Results

The results obtained from the study were presented in the following sequences:

Part (I): Distribution of study sample according to their sociodemographic characteristics of studied nurses, table (1).

Part (II): Distribution of the studied sample according to their agreement about working factors conditions that affect patient safety in general medical and surgical departments and clinical care units (ICU & Heamodialysis unit) at Benha University Hospital table (2-6).

Part (III): Mean and Stander Deviation of the factors that affect patient safety by the departments units at Benha University Hospital table (7).

Part (IV): Correlation between sociodemographic characteristics and working factors that affect patient safety at Benha University Hospital table (8-11).

Table (1) Distribution of the Studied Sample According to their Socio Demographic Characteristics n=120 staff nurse

Item	no	%
Age:		
20-	33	27.5
26-	38	36.7
31-	30	25.0
≥35	19	15.8
Mean ± SD	29.64 ± 5.52	
Job title:		
Staff nurse	91	75.8
Head nurse	5	4.2
Nurse supervisor	24	20.0
Educational qualification:		
Diploma in nursing	85	70.8
Associated degree of nursing	11	9.2
Bachelor degree in nursing	24	20.0
Years of experience:		
1-	26	21.7
5-	42	35.0
10-	31	25.8
15-	21	17.5
20-		
Marital status:		
Single	27	22.5
Married	82	68.3
Widowed	5	4.2
Divorced	6	5.0
Attend Training program on patient safety:		
Yes	59	49.2
No	61	50.8

Table (1) shows a distribution of the studied sample according to their socio demographic characteristics. The result indicated that the total study sample are (120 staff nurses). The highest percentage of them (36.7%) their age ranged between 26-30 years old, as regarding to job title the highest percentage (75.8%) were staff nurses, but as regarding to educational qualification the highest percentage (70.8%) had diploma in

nursing. While the lowest percentage (9.2%) had nursing institution and, as regarding to years of experience the highest percentage (35.0%) ranged between 6-10 years of experience and in relation to marital status the majority of study sample (68.3%) were married. While as regarding of training program the highest percentage (50.8%) not had any training programs about patient safety.

Table (2): Distribution of the Studied Sample According to their level agreement of Work Force Staffing Factors That Affect Patient Safety: no = 120 nurses

Work force staffing factors Item	Departments/Units												X2	P
	ICU n=(17)			Hemodialysis n= (40)			medical n= (33)			Surgical n= (30)				
	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree		
	%	%	%	%	%	%	%	%	%	%	%	%		
1-The health team member plan the care to patient	100	0.0	0.0	100	0.0	0.0	100	0.0	0.0	100	0.0	0.0	-	-
2-There is enough staff nurse to complete the work	41.2	0.0	58.8	12.5	10	77.5	6.1	6.1	87.8	33.4	0.0	66.6	16.86	< 0.05*
3- Nurse depend on assistance to complete nurse care	82.1	5.9	12%	52.5	7.5	40	39.4	12.1	48.5	36.7	0.0	63.3	18.93	< 0.004**
4-Supervisor should be fairness when distribute work on nurse	82.3	5.9	11.8	82.5	0.0	17.5	66.7	12.1	21.2	73.3	0.0	26.7	10.16	> 0.05
5-Assessment for patient's needs for care to determine the number staff for caring	70.6	0.0	29.4	75	2.5	22.5	78.8	6.0	15.2	70	0.0	30	4.84	> 0.05
6- Supervisor when distribute work you should consider the different nursing skills in the unit.	76.5	0.0	23.5	85	2.5	12.5	84.9	12.1	3.0	70	0.0	30	15.99	< 0.05*
7-Taking staff nurses opinion before making roster	76.5	5.9	17.6	87.5	0.0	12.5	81.8	0.0	18.2	90	6.7	3.3	8.21	> 0.05
8-Nursing staff member cooperate with others during providing nursing care	94.1	0.0	5.9	92.5	2.5	5.0	100	0.0	0.0	96.7	0.0	3.3	3.87	> 0.05
9-The word off duty roster workers well	94.1	0.0	5.9	92.5	0.0	7.5	81.8	9.1	9.1	93.3	0.0	6.7	8.45	> 0.05
10-Follow step in the right way to give medication.	100	0.0	0.0	100	0.0	0.0	97	0.0	3.0	100	0.0	0.0	2.65	> 0.05
11-Patient safety is the priority for nursing care	100	0.0	0.0	97.5	0.0	2.5	97	3.0	0.0	100	0.0	0.0	4.65	> 0.05

