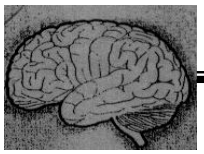


Results

The results of this study are presented in 7 parts as shown in tables from 1 to 26 and 6 figures to cover the following items.

Part (I): General Characteristics of the study sample (table 1 and figure 1,2).

Part (II): Nurses' knowledge about structure of the head (table 2,3).

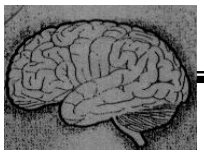
Part (III): Nurses' knowledge about head injury (table 4: 15 and figure3 : 6).

Part (IV): Factors affecting of nursing care (table 16).

Part (V): Factors affecting of daily living activities (table 17).

Part (VI): Assessment of nurses' skills (table 18 : 23).

Part (VII): Relation between characteristics of the study sample and their knowledge and skills (table 24:26).

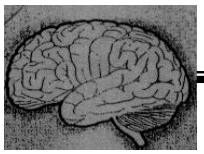


Part I : General Characteristics of the Study Sample.

Table (1): Number and Percentage Distribution of Nurses' According to Their Socio-Demographic Characteristics.

Nurses' Characteristics	Total No. (100%)	
	No.	%
* **Age / Years:**		
- > 20	24	24.0
- 20 > 30	41	41.0
- 30 > 40	35	35.0
Mean SD	**27.6 ± 7.3 years**	
* **Level of Education:**		
- B. Sc. Nursing.	15	15.0
- Institute of Nursing.	20	20.0
- Nursing school and Specialty.	5	5.0
- Secondary Nursing school.	60	60.0
* **Working Status:**		
- Head of dept.	5	5.0
- Head Nurse.	20	20.0
- Staff Nurse.	75	75.0
* **Years / Experience:**		
- > one	10	10.0
- 1 > 3	15	15.0
- 3 >5	36	36.0
- More than 5 years.	39	39.0
Mean ± SD	**5.8 ± 4.1**	

Table (1) showed that the mean age of nurses were 27.6 ± 7.3 years. Regarding the level of education, it was found that more than half (60%) of nurses were technical secondary school. This table also stated that 75% of nurses were staff nurses and 39% of them had more than 5 years experience with the mean of 5.8 ±4.1 years.



Part II: Nurses Knowledge about Structure of Head.

Table (2): Number and Percentage Distribution of Nurses' Knowledge About Structure of Head.

Items	Total No. (100%)	
	No.	**%**
* **Structure of head:**		
- Skull, arachnoid membrane, brain, brain ventricles and pia matter, dura matter.	33	33.0
- Skull, pia matter, dura matter.	10	10.0
- Don't know.	57	57.0

Table (2) showed that the majority (57%) of nurses had a poor knowledge about structure of the head and 10% of nurses had average knowledge about structure of the head.

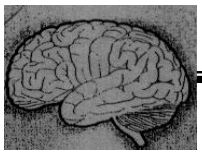
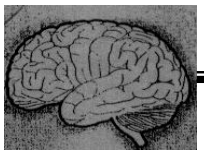


Table (3): Number and Percentage Distribution of Nurses' Knowledge About Incidence of Head Injury.

Items	Total No. (100%)		X^2	P
	No.	%		
• **incidence of head injury:**				
- Good.	27	27.0		
- Average.	35	35.0	11.13	< 0.05
- Poor.	38	38.0		
• **Prevalence in Egypt:**				
- Yes.	35	35.0		
- No.	34	34.0	4.9	> 0.05
- Don't know.	29	29.0		

Table (3) showed that 38% of nurses had a poor knowledge about incidence of head injury. This table also illustrated that about 35% of nurses replied by "yes" about prevalence of head injury in Egypt.

P < 0.05 statistical significance difference was found incidence of head injury.



Part III: Nurses' Knowledge About Head Injury with Children.

Table (4): Number and Percentage Distribution of Nurses' Knowledge About Concept and Causes of Head Injury.

