RESULTS

The results of the present study are listed in tables (1- 24) and figures (1- 4).

Part I: Characteristics of the studied nurses and children are presented in tables (1-2) and figures (1- 4).

Part II: Nurses' knowledge regarding pneumonia is presented in tables (3 - 6).

Part III: Nurses' knowledge regarding nursing care given to children suffering from pneumonia is presented in tables (7-10).

Part IV: Nurses' practice regarding care of children suffering from pneumonia are presented in tables (11-13).

Part V: Relations between level of nurses' knowledge regarding nursing care given to children suffering from pneumonia and their characteristics are presented in tables (14 -18).

Part VI: Relations between level of nurses' practice regarding nursing care given to children suffering from pneumonia and their characteristics are presented in tables (19 -23).

- Relation between nurses' knowledge and their practice regarding nursing care given to children suffering from pneumonia is presented in (table 24).

Part I : Characteristics of the Studied Nurses and Children.

Table (1): Number and percentage distribution of nurses' characteristics.

Nurses' characteristics	Total No. =100	
	No.	%
Age in years:		
20 - < 25	36	36
25 - < 30	40	40
30 - < 35	8	8
35 - ≥ 40	16	16
$\bar{X}$ ± SD	**26.7 ± 5.2**	
Qualification:		
- Secondary nursing school.	71	71
- Technical institute of nursing.	13	13
- Bachelor in nursing	16	16
Years of experience:		
0- < 2	10	10
2 - < 5	29	29
5 - < 8	29	29
≥ 8	32	32
$\bar{X}$ ± SD	**6.8 ± 5.1**	

Table (1) shows that 38%, 40% of studied nurses' age ranged between 20<25 and 25 < 30 years respectively with a mean age of **26.7 ± 5.2** years. In relation to nurses' qualification, the highest percentage of the studied nurses (71%) had secondary nursing school certificate, 13% of them had technical institute of nursing. 32% of them had ≥ 8 years of experience with a mean age of **6.8 ± 5.1** years.

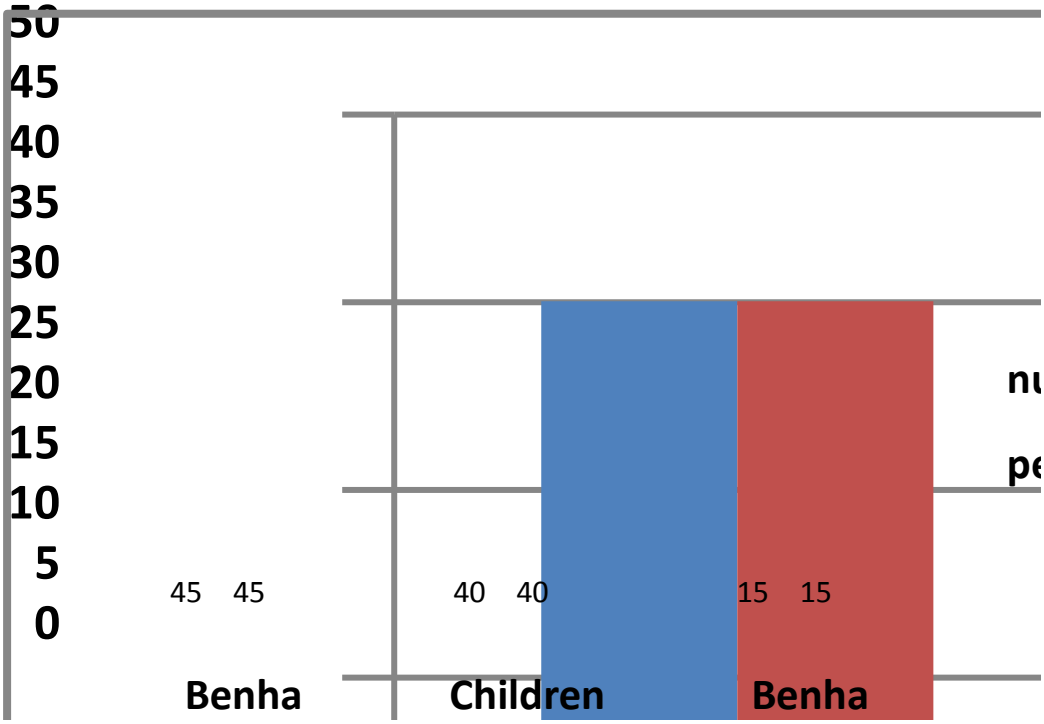

Figure (1): Distribution of studied nurses according to their place of work.