* A statistical significance P ≤ 0.05

** highly statistical significance P≤ 0.001

Table (3): Distribution of the Studied Sample According to Their agreement about Personal/ Social Factor that Affect Patient Safety at Benha University hospital n = 120 staff nurses

Personal/ social factors Item	Departments/ Units												X2	P
	ICU n=(17)			Hemodialysis n= (40)			medical n= (33)			Surgical n= (30)				
	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree		
	%	%	%	%	%	%	%	%	%	%	%	%		
1-Follow perfect nurse stimulates the staff nurse to work	94.1	0.0	5.9	75	7.5	17.5	63.6	27.3	9.1	73.4	13.3	13.3	11.22	> 0.05
2-There is appreciation and respect among nurse in unit	100	0.0	0.0	87.5	2.5	10.0	87.9	0.0	12.1	96.7	0.0	3.3	5.58	> 0.05
3-patient safety is a common purpose between nurses & nursing supervisors.	94.1	0.0	5.9	95	0.0	5.0	94.0	0.0	6.0	100	0.0	0.0	1.79	> 0.05
4-There is respect and good communication between staff and doctors	94.1	0.0	5.9	90	0.0	10	84.9	3.0	12.1	93.3	0.0	6.7	3.55	> 0.05
5-There is continuous communication between nurses & each other worker in the hospital	94.1	0.0	5.9	92.5	0.0	7.5	94	0.0	6.0	100	0.0	0.0	2.21	> 0.05
6-Nurse working at full capacity with patients	100	0.0	0.0	90	5.0	5.0	87.9	3.0	9.1	100	0.0	0.0	6.53	> 0.05
7-The supervisor of unit is working to resolve conflict between nurses urgently	88.2	0.0	11.8	72.5	2.5	25	66.7	2.5	21.2	60.0	1.0	40.0	12.47	< 0.05*
8-The supervisor listen to problems and complaints of nurses in the unit	94.1	0.0	5.9	87.5	3.0	12.5	81.8	3.0	15.2	73.3	0.0	26.7	6.90	> 0.05
9-Hospital supervisors round on nurses work each shift	82.4	0.0	17.6	90	0.0	10	87.9	0.0	12.1	70.0	0.0	30.0	5.62	> 0.05
10-Nursing supervisor is working to direct and guide nurses during work in the unit	94.1	0.0	5.9	95	3.0	2.5	84.9	3.0	12.1	76.7	0.0	23.3	9.41	> 0.05
11-The availability of freedom for nurses to express on their opinion (e.g. Increase salary)	35.3	0.0	64.7	57.5	2.5	40	39.4	0.0	60.6	33.3	0.0	66.7	7.71	> 0.05

* A statistical significance P ≤ 0.05

Table (4): Distribution of the Studied Sample According to their agreement about Work Flow Design that Affect Patient Safety at Benha University Hospital n=120 staff nurses

