

RESULTS

Table (1): Personal and job characteristics of jury groups

	Jury group					
	Nursing				Medical (n=10)	
	Internal (n=10)		External (n = 16)			
	No	%	No	%	No	%
Qualification:						
Bacheloreat	7	70.0	0	0.0	2	20.0
Master	2	20.0	0	0.0	4	40.0
Doctorate	1	10.0	16	100.0	4	40.0
Job position						
Nursing hospitals	10	100.0	0	0	0	0.0
Resident	0	0.0	0	0.0	1	10.0
Assistant lecturer	0	0.0	0	0	4	40.0
Lecturer	0	0.0	8	50.0	4	40.0
Assistant professor	0	0.0	4	25.0	0	0.0
Professor	0	0.0	4	25.0	1	10.0
Department:						
Urosurgery	1	10.0	0	0.0	2	20.0
Nursing administration	3	30.0	8	50.0	0	0.0
General surgery	0	0.0	0	0.0	8	80.0
Medical surgical nursing	0	0.0	8	50.0	0	0.0
Emergency	1	10.0	0	0.0	0	0.0
Ophthalmology	2	20.0	0	0.0	0	0.0
Neurosurgery	3	30.0	0	0.0	0	0.0
Hospital/faculty						
Benha university hospital	10	100.0	0	0	10.0	100.0
Benha faculty of nursing	0	0	2	12.5	0	0.0
Ain Shams faculty of nursing	0	0.0	7	43.7	0	0.0
Cairo faculty of nursing	0	0.0	7	43.7	0	0.0

Table (1): Shows personal and job characteristics of jury groups. From the table, it can be observed that the number of Jury group were (36). They were divided into medical and nursing. The medical jury was 10 surgeons from Benha operating departments with the condition that they have one year experience and the majority of them 40% were assistant lecturer and lecturer and 80% of them were from general surgery. The nursing jury were (26) divided into internal (10) the majority of them 70% were baccalaureate nurses working in the OR departments of Benha university hospital and the external jury were (16) experts from nursing faculty members. They were equally distributed at nursing service administration and medical surgical nursing departments from Benha Cairo, Ain Shams university hospital and the highest percent of them (50%) were lecturers.

Table (2): Agreement of jury groups about content validity of the proposed standards as regard to philosophy, organizational structure and job description.

	Jury group						X ² test	p- value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
1- Operating department should have philosophy and objectives in accordance with hospital policy.	10	100.0	16	100.0	10	100.0	-	-
Philosophy and objectives are written.	10	100.0	16	100.0	10	100.0	-	-
Philosophy and objectives are available	10	100.0	16	100.0	10	100.0	-	-
2- There should be an identified organizational structure that indicates responsibilities and authorities among or personnel.	10	100.0	16	100.0	9	90.0	2.67	0.26
Authority and responsibility are clearly depicted through an organizational chart	10	100.0	16	100.0	9	90.0	2.67	0.26
The chart is clearly depicted	10	100.0	16	100.0	9	90.0	2.67	0.26
The chart is posted	10	100.0	16	100.0	9	90.0	2.67	0.26
3- There should be job description that describes jobs of nursing personal.	10	100.0	16	100.0	10	100.0	-	-
All nursing jobs are determined and identified through job description	10	100.0	16	100.0	10	100.0	-	-
Jobs are compatible with nursing specialties	10	100.0	16	100.0	10	100.0	-	-
Job descriptions are clear	10	100.0	16	100.0	10	100.0	-	-
Job descriptions are available	10	100.0	16	100.0	10	100.0	-	-
Job descriptions are reviewed periodically	8	80.0	15	93.8	10	100.0	2.78	0.25

*Significance P< 0.05

Table (2): This table shows agreement of jury groups about content validity of the proposed standards as regard philosophy, organizational structure, and job description. From the table, it can be observed that 100% of jury group agreement were for the philosophy and 100% of nursing jury agreement, 90% of medical jury about organizational structure and 100% of the nursing and medical jury agreement for job description and only 80% and 93.8% agreement from nursing hospital members and faculty members respectively for reviewing job description periodically.

Table (3): Agreement of jury groups about content validity of the proposed standard as regard to staffing & documentation system.

	Jury group						X ² test	p-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
4- staff for or should be done according to identified principles	10	100.0	16	100.0	10	100.0	-	-
or department should be directed by a registered professional nurse	10	100.0	16	100.0	10	100.0	-	-
registered nurse is available throughout 3 shifts	10	100.0	15	93.8	10	100.0	1.29	0.53
nursing care is provided through 3 categories:								
circulating nurse	10	100.0	16	100.0	10	100.0	-	-
scrubbed nurse	10	100.0	16	100.0	10	100.0	-	-
anesthesia nurses	10	100.0	15	93.8	10	100.0	1.29	0.53
5- there should be a documentation system which record the following:	10	100.0	16	100.0	10	100.0	-	-
patient's conditions	8	80.0	13	81.3	10	100.0	2.24	0.33
dosage of all drugs and agents used	10	100.0	16	100.0	10	100.0	-	-
type and amount of all fluids administered	10	100.0	15	93.8	10	100.0	1.29	0.53
unusual events during surgical procedures	10	100.0	15	93.8	10	100.0	1.29	0.53
adverse reactions and measures used to manage them	10	100.0	15	93.8	10	100.0	1.29	0.53
type of anesthesia used	10	100.0	15	93.8	10	100.0	1.29	0.53
pertinent data collected through physiologic and psychological assessment	10	100.0	15	93.8	10	100.0	1.29	0.53
blood loss	8	80.0	15	93.8	10	100.0	2.78	0.25
urinary and drainage output tubes and drains	7	70.0	15	93.8	10	100.0	2.25	0.07
tubes and drains	7	70.0	15	93.8	10	100.0	5.25	0.07

Table (3): Illustrates agreement of jury groups about content validity of the proposed standard as regard to staffing and documentation system from the table, it can be observed that the lowest agreement related to staffing was 93.8% in external jury for two items availability of registered nurses throughout 3 shifts and the category of anesthesia nurses for providing nursing care in the ORS. Also, the lowest agreement related to documentation system was 80% in internal jury and 81.3% in external jury for monitoring of patients' conditions, 80% in internal and 93.8% in external for documenting of blood loss, and 70% in internal and 93.8% in external about documenting urinary and drainage output, tubes and drains during the perioperative period.