Figure (1) shows that less than half of nurses (45%) are working at Benha University Hospital, while 40% working at Children Specialized Hospital and only 15% at Benha Teaching Hospital.

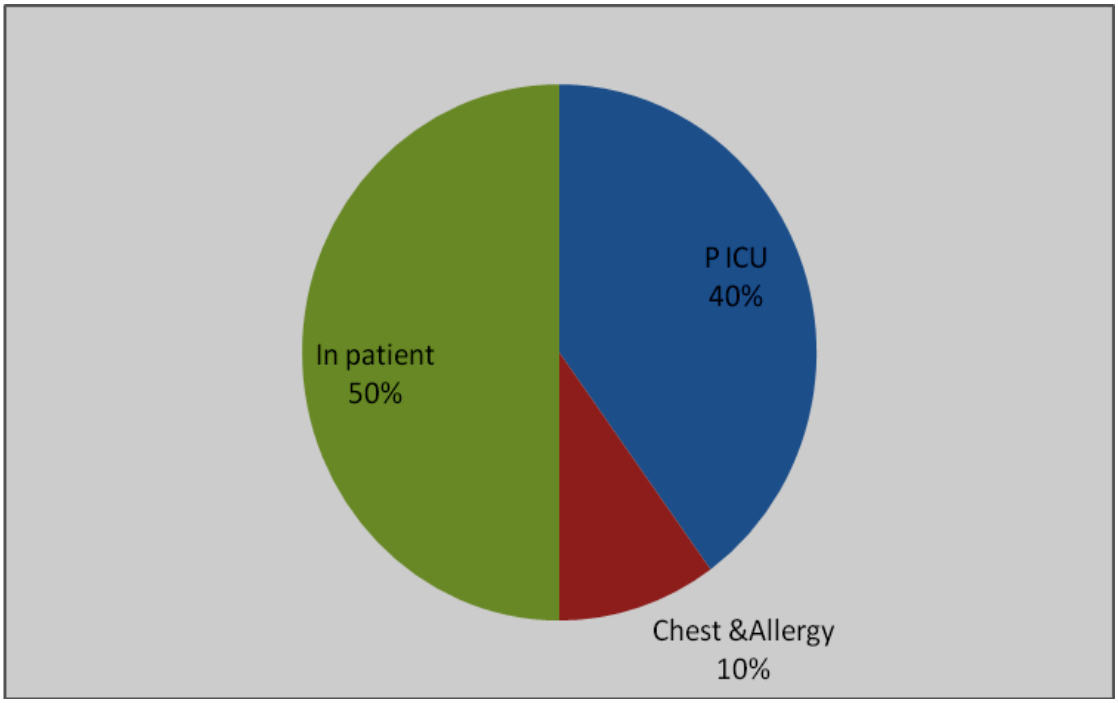

Figure (2): Distribution of the nurses according to their working departments.

Figure (2) clarifies that half of the studied nurses are working at Pediatric Inpatient wards, while 40% at Pediatric Intensive Care Unit (PICU) and only 10% at Chest and Allergy units.