Work flow design factors Item	Departments/ Units												X^2	P
	ICU n=(17)			Hemodialysis n= (40)			medical n= (33)			Surgical n= (30)				
	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree		
	%	%	%	%	%	%	%	%	%	%	%	%		
1-Increase the burden of work have a negative impact on patient safety.	88.2	0.0	11.8	92.5	2.5	5.0	94.0	0.0	6.0	76.7	0.0	23.3	8.94	> 0.05
2-The unit is organized and arranged e.g. (Is put supplies and equipment and a cupboard.	100	0.0	0.0	92.5	5.0	2.5	97.0	0.0	3.0	96.7	0.0	3.3	3.79	> 0.05
3-There are appropriate spaces between each bed and another allows for easy movement while nursing care	94.1	0.0	5.9	77.5	0.0	22.5	91.0	0.0	9.0	86.7	0.0	13.3	3.96	> 0.05
4-The presence written policies for conduct of work within the unit so that makes it easier for nurses	100	0.0	0.0	77.5	5.0	17.5	78.8	0.0	21.2	83.3	0.0	16.7	8.18	> 0.05
5-Availability of standards and rules of procedures within the departments of nursing	94.1	0.0	5.9	60.0	0.0	40.0	75.57	0.0	42.2	63.3	0.0	36.7	7.76	< 0.05*
6-A nurse responsible for receiving new cases in the department	58.8	0.0	41.2	60.0	0.0	40.0	48.5	0.0	51.5	66.7	0.0	33.3	2.22	> 0.05
7-Availability of equipment and all supplies in the units	76.5	5.9	17.6	57.5	0.0	42.5	60.6	3.0	36.4	70.0	3.3	26.7	5.55	> 0.05
8-There is a written policy to control the infection in the units	17.6	0.0	82.4	35.0	0.0	65.0	18.2	0.0	81.8	16.7	0.0	83.3	4.58	> 0.05
9-There is a commitment to infection control policies in the units	11.8	0.0	88.2	12.5	12.5	75.0	6.0	94.0	0.0	96.7	3.3	0.0	12.41	< 0.05*

* A statistical significance P ≤ 0.05

Table (5): Distribution of the Studied sample According to their agreement about Environmental Factor That Affect Patient Safety at Benha University Hospital n=120 Staff nurses

Environmental factors Item	ICU n=(17)			Hemodialysis n= (40)			medical n= (33)			Surgical n= (30)			X2	P
	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree		
	%	%	%	%	%	%	%	%	%	%	%	%		
1-There is a good lighting in patient's rooms	88.2	0.0	11.8	90.0	0.0	10.0	75.8	3.0	21.2	90.0	0.0	10.0	5.33	< 0.05*
2-There is a good ventilation in the unit	76.5	0.0	23.5	87.5	0.0	12.5	78.8	0.0	21.2	96.7	0.0	3.3	5.56	> 0.05
3-The unit failed to conduct any smoke or dust	88.2	0.0	11.8	76.5	0.0	12.5	97.0	0.0	3.0	90.0	0.0	10.0	0.25	> 0.05
4-The temperature of the unit is appropriate.	88.2	0.0	11.8	77.5	0.0	22.5	72.7	3.0	24.3	90.0	0.0	10.0	5.93	> 0.05
5-Colors of walls, floors are quiet	94.1	0.0	5.9	75.5	2.5	22.5	75.8	0.0	24.2	76.7	0.0	23.3	4.78	> 0.05
6-Not allowed to smoke, only out side the building	70.6	11.8	17.6	57.5	5.0	37.5	51.5	3.0	45.5	73.3	0.0	26.7	8.53	> 0.05
7-There is a regular maintenance of electrical outlets and oxygen ...etc	82.4	0.0	17.6	60.0	5.0	35.0	69.7	9.0	21.3	83.3	0.0	16.7	8.62	> 0.05
8-There are sign & boards to prevent risks in the unit (e.g. guidance on how to use the fire extinguisher)	94.1	0.0	5.9	50.0	2.5	47.5	84.8	0.0	15.2	70.0	0.0	30.0	7.53	> 0.05
9-Should provide the unit with bed rail sides	47.0	0.0	53.0	72.5	0.0	27.5	97.0	0.0	3.0	86.7	0.0	13.3	19.06	< 0.001**
10-There are especial x-ray machines in the intensive care unit to critical cases.	88.2	0.0	11.8	82.5	0.0	17.5	87.9	0.0	12.1	86.7	0.0	13.3	0.57	> 0.05
11-Availability of all disinfectants and detergents of the unit	64.7	0.0	35.3	82.5	1.0	17.5	66.7	9.0	24.3	53.3	0.0	46.7	15.62	< 0.05*
12-There are security precautions such as iron on windows and in each room in the unit	88.2	0.0	11.8	77.5	0.0	22.5	45.5	6.0	48.5	60.0	0.0	40.0	16.22	< 0.05*
13-Availability of devices or (systems) that provide a good working climate (air condition- fans)	94.1	0.0	5.9	77.5	0.0	22.5	94.0	0.0	6.0	93.3	0.0	6.7	6.84	> 0.05
14-There are wheel chairs and truly equipped to allow transfer cases from one unit to another such as x-ray unit	94.1	0.0	5.9	95.0	0.0	5.0	94.0	0.0	6.0	94.0	0.0	6.0	0.09	> 0.05