Table (4): Agreement of jury groups about content validity of the proposed standards as regard polices and procedures, infection control guidelines, and performance appraisal system.

	Jury group						X ² test	P-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
- policies and procedures related to or should be collected in a policy manual	10	100.0	16	100.0	10	100.0	0.00	1.00
6-1 policies and procedures should be consistent with current standards of practice	10	100.0	16	100.0	10	100.0	0.00	1.00
6-2 clearly written	10	100.0	16	100.0	10	100.0	0.00	1.00
6-3 current and dated	10	100.0	16	100.0	10	100.0	0.00	1.00
6-4 accessible to nursing personal	10	100.0	16	100.0	10	100.0	0.00	1.00
- written guidelines for infection control must be available in or and known to all nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
-1 guidelines are approved through appropriate hospital mechanism	10	100.0	15	93.8	10	100.0	1.29	0.53
guidelines include:								
principles of asepsis	10	100.0	15	93.8	10	100.0	1.29	0.53
sterilization and disinfections	10	100.0	15	93.8	10	100.0	1.29	0.53
Maintenance and surveillance of sterilization equipment	10	100.0	15	93.8	10	100.0	1.29	0.53
The sanitation of all rooms and equipment used	10	100.0	15	93.8	10	100.0	1.29	0.53
The selection of draping and gowning materials	10	100.0	15	93.8	10	100.0	1.29	0.53
Preoperative skin or body cavity preparation of patients	9	90.0	15	93.8	10	100.0	0.98	0.61
Method of control of traffic movement in or	10	100.0	15	93.8	10	100.0	1.29	0.53
- there should be performance appraisal system that evaluates nursing personnel in the unit	10	100.0	16	100.0	10	100.0	0.00	1.00
-1 it is based on nursing personnel job description	10	100.0	16	100.0	10	100.0	0.00	1.00
-2 it is clear	10	100.0	16	100.0	10	100.0	0.00	1.00
-3 it is known to all nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00

Table (4): This table shows, agreement of jury groups about content validity of the proposed standards as regard policies and procedures, infection control guidelines, and performance appraisal system. It can be observed that all jury group agreed upon policies and procedures related to OR should be collected in a policy manual, consistent with current standards of practice, clearly written current and dated, accessible to nursing personnel. As regard to infection control all agreements were 100% in internal and medical and 93.8% in external jury about all items related to availability of written guidelines for infection control in OR and to be known to all nursing personnel except for the item of preoperative skin or body cavity preparation of patients, the agreement was 90% in internal and 93.8% in external jury and as regards performance appraisal system for OR personnel, all agreements were 100% in internal and medical jury and 93.8% in external jury.

Table (5): Agreement of jury groups about content validity of the proposed standards as regard activities of the circulating nurses in the operating departments.

	Jury group						X ² test	P-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
9- the care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualifications								
9-1 a qualified nurse is assigned to circulating nurse duties for department. These duties includes:	8	80.0	12	75.0	10	100.0	2.88	0.24
Assure that supplies and equipment are sterile	10	100.0	14	87.5	10	100.0	2.65	0.27
Follow mechanism of infection control principles which are:	10	100.0	9	56.3	10	100.0	10.86	< 0.001*
Principles of asepsis	10	100.0	9	56.3	10	100.0	10.86	< 0.001*
Sterilization and disinfection	10	100.0	9	56.3	10	100.0	10.86	< 0.001*
Document maintenance and surveillance of sterilization equipment	9	90.0	9	56.3	10	100.0	8.01	0.02*
The sanitation of all rooms and equipment used	10	100.0	9	56.3	10	100.0	10.86	< 0.001*
The selection of draping and gowning materials	9	90.0	9	56.3	10	100.0	8.01	0.02*
Preoperative skin or body cavity preparation of patients	10	100.0	9	56.3	10	100.0	10.86	< 0.001*
Method of control of traffic movement in or	10	100.0	9	56.3	10	100.0	10.86	< 0.001*
Effectively prepare the environment:	10	100.0	16	93.8	10	100.0	1.29	0.53
Documents patients' conditions	10	100.0	15	93.8	8	80.0	2.78	0.25
Reports patients' conditions	10	100.0	15	93.8	9	90.0	0.98	0.61

(*) Statistically significant at P < 0.05.

Table (5): This table shows agreement of jury groups about content validity of the proposed standard as regard the activities of the circulating nurses in the operating departments from the table, it can be observed that there is a significant difference ($\chi^2 = 10.86$, $P < 0.001$) between nursing and medical jury related to follow mechanism of infection control principles which include, principles of asepsis, sterilization and disinfection, document maintenance and surveillance of sterilization equipment, the sanitation of all rooms and equipment used, the selection of draping and gowning materials,, preoperative skin or body cavity preparation of patients and method of control of traffic movements in OR.

