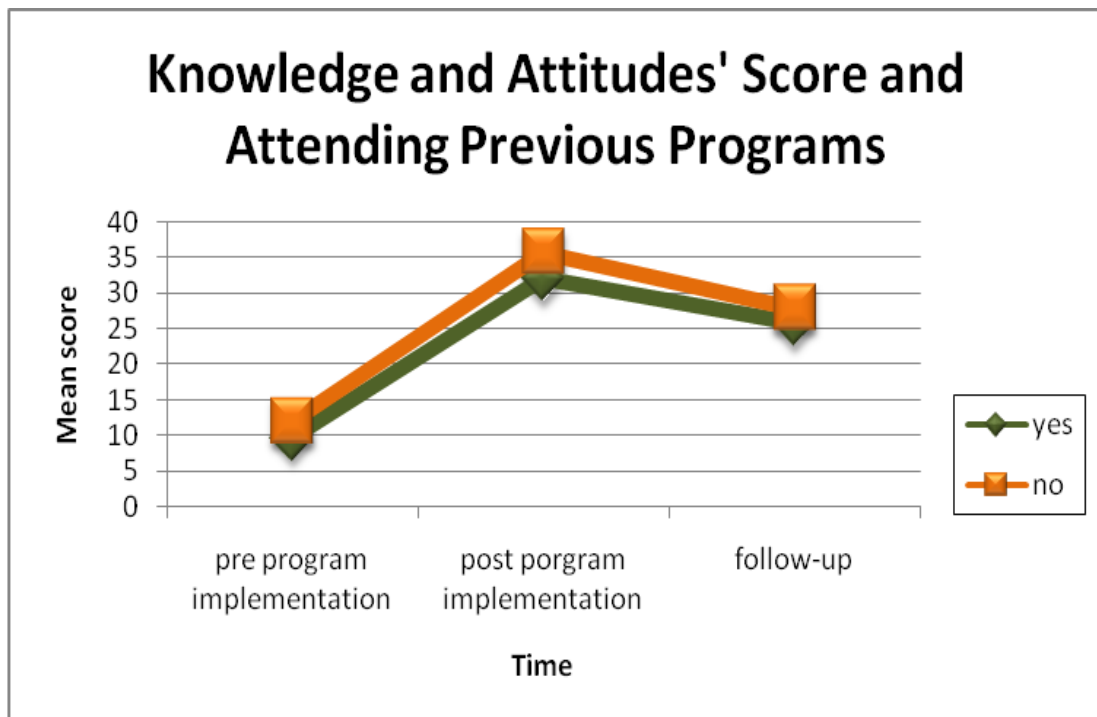
Figure (14): Distribution of the Studied Sample Regarding their Level of Knowledge and Attitudes in Relation to Attending Previous Educational Programs