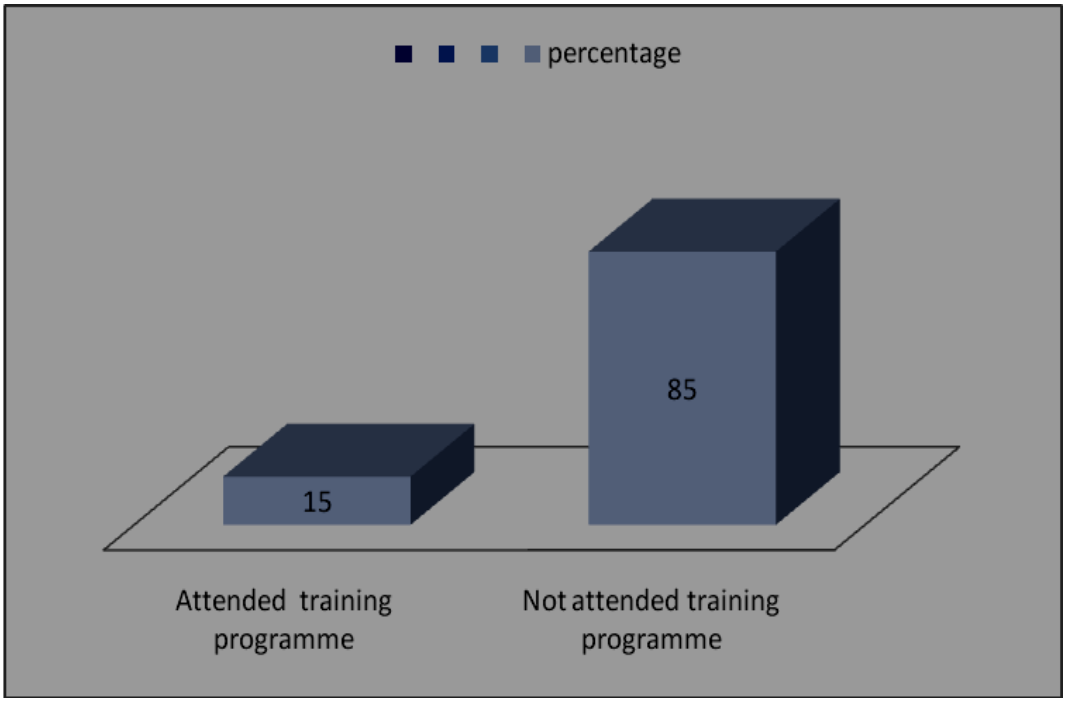

Figure (3): Distribution of the nurses' according to their attendance of training program related to pneumonia.

Figure (3) Illustrates that the highest percentage of the studied nurses (85%) did not attend any training programs related to pediatric pneumonia.

Table (2): Distribution of the children suffering from pneumonia according to their age.

Age	Total no. = 200	
	No.	%
1 month < 2 years	115	57.5
2 -< 4 years	55	27.5
≥ 4 years	30	15
$\bar{X}$ ± **SD**	**2 ± 1.30 years**	

Table (2) reveals that the mean age of children was 2±1.30 years. More than half of them 57.5 % were less than 2 years, while, only 15% of them were 4 years and more.