* A statistical significance $P \leq 0.05$

** highly statistical significance $P \leq 0.001$

Table (6): Distribution of the Studied Sample According to Their agreement about Organizational Factor That Affect Patient Safety at Benha University Hospital n=120 Staff nurses

Organizational Factors Item	Departments/ Units												X2	P
	ICU n=(17)			Hemodialysis n= (40)			medical n= (33)			Surgical n= (30)				
	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree	Agree	Not sure	Disa-gree		
	%	%	%	%	%	%	%	%	%	%	%	%		
1-Structural planning of the unit allow follow up patients during shifts	82.4	0.0	17.6	82.5	2.5	15.0	94.0	3.0	3.0	90.0	0.0	10.0	4.90	> 0.05
2-Patient's rooms near the nursing station	100	0.0	0.0	100	0.0	0.0	94.0	0.0	6.0	100	0.0	0.0	5.36	> 0.05
3-There is a call for a nurse or phone that works well within the reach of patient	23.5	0.0	76.5	27.5	2.5	70.0	9.0	0.0	91.0	3.3	0.0	96.7	11.79	> 0.05
4-Nursing supervisors are following the policy of accounting errors that occur in the unit	100	0.0	0.0	85.0	5.0	10.0	91.0	0.0	9.0	100	0.0	0.0	9.07	> 0.05
5-Nursing team participate seriously in taking decisions in the unit	88.2	0.0	11.8	80.0	0.0	20.	42.2	.6.0	51.6	70.0	0.0	30.0	18.52	< 0.001**
6-Allow patients to participate in decision-making process for the care of nursing them	47.0	0.0	53.0	55.0	5.0	40.0	51.5	6.0	42.6	50.0	0.0	50.0	3.48	> 0.05
7-Unit supervisors always follow the policy of fair dealing with the nurses	88.2	0.0	11.8	87.5	0.0	12.5	75.8	3.0	21.2	83.3	0.0	16.7	4.07	> 0.05
8-There is an organizational chart, which shows the department leadership in the unit	70.6	0.0	29.4	50.0	2.5	27.2	84.9	3.0	12.1	60.0	0.0	40.0	7.38	> 0.05
9-There is delegation to carry out some tasks from the supervisors to the members of the nursing team, to develop their abilities and practical skills.	64.7	0.0	35.3	80.0	2.5	17.5	91.0	0.0	9.0	86.7	0.0	13.3	7.92	> 0.05
10-There are procedures to ensure confidentiality of the information of the unit	82.4	0.0	17.6	92.5	0.0	7.5	97.0	0.0	3.0	93.3	0.0	6.7	3.50	> 0.05
11-There are methods of effective communication between nurses and doctors according to hospital policies.	100	0.0	0.0	72.5	2.5	25.0	78.8	3.0	18.2	73.3	0.0	26.7	7.22	> 0.05
12-There is policy for reporting errors in the unit (such as the falling of the patient from bed or a wrong in the surgery)	29.4	5.9	64.7	47.5	12.5	40.0	24.3	3.0	72.7	16.7	0.0	83.3	17.07	< 0.004**
13-Discussions occur with the nursing supervisor to prevent mis again as hospital acquired infection.	94.1	0.0	5.9	90.0	2.5	7.5	85.0	6.0	9.0	86.7	0.0	13.3	3.87	> 0.05
14-There is reporting of identify the error or problem by writing incident report	17.6	76.5	5.9	17.6	22.5	60.0	12.1	36.4	51.5	13.3	20.0	66.7	6.55	> 0.05
15-Apply a system of reward and punishment by the administration of the hospital (the application of sanction)	100	0.0	0.0	90.0	0.0	10.0	97.0	0.0	3.0	100	0.0	0.0	13.50	> 0.05