Table (6): Agreement of jury groups about content validity of the proposed standard as regard the activities of the scrubbing nurses in the operating departments.

	Jury group						X ² test	P- value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
9-2 a qualified registered nurse should be assigned to scrubbing activities which are:	10	100.0	16	100.0	10	100.0	0.00	1.00
Assure that surgical services are consistent with patients' needs	9	90.0	16	100.0	10	100.0	2.67	0.26
Prepare equipment for each specified surgery	10	100.0	15	93.8	10	100.0	1.29	0.53
Use mechanism designed to assure sterilization of the equipment used	10	100.0	13	81.3	9	90.0	2.21	0.33
Follow principles of a septic techniques	10	100.0	14	87.5	9	90.0	1.31	0.52
Handle the surgeon with sterile equipment	10	100.0	16	100.0	10	100.0	-	-
Use approaches to effectively monitor and evaluate patients conditions	9	90.0	15	93.8	10	100.0	0.98	0.61
Approaches to effectively count sponges, gauze and instruments before wound closure	10	100.0	15	93.8	10	100.0	1.29	0.53

Table (6): Shows agreement of jury groups about content validity of the proposed standard as regard the activities of the scrubbing nurses in the operating departments. It can be observed that the lowest agreement in internal jury was 90% related to the items of assuring that surgical services are consistent with patients needs and use approaches to effectively monitor and evaluate patients conditions and the lowest agreement in the external jury was 81.3% and the lowest agreement in medical jury was 90% for the item use mechanism designed to assure sterilization of equipment used.

Table (7): Agreement of jury groups about content validity of the proposed standards as regard patient knowledge

	Jury group						X ² test	P-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
10- patients should demonstrate knowledge of the physiological and psychological responses to the process of surgical intervention	10	100.0	16	100.0	9	90.0	2.67	0.26
10-1 patients should confirms verbally and in writing consent for operative procedure	8	80.0	13	81.3	10	100.0	2.24	0.33
10-2 describes sequence of events during perioperative period	4	40.0	14	87.5	10	100.0	11.99	< 0.001*
10-3 state outcome expectations in realistic terms	3	30.0	11	68.8	6	60.0	3.85	0.15
10-4 expresses feelings about surgical experience	9	90.0	15	93.8	10	100.0	0.98	0.61

(*) Statistically significant at P < 0.05.

Table (7): Shows agreement of jury groups about content validity of the proposed standards as regard knowledge. From the table, it is obvious that there is a positive significant difference between nursing and medical jury in relation to the item of describing sequence of events during perioperative period.

Table (8): Agreement of jury groups about content validity of the proposed standards as regard patients' safety

	Jury group						X2 test	P-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
11- patient should be free from physical injury:	10	100.0	16	100.0	10	100.0	-	-
11-1 skin breakdown or irritation, neuromuscular injury, cardio-pulmonary compromise	10	100.0	16	100.0	10	100.0	-	-
12- patient should be free from chemical injury:	10	100.0	16	100.0	10	100.0	-	-
12-1 rash or blistering	10	100.0	16	100.0	10	100.0	-	-
12-2 allergic reaction	10	100.0	16	100.0	10	100.0	-	-
12-3 burn and respiratory distress	10	100.0	16	100.0	10	100.0	-	-
13- patient should be free from electrical injury:								
13-1 patients has no signs and symptoms of electrical injury	10	100.0	16	100.0	10	100.0	-	-
14- patients should be free from signs and symptoms of injury related to positioning	10	100.0	16	100.0	10	100.0	-	-
14-1 patients maintains full range of motion and adequate sensation post-operatively	10	100.0	16	100.0	10	100.0	-	-
14-2 patient should not experience nerve or muscle damage from inadequate or improper padding or positioning during surgery	10	100.0	16	100.0	10	100.0	-	-
15- patient's fluid and electrolyte balance should be maintained	7	70.0	9	56.3	7	70.0	0.73	0.69
15-1 mental orientation should be consistent with the preoperative level.	7	70.0	12	75.0	8	80.0	0.27	0.88
15-2 elimination processes are consistent with operative procedure	7	70.0	12	75.0	8	80.0	0.27	0.88
15-3 fluid and electrolyte balance is consistent with preoperative status	9	90.0	14	87.5	10	100.0	1.31	0.52

(*) Statistically significant at $p < 0.05$.

Table (8): Illustrates agreement of jury groups about content validity of the proposed standard as regard safety. From the table, it can be noticed that all jury group agreed upon the items; patient should be free from physical, chemical, electrical and injury related to positioning but the lowest score 70% was in internal jury for the items patient's fluid and electrolyte balance should be maintained and elimination processes are consistent with the operative procedure, but the lowest scores in medical and external jury were 56.3% and 70% respectively for the item patient's fluid and electrolyte balance should be maintained. .

Table (9): Agreement of jury groups about content validity related to different categories of the proposed standards.

	Jury group						X ² test	P-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
Operating department should have philosophy and objectives in accordance with the hospital	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be an identified organizational structure that indicates responsibilities and authorities among operating departments personnel	10	100.0	16	100.0	9	90.0	2.67	0.26
There should be job description that describes jobs of nursing personnel	10	100.0	16	100.0	10	100.0	00.0	1.00
Staffing for or should be according to identified principles	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be a documentation system:	10	100.0	16	100.0	10	100.0	0.00	1.00
Policies and procedures related to or should be collected in a policy manual	10	100.0	16	100.0	10	100.0	0.00	1.00
Written guidelines for infection control must be available in or and known to all nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be performance appraisal system that evaluates nursing personnel in the unit	10	100.0	16	100.0	10	100.0	0.00	1.00
The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualification (scrubbing & circulating activities)	10	100.0	9	56.3	10	100.0	10.86	< 0.001*
Patient should demonstrate knowledge of the physiological and psychological response to surgical intervention	3	30.0	13	81.3	9	90.0	10.37	0.006*
The patient should be free from injury.	8	80.0	15	93.8	10	100.0	2.78	0.25

(*) Statistically significant at P < 0.05.