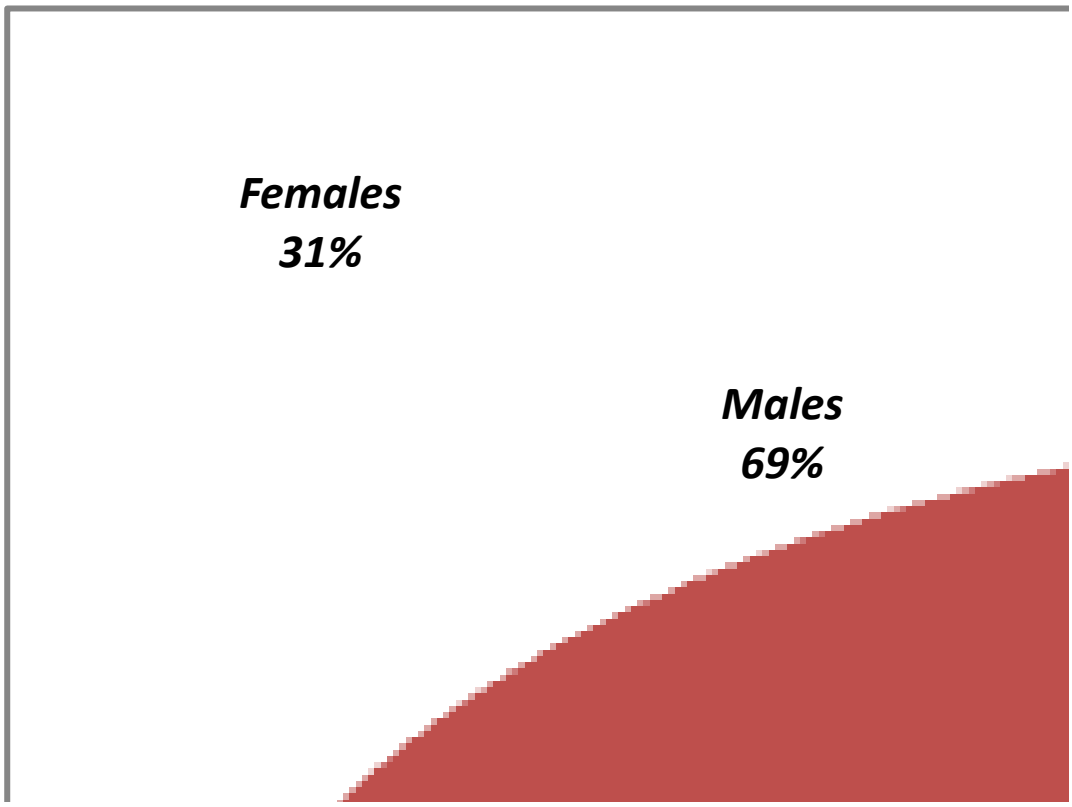

Figure (4): Number and percentage distribution of children affected with pneumonia by their sex.

As observed from this figure, more than two third 69% of children were males and less than third 31% of them were females.

Part II: Nurses' Knowledge about Pneumonia (the disease Process).

Table (3): Number and percentage distribution of nurses' knowledge regarding definition, common age & season of pneumonia.

Number of Studied Nurses = 100						
Items	**Good**		**Average**		**Poor**	
	No	**%**	**No**	**%**	**No**	**%**
Definition	69	69	0	0	31	31
Common age	14	14	0	0	86	86
Season	65	65	25	25	10	10

Table (3) reveals that 69% and 65% of studied nurses had good score regarding their knowledge about definition and season of pneumonia respectively, while 86% of studied nurses had poor score related to the knowledge about the common age affected with pneumonia.

Table (4): Number and percentage distribution of nurses' knowledge regarding types, signs and symptoms, transmission, and onset of pneumonia.

Number of Studied Nurses = 100						
Items	**Good**		**Average**		**Poor**	
	No	**%**	**No**	**%**	**No**	**%**
Types	10	10	0	0	90	90
Signs and symptoms	25	25	22	22	53	53
Transmission	0	0	95	95	5	5
Onset	15	15	0	0	85	85

Table (4) indicates that 90% , 53%, 5% and 85% of studied nurses had poor score regarding their knowledge about types, signs and symptoms, transmission and onset of pneumonia respectively, while only 10%, 25%, 0% and 15% of studied nurses had good score related to them respectively.

Table (5): Number and percentage distribution of nurses' knowledge regarding causes, risk factors, investigations and complications of pneumonia.

Number of Studied Nurses = 100						
Items	**Good**		**Average**		**Poor**	
	No	**%**	**No**	**%**	**No**	**%**
Causes	0	0	17	17	83	83
Risk factors	10	10	0	0	90	90
Investigations	0	0	0	0	100	100
Complications	0	0	0	0	100	100

Table (5) shows that 83% , 90%, 100% and 100% of studied nurses had poor score regarding their knowledge about causes ,risk factors, investigations, and complications of pneumonia respectively. However, only 10% of studied nurses had good score related to risk factors.

Table (6): Number and percentage distribution of nurses' knowledge regarding prevention, treatment, considered factors during treatment of pneumonia and indications for hospitalization.

Number of Studied Nurses = 100						
Items	**Good**		**Average**		**Poor**	
	No	**%**	**No**	**%**	**No**	**%**
Prevention	0	0	14	14	86	86
Treatment	0	0	0	0	100	100
Considered factors in treatment	21	21	0	0	79	79
Indications for hospitalization	21	21	14	14	65	65

Table (6) indicates that 86% , 100%, 79% and 65% of studied nurses had poor score regarding their knowledge about prevention, treatment, considered factors in treatment and indications for hospitalization of pneumonia respectively. However, only 21% of studied nurses had good score related to both considered factors and indications for hospitalization.