** highly statistical significance $P \leq 0.001$

Table (7): Mean & SD of the Factors Affecting Patient Safety by the Departments/ Units

Items of work factors	ICU		Hemodialysis		Medical		Surgical		T	P
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
1- Work farce staffing factor	3.00	0.00	2.75	0.63	2.69	0.72	3.00	0.00	t = 1.62 t = -2.07	p>0.05 p<0.05*
2- Personal Social Factor	2.88	0.48	2.55	0.84	2.75	0.66	2.86	0.50	t = 1.51 t = 0.72	p>0.05 p>0.05
3- Work flow design	2.88	0.48	2.10	1.00	2.45	0.90	2.66	0.75	t = 3.04 t = -1.00	p<0.004** P>0.05
4- Environmental factor	2.88	0.48	2.75	0.66	2.57	0.83	2.93	0.36	t = 0.73 t = -2.17	p>0.05 P<0.05*
5- Organizational Factor	2.94	0.24	2.30	0.96	2.21	0.99	2.80	0.61	t = 2.68 t = -2.79	P<0.007** P<0.009**

* A statistical significance $P \leq 0.05$
** highly statistical significance $P \leq 0.001$

T1 → critical unit (ICU, dialysis)   P1 → critical unit (ICU, dialysis)
T2 → Medical department and surgical department   P2→ Medical department and surgical department