Table (9): Illustrates agreement of jury groups about content validity related to different categories of the proposed standard. From the above table one can detect that there is a significant difference between different categories of the items, the care of patients who undergo surgery (activities of scrub and circulating nurses) and patient should demonstrate knowledge of the physiological and psychological responses to surgical intervention.

Table (10): Agreement of jury groups about face validity of the OR proposed standards regarding its looking like standard

	Jury group						X2 test	P-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
Operating department should have philosophy and objectives in accordance with hospital policy	10	100.0	16	100.0	1	10.0	31.20	< 0.001*
There should be an identified organizational structure that indicates responsibilities and authorities among or personnel	10	100.0	16	100.0	2	20.0	26.74	< 0.001*
There should be job description that describes jobs of nursing personnel	10	100.0	16	100.0	1	10.0	31.20	< 0.001*
Staffing for or should be according to identified principles	10	100.0	16	100.0	2	20.0	26.74	< 0.001*
There should be documentation system:	10	100.0	16	100.0	2	20.0	26.74	< 0.001*
Policies and procedures related to or should be collected in a policy manual	10	100.0	16	100.0	1	10.0	31.20	< 0.001*
Written guidelines for infection control must be available in or and known to all nursing personnel	10	100.0	16	100.0	1	10.0	31.20	< 0.001*
There should be performance appraisal system that evaluates nursing personnel in the unit	10	100.0	16	100.0	1	10.0	31.20	< 0.001*
The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualification	10	100.0	9	56.3	2	20.0	13.22	< 0.001*
Patient should demonstrate knowledge of the physiological and psychological response to surgical intervention	3	100.0	13	81.3	2	20.0	16.97	< 0.001*
The patient should be free from injury	8	100.0	14	87.5	1	100.0	23.51	< 0.001*

(*) Statistically significant at $P < 0.05$.

Table (10): shows agreement of jury groups about face validity of the OR proposed standards regarding its looking like standard. From the table, it can be noticed that there is a significant difference between nursing and medical jury agreement in relation to all items of the proposed standards.

Table (11): Agreement of jury groups about face validity of the OR proposed standards regarding its achievability

	Jury group						X ² test	P-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
Operating department should have philosophy and objectives in accordance with hospital.	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be an identified organizational structure that indicates responsibilities and authorities among or personnel.	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be job description that describes jobs of nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
Staffing for or should be done according to identified principles	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be a documentation system:	10	100.0	16	100.0	10	100.0	0.00	1.00
Policies and procedures related to or should be collected in a policy manual	10	100.0	16	100.0	10	100.0	0.00	1.00
Written guidelines for infection control must be available in or and known to all nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be performance appraisal system that evaluates nursing personnel in the unit	10	100.0	16	100.0	10	100.0	0.00	1.00
The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualification	10	100.0	9	56.3	10	100.0	10.86	< 0.05*
Patient should demonstrate knowledge of the physiological and psychological response to surgical intervention	7	70.0	13	81.3	10	90.0	1.29	0.53
The patient should be free from injury	9	90.0	15	93.8	10	100.0	0.98	0.61

(*) Statistically significant at P < 0.05.

Table (11): Illustrates agreement of jury groups about face validity of the proposed standards regarding its achievability. From the above table, it can be observed that there is a significant difference between the agreement of nursing and medical jury about the responsibility of the licensed qualified nursing. personnel in the OR.

Table (12): Agreement of jury groups about face validity of the OR proposed standard regarding time specific

	Jury group						X ² test	P-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No	%	No	%	No	%		
Operating department should have philosophy and objectives in accordance with hospital policy	3	30.0	16	100.0	9	90.0	18.64	< 0.001*
There should be an identified organizational structure that indicates responsibilities and authorities among or personnel	3	30.0	16	100.0	10	100.0	22.59	< 0.001*
There should be job description that describes jobs of nursing personnel	3	30.0	16	100.0	10	100.0	22.59	< 0.001*
Staffing for or should be according to identified principles	6	60.0	16	100.0	10	100.0	11.70	< 0.001*
There should be a documentation system:	10	100.0	15	93.8	9	90.0	0.98	0.61
Policies and procedures related to or should be collected in a policy manual	4	40.0	15	93.8	10	100.0	14.69	< 0.001*
Written guidelines for infection control must be available in or and known to all nursing personnel	9	90.0	15	93.8	10	100.0	0.98	0.61
There should be performance appraisal system that evaluates nursing personnel in the unit	8	80.0	16	100.0	10	100.0	5.51	0.06
The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualification	10	100.0	9	56.3	10	100.0	10.86	<0.001*
Patient should demonstrate knowledge of the physiological and psychological response to surgical intervention	5	50.0	13	81.3	9	90.0	4.87	0.09
The patient should be free from injury	10	100.0	15	93.8	10	100.0	1.29	0.53

(*) Statistically significant at P < 0.05.

Table (12): Shows agreement of jury groups about face validity of the proposed standard regarding time specific from the above table, it can be observed that there is a significant difference between nursing and medical jury agreement about the items operating department should have philosophy, job description, organizational structure, staffing for OR should be done according to identified principles, policies and procedures should be collected in a policy manual and the care patients who undergo surgery.