Part III: Nurses' Knowledge Regarding Nursing Care Given to Children Suffering from Pneumonia.

Table (7):Number and percentage distribution of nurses' knowledge regarding nursing process given to children suffering from pneumonia

Number of Studied Nurses = 100						
Items	**Good**		**Average**		**Poor**	
	No	**%**	**No**	**%**	**No**	**%**
Nursing assessment	18	18	33	33	49	49
Nursing diagnosis	0	0	25	25	75	75
Nursing planning	13	13	70	70	17	17
Nursing implementation	35	35	33	33	32	32
Nursing evaluation	0	0	92	92	8	8

Table (7) reveals that, 49%, 75%, 17%, 32% and 8% of studied nurses were scored poor in their knowledge regarding nursing assessment, diagnosis, planning, implementation and evaluation respectively; while 33%, 25%, 70%, 33% and 92%were average for the same items, and only 18% were good related to assessment, 13% and 35% were good for planning and implementation respectively.

Table (8): Number and percentage distribution of nurses' knowledge regarding oxygen therapy, suctioning and Chest physiotherapy given to children suffering from pneumonia.

Number of Studied Nurses = 100						
Items	**Good**		**Average**		**Poor**	
	No	**%**	**No**	**%**	**No**	**%**
Oxygen therapy	0	0	8	8	92	92
Suctioning	0	0	0	0	100	100
Chest physiotherapy	42	42	24	24	34	34

Table (8) reveals that, 42% of nurses scored good for their knowledge about chest physiotherapy, while 92 % , all of them 100% and 34% had poor score level of knowledge regarding oxygen therapy, suctioning and chest physiotherapy respectively.

Table (9): Number and percentage distribution of nurses' knowledge regarding nursing care, intravenous therapy, fever reduction and health instructions about nursing care given to children suffering from pneumonia.

Number of Studied Nurses = 100						
Items	**Good**		**Average**		**Poor**	
	No	**%**	**No**	**%**	**No**	**%**
Nursing care for children suffering from pneumonia	0	0	24	24	76	76
Intravenous therapy	0	0	60	60	40	40
Fever reduction	0	0	40	40	60	60
Health instructions	6	6	23	23	71	71

Table (9) Indicates that, 76%, 40%, 60% and 71% of studied nurses were scored poor in their knowledge regarding nursing care for children suffering from pneumonia, intravenous therapy, fever reduction and health instructions respectively while 24%, 60%, 40%, and 23% had average score respectively and only 6% were good related to health instructions.

Table (10): Number and percentage distribution of total nurses' level of knowledge regarding pneumonia and nursing care for children suffering from pneumonia.

Level of nurses' knowledge	Total no. =100	
	No.	%
Average (60 -80%)	16	16
Poor (<60%)	84	84
Total	100	100

Table (10) shows that the majority (84%) of studied nurses scored poor in their total knowledge related to pneumonia and nursing care provided to children suffering from pneumonia. However, only 16% scored average and none of them scored good level of total knowledge related to pneumonia and nursing care provided to children suffering from pneumonia.

Part IV: Nurses' Practice Regarding Care of Children Suffering from Pneumonia.

Table (11): Number and percentage distribution of nurses' practice regarding oxygen therapy, Suctioning and Chest physiotherapy.

Procedures	Level of Practice			
	Competent		Incompetent	
	No.	%	No.	%
O_2 therapy				
Face mask	3	6.1	46	93.9
Oxygen hood	9	50	9	50
Nasal prongs	1	3	32	97
Suctioning				
Oro-nasal pharynx	5	6.1	78	93.9
Endotracheal	3	17.6	14	82.4
Chest physiotherapy	0	0	100	100

Table (11) clarifies levels of nurses' practice. It was observed that 50% and 17.6% of nurses were competent in relation to Oxygen therapy through oxygen hood and endotracheal suctioning**.** However, most of them with equal percentage (93.9%) were incompetent in both oxygen therapy through facemask and oro -nasal pharynx suctioning.

Table (12): Number and percentage distribution of nurses' practice regarding vital signs, intravenous (IV) therapy and hand washing.