Table (7) Shows mean & SD of the factors affecting patient safety by the departments. From the table, it can be observed that there is statistical significant difference between medical department and surgical department related to work force staffing factor, also this table shows that, there is highly statistical significant between ICU unit and hemodialysis unit related to work flow design, there is highly statistical significant between medical department and surgical department related to environmental factor, also there is highly statistical significant between medical department, surgical department, I.C.U, and heomodialysis unit related to organizational factor.
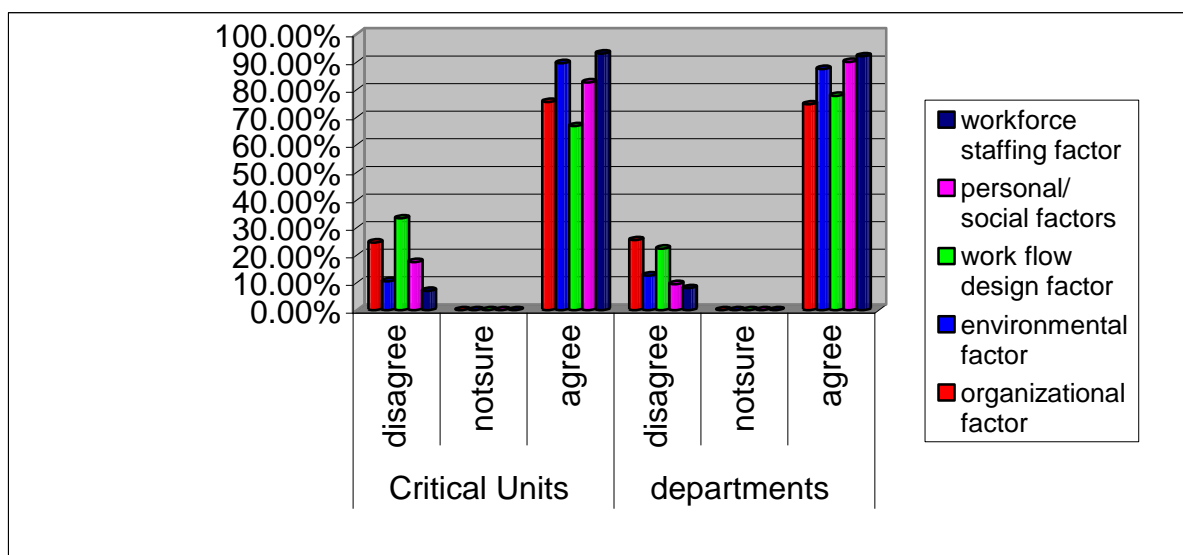
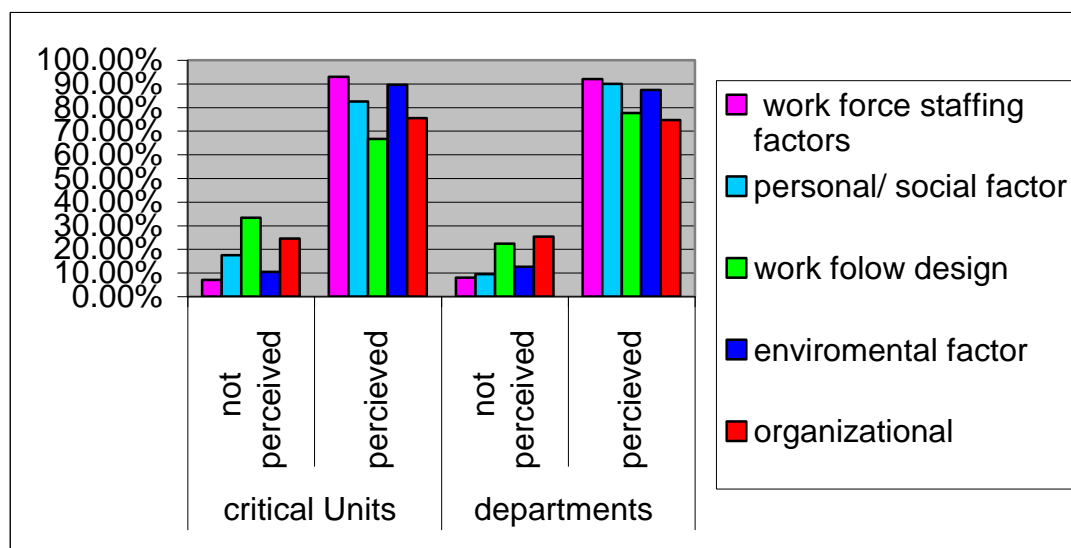Fig. (4) percent of agreement about working factors conditions in the study departments/ units

Fig. (5) Perception of the staff nurse a bout working factors conditions in the study departments / units

Table (8): Correlation Between Age and work factors that Affecting patient safety at Benha University Hospitals

Factors	Age									
Age	20- 25 year		26-30 year		30-35 year		≥ 36 year		F	P
	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Work force staffing factors	2.84	0.50	2.78	0.62	3.00	0.00	2.63	0.76	1.97	>0.05
Personal Social factors	2.69	0.72	2.68	0.73	2.86	0.50	2.68	0.74	0.50	>0.05
Work flow design factors	2.21	0.99	2.57	0.82	2.60	0.81	2.63	0.95	1.38	>0.05
Physical environmental factors	2.69	0.72	2.73	0.86	2.80	0.61	2.89	0.45	0.42	>0.05
Organization factors	2.48	0.87	2.74	0.89	2.53	0.68	2.47	0.90	0.03	>0.05

Table (8) this table shows Correlation Between Age and work factors that Affecting patient safety at Benha University Hospitals. From the table it can be observed that there is no statistical significant difference between Work force staffing factors, Personal Social factors, Work flow design factors, Physical environmental factors and Organization factors related to age that affect patient safety.