Table (13): Agreement of jury groups about face validity of OR proposed standards regarding its measurability

	Jury group						X ² Test	p-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No.	%	No.	%	No.	%		
Operating department should have philosophy and objectives in accordance with hospital policy	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be an identified organizational structure that indicates responsibilities and authorities among OR personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be job description that describes jobs of nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
Staffing for OR should be done according to identified principles	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be a documentation system:	10	100.0	16	100.0	10	100.0	0.00	1.00
Policies and procedures related to OR should be collected in a policy manual	10	100.0	16	100.0	10	100.0	0.00	1.00
Written guidelines for infection control must be available in OR and known to all nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be performance appraisal system that evaluates nursing personnel in the unit	10	100.0	16	100.0	10	100.0	0.00	1.00
The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualification	10	100.0	9	56.3	10	100.0	10.86	<0.001*
Patient should demonstrate knowledge of the physiological and psychological responses to surgical intervention	9	90.0	13	81.3	9	90.0	0.57	0.75
The patient should be free from injury	10	100.0	14	87.5	10	100.0	2.65	0.27

(*) Statistically significant at $p < 0.05$

Table (13): Illustrates agreement of jury groups about face validity of the OR proposed standards regarding its measurability. From the table, it can be noticed that there is a significant difference $X^2 10.86$, $P < 0.001$ between nursing and medical jury agreement about the care of patients. Who undergo surgery.

Table (14): Agreement of jury groups about face validity of the OR proposed standard regarding its being clear

	Jury group						X ² Test	p-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No.	%	No.	%	No.	%		
Operating department should have philosophy and objectives in accordance with hospital policy	10	100.0	16	100.0	10	100.0	-	-
There should be an identified organizational structure that indicates responsibilities and authorities among OR personnel	10	100.0	16	100.0	10	100.0	-	-
There should be job description that describes jobs of nursing personnel	10	100.0	16	100.0	10	100.0	-	-
Staffing for OR should be done according to identified principles	10	100.0	16	100.0	10	100.0	-	-
There should be a documentation system to record:	10	100.0	15	93.8	10	100.0	1.29	0.53
Policies and procedures related to OR should be collected in a policy manual	10	10.0	15	93.8	10	100.0	1.29	0.53
Written guidelines for infection control must be available in OR and known to all nursing personnel	9	90.0	14	87.5	10	100.0	1.31	0.52
There should be performance appraisal system that evaluates nursing personnel in the unit	10	100.0	16	100.0	10	100.0	-	-
The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualification	10	100.0	9	56.3	9	90.0	8.01	0.02*
Patient should demonstrate knowledge of the physiological and psychological responses to surgical intervention	5	50.0	11	68.8	9	90.0	3.78	0.15
The patient should be free from injury	10	100.0	14	87.5	10	100.0	2.65	0.27

(*) Statistically significant at $p < 0.05$

Table (14): Illustrates agreement of jury groups about face validity of the OR proposed standard regarding its being clear. From the above table, it can be observed that there is a significant difference $X^2 8.01$, $P = 0.02$ between nursing and medical jury about the care of patients who undergo surgery.

Table (15): Agreement of jury groups about face validity of the operating department proposed standards regarding its being written in context of operating room nursing care

	Jury group						X ² Test	p-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)					
	No.	%	No.	%	No.	%		
Operating department should have philosophy and objectives in accordance with hospital	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be an identified organizational structure that indicates responsibilities and authorities among OR personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be job description that describes jobs of nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
Staffing for OR should be done according to identified principles	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be a documentation system:	10	100.0	16	100.0	10	100.0	0.00	1.00
Policies and procedures related to OR should be collected in a policy manual	10	100.0	16	100.0	10	100.0	0.00	1.00
Written guidelines for infection control must be available in OR and known to all nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be performance appraisal system that evaluates nursing personnel in the unit	10	100.0	16	100.0	10	100.0	0.00	1.00
The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualification	10	100.0	9	56.3	10	100.0	10.86	<0.001*
Patient should demonstrate knowledge of the physiological and psychological responses to surgical intervention	10	100.0	13	81.3	9	90.0	2.21	0.33
The patient should be free from injury	10	100.0	16	100.0	10	100.0	0.00	1.00

(*) Statistically significant at $p < 0.05$

Table (15): Reveals agreement of jury groups about face validity of the OR proposed standards regarding its being written in the context of OR nursing care. From the above table, it can be noticed that there is a significant difference $X^2 = 10.86$, $P < 0.001$ between nursing and medical jury agreement about the care should be preferred to the pts. Who undergo surgery.

Table (16): Agreement of jury groups about face validity of the OR proposed standards regarding its relevance to nursing field

	Jury group						X ² Test	p-value
	Nursing				Medical (n=10)			
	Internal (n=10)		External (n=16)		No.	%		
	No.	%	No.	%	No.	%		
Operating department should have philosophy and objectives in accordance with hospital	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be an identified organizational structure that indicates responsibilities and authorities among OR personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be job description that describes jobs of nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
Staffing for OR should be done according to identified principles	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be a documentation system:	10	100.0	16	100.0	10	100.0	0.00	1.00
Policies and procedures related to OR should be collected in a policy manual	10	100.0	16	100.0	10	100.0	0.00	1.00
Written guidelines for infection control must be available in OR and known to all nursing personnel	10	100.0	16	100.0	10	100.0	0.00	1.00
There should be performance appraisal system that evaluates nursing personnel in the unit	10	100.0	16	100.0	10	100.0	0.00	1.00
The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualification	10	100.0	16	100.0	10	100.0	0.00	1.00
Patient should demonstrate knowledge of the physiological and psychological responses to surgical intervention	10	100.0	16	100.0	10	100.0	0.00	1.00
The patient should be free from injury	10	100.0	16	100.0	10	100.0	0.00	1.00

(*) Statistically significant at p<0.05

Table (16): represents agreement of jury groups about face validity of the OR proposed standards regarding its relevance to the nursing field. From the table, one can detect that all jury group agreed upon the items there should be documentation system, policies and procedures related to OR should be collected in a policy manual written guidelines for infection control in OR, performance appraisals system in OR, the care should be preferred to patients who undergo surgery, patient should demonstrate knowledge and patient should be free from in jury.