Procedures	Level of Practice			
	Competent		Incompetent	
	No.	%	No.	%
Vital signs:				
Temperature	5	5	95	95
Apical pulse	13	13	87	87
Respiration	8	8	92	92
IV therapy	21	21	79	79
Hand washing	13	13	87	87

Table (12) clarifies that 95%, 87% and 92% of nurses were incompetent in relation to temperature, apical pulse and respiration respectively. Only 5%, 13% and 8% were competent in relation to temperature, apical pulse and respiration respectively**.** As well as, 21% and 13% were competent in intravenous therapy and hand washing.

Table (13): Number and percentage distribution of total nurses' practice regarding care of children suffering from pneumonia.

Level of Practice	Total No. =100	
	No.	%
Competent level of practice.	16	16
Incompetent level of practice.	84	84
Total	100	100

Table (13) shows the total nurses' practice regarding care of children suffering from pneumonia. The highest percentage 84% of studied nurses performed incompetent level of practice and only 16% of nurses achieved a competent level of practice.

Part V: Relations between Level of Nurses' Knowledge Regarding Nursing Care of Children Suffering from Pneumonia and their Characteristics.

Table (14): Relation between total score of nurses' knowledge and their age.

Age in years	Nurses' Knowledge (No=100)					
	Average		Poor		X^2	P
	No	%	No	%		
20 - < 25 years	2	2	36	36	0.130	>0.05
25 - < 30 years	11	11	29	29		
30 - <35 years	0	0	8	8		
35 - <40 years	3	3	11	11		
≥40 years	0	0	0	0		
Total	16	16	84	84		

Table (14) shows that, there was no statistically significant difference between nurses' level of knowledge and their age (X^2 =0.13& P>0.05), as 11% of studied nurses between 25- <30 years had average knowledge about pneumonia, while more than third (36 %) of them aged less than 25 years of age had poor knowledge.

Table (15): Relation between nurses' knowledge and their academic qualification.

Academic Qualification	Nurses' Knowledge (No=100)					
	Average		Poor			
	No	%	No	%	X^2	P
Diploma of Nursing	0	0	71	71		
Technical Institute of Nursing	0	0	13	13	29	<0.001
Bachelor of Nursing	16	16	0	0		
Total	16	16	84	84		

Table (15) shows that, there was a highly statistically significant relation between nurses' knowledge and their qualifications as (X^2 =29 and P < 0.001), where all nurses with diploma 71% had poor level of knowledge. On the other hand, all nurses who had average level of knowledge had Bachelor of nursing.

Table (16): Relation between nurses' knowledge and their experience.

Years of Experience	Nurses' Knowledge (No=100)					
	Average		Poor		X^2	P
	No	%	No	%		
< 2 Years	3	3	7	7		
2 - < 5Years	8	8	21	21		
5 - < 8Years	2	2	27	27	0.138	>0.05
≥ 8 Years	3	3	29	29		
Total	16	16	84	84		

Table (16) shows that, there was no statistically significant relation between nurses' knowledge and their years of experience, (X^2= 0.138 & P>0.05) where the high percentages of them (29% & 27%) who having ≥ 8 and 5-< 8 years had poor level of knowledge respectively.

Table (17): Relation between nurses' knowledge and their attendance of training programs.

Attendance of Training Program	Nurses' Knowledge (No=100)					
	Average		Poor		X^2	P
	No	%	No	%		
Trained Nurse	12	12	3	3	96	<0.001
Untrained Nurse	4	4	81	81		
Total	16	16	84	84		

Table (17) shows that there was a highly statistically significant relation between nurses' knowledge and their attendance of training programs, as (X^2 = 96 & P <0.001) where, the highest percentage of studied nurses (81%) who had not attended training courses had poor level of knowledge.

Table (18): Relation between nurses' knowledge and their working departments.