Table (9): Correlation between Job Title and Work Factors That Affect Patient Safety at Benha University Hospitals

Factors / Job title	Job Title						F	P
	Nurse		Head Nurse		Supervisor			
	Mean	SD	Mean	SD	Mean	SD		
Work force staffing factors	2.48	0.53	3.00	0.00	2.74	0.58	0.17	>0.05
Personal Social factors	2.47	0.67	3.00	0.00	2.66	0.76	0.27	>0.05
Work flow design factors	2.42	0.90	3.00	0.00	2.50	0.88	0.44	>0.05
Physical environmental factors	2.74	0.67	3.00	0.00	2.83	0.56	0.31	>0.05
Organization factors	2.58	0.80	1.00	0.00	2.25	0.98	0.68	<0.05*

* A statistical significance P ≤ 0.05

Table (9) this table shows that the correlation between job title and work factors effect patient safety at Benha University Hospitals. From the table it can be observed that there is statistical significant correlation between job title and organizational factor , but there is no statistical significant difference with personal social factor, environmental factor, work flow design and work force staffing related to job title.

Table (10): Correlation Between years of Experience and Work Factors That Affect Patient Safety at Benha University Hospital

Factors	Year of Experience								F	P
	1-5 year		6-10 year		11-15 year		16-20 year			
Year of Experience	Mean	SD	Mean	SD	Mean	SD	Mean	SD		
Work force staffing factors	2.88	0.43	2.80	0.59	2.90	0.39	2.71	0.71	0.61	>0.05
Personal Social factors	2.69	0.73	2.66	0.75	2.87	0.49	2.71	0.71	0.58	>0.05
Work flow design factors	2.15	1.00	2.52	0.68	2.61	0.80	2.42	0.92	1.39	>0.05
Environmental factors	2.76	0.65	2.76	0.65	2.67	0.74	2.90	0.43	0.51	>0.05
Organization factors	2.42	0.90	2.57	0.83	2.41	0.92	2.52	0.87	0.24	>0.05

Table (10) this table shows that the correlation Between years of experience and work factors that affect Patient safety at Benha University Hospital. From the table it can be observed that there is no statistical significant correlation between Work force staffing factors, Personal Social factors, Work flow design factors, Physical environmental factors and Organization factors related to years of experience .

Table (11): Correlation between Educational Qualification and Work Factors that Affecting patient Safety at Benha University Hospital

Factors	Educational Qualification							
	Diploma In Nursing		Nursing institution		Bachelor degree		F	P
Educational Qualification	Mean	SD	Mean	SD	Mean	SD		
Work force staffing factors	2.83	0.55	2.40	0.30	2. 79	0.85	0.17	>0.05
Personal Social factors	2.47	0.67	2.81	0.60	2.66	0.67	0.20	>0.05
Work flow design factors	2.50	0.86	2.09	1.04	2.41	0.92	1.06	>0.05
Physical environmental factors	2.71	0.70	2.81	0.60	2.91	0.40	0.92	>0.05
Organization factors	2.60	0.80	2.00	1.00	2.33	0.96	0.90	<0.05*

* A statistical significance $P \leq 0.05$

Table (11) this table shows that the correlation between Educational qualification and work factors that affecting patient safety at Benha University Hospital. From the table it can be observed that there is statically significant correlation between organization factors related to educational qualification while there is no statistical significant correlation between work force staffing, personal social factor, environmental factor and work flow design related to educational qualification.