Table (17): Circulating nurses performance tasks related to care of patients undergoing surgery as observed among nurses in the study sample (n=70)

	Done (60%+)	
	No.	%
1- The care of patients who undergo surgery should be the responsibility of licensed nursing personnel with appropriate qualifications		
1.1. A qualified nurse is assigned to circulating nurse duties for the operating room these duties include:		
Assure that the supplies and equipment are sterile	31	44.3
Follow mechanism of infection control principles which are:		
Principles of asepsis	31	44.3
Sterilization and disinfection	0	0.0
Maintenance and surveillance of sterilization equipment	45	64.3
The sanitation of all rooms and equipment used	0	0.0
Selection of draping and gowning materials	70	100.0
Preoperative skin or body cavity preparation of patients	0	0.0
Method of control of traffic movement in operating room	15	21.4
Prepare the environment:	0	0.0
Document patients' conditions	0	0.0
Reports patients condition	0	0.0

Table (17): reveals circulating nurses performance tasks related to care of patients undergoing surgery as observed among nurses in the study sample. From the table, it can be observed that all nurses done the following items unsatisfactory >60% sterilization and disinfection, sanitation of all rooms and equipment used, preoperative skin or body cavity preparations of patients, prepare the environment, documents patients' conditions and reports' patients information.

Table (18): Scrubbing nurses performance of tasks related to care of patients undergoing surgery as observed among study nurses (sample n = 70)

	Done (60%+)	
	No.	%
1.2. A qualified registered nurse should be assigned to scrubbing activities these activities are:		
Assure that surgical services are consistent with patients' needs	0	0.0
Prepare equipment for each specified surgery	70	100.0
Follow mechanism designed to assure sterilization of the equipment used	41	58.6
Follow principles of a septic techniques	55	78.6
Handle the surgeon with sterile equipment	70	100.0
Use approaches to effectively monitor patient's conditions	0	0.0
Use approaches to effectively count sponges, gauze and instruments before wound closure	0	0.0

Table (18): illustrates scrubbing nurses performance of tasks related to care of patients undergoing surgery as observed among nurses in the study sample. From the table, it can be noticed that all the study sample of nurses prepare equipment for each specified surgery and handle the surgeon with sterile equipment in a satisfactory result more than 60% and all nurses of the study sample done the following items unsatisfactory less than 60% assure that surgical services are consistent with patients needs, use approaches to effectively monitor and evaluates patients conditions and use approaches to effectively count sponges, gauze and instruments before wound closure.

Table (19): Performance of tasks related to knowledge of patients undergoing surgery

	Done (60%+)	
	No.	%
1. Patient should demonstrate knowledge of physiological and psychological responses to process of surgical intervention		
1.1 Patient confirms verbally and in writing consent for operative procedure	70	100.0
1.2 Describes sequence of events during perioperative period	70	100.0
1.3 States outcome expectations in realistic terms	0	0.0
1.4 Expresses feelings about surgical experience	70	100.0

Table (19): shows performance of tasks related to knowledge of patients undergoing surgery, from the table, it can be observed that non of perioperative patients states outcome expectations in realistic terms.

Table (20): Perioperative patient outcome scores.

	No.	%
1. Patient is free from physical injury		
1.1 Skin breakdown	70	100.0
1.2 Irritation	70	100.0
1.3 Neuro-muscular injury	70	100.0
2. Patient is free from chemical injury		
2.1 Rash or blistering	70	100.0
2.2 Allergic reaction	70	100.0
2.3 Burn and respiratory distress	70	100.0
3. Patient is free from electrical injury		
3.1 Patient has no signs/symptoms of electrical injury	70	100.0
4. Patient is free from sign and symptoms of injury related to positioning:		
4.1 Patient maintains full range of motion and adequate sensation post operatively	70	100.0
4.2 Patient does not experience nerve or muscle damage	70	100.0
5. Patient's fluid and electrolyte balance is maintained:		
5.1 Mental orientation is consistent with preoperative level	70	100.0
5.2 Fluid and electrolyte balance is consistent with preoperative status	70	100.0
5.3 No discrepancies in intake and output (hypotension, palpitations, or abnormal values).	70	100.0
6. Patient is free from circulation hazards:		
6.1 Tachycardia	70	100.0
6.2 Hypotension	70	100.0
6.3 Decreased urine output	70	100.0
6.4 Cold	0	0.0
6.5 Excessive bloody output	70	100.0
6.6 Clammy skin	0	0.0

Table (20): illustrates perioperative patients outcome scores as observed by nurses in the study sample. From the table, it can be noticed that all patients were free from physical, chemical, electrical and positioning related to injury, fluid and electrolyte balance was maintained and in relation to circulation hazards, all patients had cold skin.