Working Departments	Nurses' Knowledge (No=100)					
	Average		Poor		X^2	P
	No	%	No	%		
Pediatric Intensive care unit	13	13	27	27	87	<0.001
Inpatient (medicine)	3	3	47	47		
Chest & Allergy	0	0	10	10		
Total	16	16	84	84		

Table (18) clarifies that there was a highly statistically significant difference between nurses' knowledge and their working departments, (X^2 = 87& P <0.001), 13% of studied nurses working at Pediatric Intensive Care had average level of knowledge, while none of studied nurses working in Chest & Allergy Unit had average level of knowledge.

Part VI: Relations between level of nurses' practice regarding nursing care given to children suffering from pneumonia and their characteristics.

Table (19): Relation between nurses' practice and their age.

Age in years	Nurses' Practice (No=100)					
	Competent (≥80%)		Incompetent (< 80%)			
	No	%	No	%	X^2	P
20 - < 25 years	2	2	36	36	64	< 0.001
25 - < 30 years	11	11	29	29		
30 - <35 years	0	0	8	8		
35 - <40 years	3	3	11	11		
Total	16	16	84	84		

Table (19) Shows that, there was a highly statistically significant relation between nurses' practice and their age (X^2 = 64 & P <0.001), where more than third (36%) of nurses between 20-<25 years had incompetent level of practice.

Table (20): Relation between nurses' practice and their academic qualification.

Academic Qualification	Nurses' practice (No=100)					
	Competent		Incompetent		X^2	P
	No	%	No	%		
Diploma of Nursing	0	0	71	71	71	<0.001
Technical Institute of Nursing	0	0	13	13		
Bachelor of Nursing	16	16	0	0		
Total	16	16	84	84		

Table (20) shows that, there was a highly statistically significant relation between nurses' practice and their qualifications ($X^2 = 71$ and $P < 0.001$), where all nurses with diploma (71%) had incompetent level of practice. On the other hand, all nurses who performed competently had Bachelor of nursing.

Table (21): Relation between nurses' practice and their experience.

Years of Experience	Nurses' practice (No =100)					
	Competent		Incompetent		X^2	P
	No	%	No	%		
< 2 years	3	3	7	7	50.57	<0.001
2 - < 5 years	8	8	21	21		
5 - < 8 years	2	2	27	27		
≥ 8 years	3	3	29	29		
Total	16	16	84	84		

Table (21) shows that, there was a highly statistically significant relation between nurses' practice and their years of experience, as (X^2 = 50.57 and P<0.001),where the highest percentage of them (29%) who have ≥ 8 years had incompetent level of practice.

Table (22): Relation between nurses' practice and their attendance of training programs.

Nurses' practice (No=100)						
Attendance of Training Program	**Competent**		**Incompetent**		**X^2**	**P**
	No	**%**	**No**	**%**		
Trained nurse	12	12	3	3	0.143	> 0.05
Untrained nurse	4	4	81	81		
Total	16	16	84	84		

Table (22) shows that there was no statistically significant relation between nurses' performance and their attendance of training programs, (X^2 = 0.143 & P > 0.05).

Table (23): Relation between nurses' practice and their working departments.

Nurses' Practice (No=100)						
Working Departments	**Competent**		**Incompetent**			
	No	**%**	**No**	**%**	**X^2**	**P**
Pediatric Intensive Care Unit	13	13	27	27	4.90	<0.05
Inpatient (Medicine)	3	3	47	47		
Chest & Allergy	0	0	10	10		
Total	16	16	84	84		

Table (23) Clarifies that there was statistically significant difference between nurses' practice and their working departments (X^2 = 4.90 and $P < 0.05$) **.**

Table (24): Relation between nurses' knowledge and their practice regarding nursing care of children suffering from pneumonia.

Level of Practice	Level of the Knowledge N=100					
	Average (no=16)		Poor (no= 84)		X^2	P
	No.	%	No.	%		
Competent level of practice	16	16	0	0	100	< 0.001
Incompetent level of practice	0	0	84	84		
Total	16	16	84	84		

Table (24) clarifies the relation between total nurses' knowledge and their total practice regarding care of children suffering from pneumonia. There was a highly statistically significant difference between nurses' practice and their knowledge X^2 =100 at P-value <0.001, where all nurses who were competent in their practice had an average level of knowledge. However, the majority of them (84%), who had poor score level of knowledge performed incompetently in practice.