Table (21): Circulating nurses performance tasks related to care of patients undergoing surgery as observed among nurses in the study sample by departments

	Departments (%)					X ² (p-value)
	Surgery (n=14)	Orthop. (n=16)	ENT (n=15)	Urosurg. (n=15)	Neurosurg. (n=10)	
1- Assure that the supplies and equipment are sterile	0.0	100.0	0.0	100.0	0.0	--
2- Follow mechanism of infection control principles in handling which:						
2-1 Follow principles of asepsis	0.0	100.0	0.0	100.0	0.0	--
2-2 Use sterilization and disinfection	0.0	0.0	0.0	0.0	0.0	0.00(1.00)
2-3 Document maintenance & surveillance of sterilization equipment	100.0	100.0	0.0	100.0	0.0	70.00(<0.001*)
2-4 The sanitation of all rooms and equipment used	0.0	0.0	0.0	0.0	0.0	0.00(1.00)
2-5 The selection of draping and gowning materials	100.0	100.0	100.0	100.0	100.0	0.00(1.00)
2-6 Preoperative skin or body cavity preparation of patients	100.0	100.0	100.0	100.0	100.0	0.00(1.00)
2-7 Method of control of traffic movement in operating room	0.0	0.0	0.0	100.0	0.0	--
3- Prepare the environment:						
Documents patients' conditions	0.0	0.0	0.0	0.0	0.0	0.00(1.00)
Reports patients' conditions	0.0	0.0	0.0	0.0	0.0	0.00(1.00)

(*) Statistically significant at p<0.05 (--) test not valid

Table (21): represents circulating nurses performance tasks related to care of patients undergoing surgery as observed among nurses in the study sample by departments. From the table, it can be observed that there is a significant difference X² 70.00, P < 0.001 between departments in relation to documented maintenance and surveillance of sterilized equipment.

Table (22): Scrubbing nurses performance tasks related to care of patients undergoing surgery as observed among nurses in the study sample by departments.

	Departments (%)					X ² (p-value)
	Surgery (n=14)	Orthop. (n=16)	ENT (n=15)	Urosurg. (n=15)	Neurosurg. (n=10)	
1- Assure that surgical services are consistent with patients' needs	0.0	0.0	0.0	0.0	0.0	0.00(1.00)
2- Prepare equipment for each specified surgery	100.0	100.0	100.0	100.0	100.0	0.00(1.00)
3-Follow mechanism designed to assure sterilization of the equipment used	0.0	100.0	0.0	100.0	100.0	70.00(<0.001*)
4-Follow principles of a septic techniques	100.0	100.0	0.0	100.0	100.0	70.00(<0.001*)
5-Handle the surgeon with sterile equipment	100.0	100.0	100.0	100.0	100.0	0.00(1.00)
6-Use approaches to effectively monitor and evaluate patient's conditions	0.0	0.0	0.0	0.0	0.0	0.00(1.00)
7-Use approaches to effectively count sponges, gauze and instruments before wound closure	0.0	0.0	0.0	0.0	0.0	0.00(1.00)

(*) Statistically significant at $p < 0.05$ (--) test not valid

Table (22): reveals scrubbing nurses performance tasks related to care of patients undergoing surgery as observed among nurses in the study sample by departments. From the table, it can be noticed that there are significant difference X² 70.00, P < 0.001 between OR departments in relation to following mechanism designed to assure sterilization of the equipment used and following principles of aseptic techniques.

Table (23): Results of nursing audit as regards administrative record in the operating rooms at Benha university hospitals (n = 70).

	Present	
	No.	%
Operating department has philosophy and objectives in accordance with hospital	0	0.0
There is an identified organizational structure that indicates responsibilities and authorities among OR personnel	0	0.0
There is job description that describes jobs of nursing personnel	0	0.0
Policies and procedures related to OR are collected in a policy manual	0	0.0
Written guidelines for infection control must be available in OR and known to all nursing personnel	0	0.0
Guidelines are approved through appropriate hospital mechanism	0	0.0
There is performance appraisal system that evaluates nursing personnel in the unit	0	0.0
Staffing for OR are according to identified principles:		
OR department is directed by a registered professional nurse	28	40.0
Registered nurse is available throughout 3 shifts	56	80.0
Nursing care is provided through 3 categories:		
Circulating nurses	56	80.0
Scrubbed nurses	70	100.0
Anesthesia nurses	70	100.0

Table (23): this table represents results of nursing audit in the operating rooms at Benha university hospitals. From the table, it can be observed that there were no operating department philosophy, organizational structure, job description that describes jobs of OR nursing personnel and there were no OR policies and procedures collected in a policy manual also there were no written guidelines for infection control in OR. As regards staffing: 40% of ORs were directed by registered professional nurse, 80% of RNs were available throughout three shifts and circulating nurses were available in 80% of ORs and anesthesia nurses present in all operations (100%).

Table (24): Results of nursing audit as regard documentation (n=70)

	Present	
	No.	%
There is a documentation system to record:	0	0.0
Monitoring of patient's conditions	0	0.0
Dosage of all drugs and agents used	70	100.0
Type and amount of all fluids administered	0	0.0
Unusual events during surgical procedures	0	0.0
Adverse reactions and measures used to manage them	0	0.0
Pertinent data collected through physiologic and psychological assessment	0	0.0
Blood loss	0	0.0
Urinary and drainage output	0	0.0
Tubes and drains	0	0.0

Table (24): This table reveals results of nursing audit as regard documentation from the table, it can be noticed that the only item being documented was dosage of all drugs & agents used.

Table (25): Description of nurses’ characteristics in the nurses opinionnaire. The studied sample (n=70)

	Frequency	Percent
Department:		
General surgery	15	21.4
Orthopedics	15	21.4
ENT	10	14.3
Urosurgery	14	20.0
Neurosurgery	16	22.9
Age (years):		
<30	31	44.3
30+	39	55.7
Range	20.0-42.0	
Mean±SD	30.3±6.8	
Experience (years):		
<10	27	38.6
10+	43	61.4
Range	1.0-22.0	
Mean±SD	11.5±6.4	
Nursing qualification:		
Nursing diploma	68	97.1
Technical institute	1	1.4
Bachelor of nursing	1	1.4
Attendance of training courses:		
No	62	88.6
Yes	8	11.4
Courses attended (n=8):		
Operation room	1	12.5
Urology	2	25.0
Endoscopy	4	50.0
Infection control	1	12.5

Table (25): illustrates description of nurses characteristics in the studied sample from the table, it can be observed that the no of studied nurses were 70 nurse, their ages were 44.3% less than 30 years and 55.7% more than 30 years as regard to experience, 38.6% were less than 10 years and 61.4% of nurses were more than 10 years of experience most of the studied nurses 97.1% were diploma nursing and 11.4% only of the studied nurses were attended training courses in OR.

Table (26): Nurses’ opinions about the importance of philosophy, organizational structure, and job description (n=70).

	Not important		Important	
	No	%	No	%
1. Philosophy and objectives				
Philosophy and objectives in accordance with hospital	44	62.9	26	37.1
Philosophy and objectives are written	43	61.4	27	38.6
Philosophy and objectives are available	43	61.4	27	38.6
2. Organizational structure:				
Indicates responsibilities and authorities among OR personnel	5	7.1	65	92.9
Authority and responsibility are clearly depicted through an organizational chart	5	7.1	65	92.9
The chart is posted	5	7.1	65	92.9
3. Job description:				
Describes jobs of nursing personnel	5	7.1	65	92.9
All nursing jobs are determined and identified through job description	5	7.1	65	92.9
Jobs are compatible with nursing specialties	4	5.7	66	94.3
Job descriptions are clear	4	5.7	66	94.3
Job descriptions are reviewed periodically	4	5.7	66	94.3

Table (26): reveals nurses’ opinions about the importance of philosophy, organizational structure, and job descriptions. From the table, it can be noticed that the majority of nurses 62.9% viewing the philosophy & objectives for operating department not important also 92.9%, 94.3% of nurses respectively viewing the organization structure & job description for OR important.

Table (27): Nurses’ opinions about the importance of staffing and documentation system as components of the proposed standards (n=70)

	Not important		Important	
	No	%	No	%
4. Staffing::				
OR department is directed by a registered professional nurse	39	55.7	31	44.3
Registered nurse is available throughout 3 shifts	2	2.9	68	97.1
Nursing care is provided through 3 categories:				
Circulating nurses	0	0.0	70	100.0
Scrubbed nurses	0	0.0	70	100.0
Anesthesia nurses	1	1.4	69	98.6
5. Documentation system to record:				
Monitoring of patient's conditions	70	100.0	0	0.0
Dosage of all drugs and agents used	17	24.3	53	75.7
Type and amount of all fluids administered	46	65.7	24	34.3
Unusual events during surgical procedures	53	75.7	17	24.3
Adverse reactions and measures used to manage them	55	78.6	15	21.4
Pertinent data collected through physiologic and psychological assessment	35	50.0	35	50.0
Blood loss	54	77.1	16	22.9
Urinary and drainage output	53	75.7	17	24.3
Tubes and drains	52	74.3	18	25.7

Table (27): shows nurses’ opinions about the importance of staffing and documentation system from the table, it can be noticed that the opinion’s of the study nurses that they viewing the importance of the items of nursing care for preoperative patients is provided through circulating and scrubbed nurses and only 1.4% of nurses viewing anesthesia nurses not important and the minority of nurses 44.3% viewing the direction of OR department by a registered professional nurse is important in relation to staffing, also, the majority of nurses 75.7% viewing that documenting the dosage of all drugs & agents used is important also 50% of nurses viewing that documenting the pertinent data collected through physiological & psychological assessment is important.

Table (28): Nurses’ opinions about the importance of policies and procedures, infection control guidelines, and performance appraisal system (n=70)

	Not important		Important	
	No	%	No	%
6. Policies and procedures				
Policies and procedures related to OR should be collected in a policy manual	1	1.4	69	98.6
Policies and procedures should clearly written	1	1.4	69	98.6
Current and dated	1	1.4	69	98.6
Accessible to nursing personnel	1	1.4	69	98.6
Written guidelines for infection control must be available in OR and known to all nursing personnel	0	0.0	70	100.0
Guidelines are approved through appropriate hospital mechanism	0	0.0	70	100.0
7. Infection control guidelines should include:				
Principles of asepsis	0	0.0	70	100.0
Sterilization and disinfection	0	0.0	70	100.0
Document surveillance of sterilization equipment	0	0.0	70	100.0
The sanitation of all rooms and equipment used	0	0.0	70	100.0
The selection of draping and gowning materials	0	0.0	70	100.0
Preoperative skin or body cavity preparation of patients	0	0.0	70	100.0
8. Performance appraisal system that evaluates nursing personnel in the unit	8	11.4	62	88.6
It is based on nursing personnel job description	4	5.7	66	94.3
It is clear	4	5.7	66	94.3

Table (28): reveals nurses’ opinions about the importance of policies and procedures, infection control guidelines and performance appraisal. From the table, it can be noticed that 98.6% of nurses viewing collection of polices and procedures related to OR in a policy manual and being accessible to OR nursing personnel important and all of the studied nurses 70 nurses viewing availability of a written guidelines for infection control in the OR is important. Finally 88.6% of nurses viewing that the presence of performance appraisal system that evaluates OR nursing personnel is important.