Items	Total No. (100%)		X^2	P
	No.	%		
• **Concept of head injury:**				
- Type of injury affecting the skull, brain resulting from mono-trauma or ploy-trauma may be associated with disturbed conscious level, vomiting or fits or neurological deficit	10	100	19.5	< 0.001
- Disturbance level of consciousness	8	8.0		
- Don't know.	82	82.0		
• **Causes of head injury:**				
- Road accidents, pedal cycle home accidents, falling	50	50.0	9.71	< 0.05
- Home accidents, falling	30	30.0		
- Don't know.	20	20.0		

Table (4) showed that 82% of nurses had poor knowledge about the concept of head injury. This table also clarified that 20% and 50% of nurses had good knowledge about concept of head injury and its causes respectively. $P < 0.05$.

Statistical significance difference was found in causes of head injury and statistically significance <0.001 of concept.

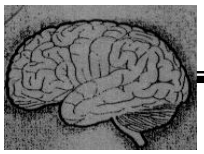


Table (5): Number and Percentage Distribution of Nurses' Knowledge About Clinical Manifestations of Head Injury.

Items	Total No. (100%)		X^2	P
	No.	**%**		
• **Mild Manifestaions:**				
- Fainting, vomiting and drowsiness	52	52.0		
- Fainting.	31	31.0	19.41	< 0.001
- Don't know.	17	17.0		
• **Moderate Manifestatios:**				
- Blood and CSF leakage from nose, mouse, ear and persistent vomiting	15	15.0		
- Persistent vomiting.	22	22.0	8.15	> 0.05
- Don't know.	63	63.0		
• **Sever Manifestations:**				
- Coma, convulsions, persistent crying	31	31.0	14.1	< 0.05
- Convulsions.	24	24.0		
- Don't know.	45	45.0		

Table (5) showed that the majority (63% and 45%) of nurses had a poor knowledge about moderate and sever manifestations respectively. This table also clarified that 52% and 15% of nurses had a good knowledge about mild and moderate manifestations

respectively. P < 0.001 statistical significance difference was found.

Table (6): Number and Percentage Distribution of Nurses' Knowledge abut Types of Head Injury.

Items	**Total No. (100%)**		X^2	P
	No.	**%**		
• **Types of Head Injury:**				
- Mild, moderate and sever injury.	32	32.0	13.9	< 0.05
- Mild, and moderate.	10	10.0		
- Don't know.	58	58.0		

Table (6) showed that 58% of nurses had a poor knowledge about types of head injury and 10% of nurses had average knowledge about types of head injury.

P < 0.05 statistical significance difference was found in types of head injury.

Table (7): Number and Percentage Distribution of Nurses' Knowledge About Important of C.T. Scan Emergency.

Items	Total No. (100%)		Z	P
	No.	%		
• **Important of C.T Scan Emergency:**				
- To evaluate case and detecting any intracranial lesion.	81	81.0	0.39	< 0.001
- Don't know.	19	19.0		

Table (7): this table illustrated that about 81% of nurses had a good knowledge about important of C.T Scan emergency and 19% of nurses had poor knowledge about C.T Scan emergency.

P < 0.001 statistical significance difference was found.

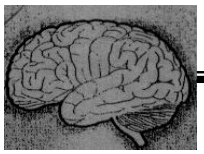


Table (8): Number and Percentage Distribution of Nurses' Knowledge Related to Treatment of Head Injury.

Items	Total No. (100%)		X^2	P
	No.	%		
***Treatment of Head Injury:**				
• 1. General measure (first aid). 2. Specific: - Control increase ICP (medical and surgical). - Symptomatic (anti-emetic anti-convulsion drugs). - Supportive (intra-venous fluid – vitamin, iron, care).	56	56.0	9.03	< 0.05
• Symptomatic (anti-emetic anti-convulsion drugs).	13	13.0		
• Don't know.	31	31.0		

Table (8) showed that 56% of nurses had good knowledge regarding treatment of head injury and 13% of nurses had poor knowledge about its treatment.

P < 0.05 statistical significance difference was found.

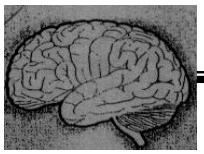


Table (9): Number and Percentage Distribution of Nurses' Knowledge about treatment of Head Injury (valium drug).

Items	**Total No. (100%)**		**Z**	**P**
	No.	%		
***Function of Valium Drug:**				
- Stop convulsions, maintain of respiration.	29	29.0	05.91	< 0.001
- Don't know.	71	71.0		

Table (9): this table showed that 71% of nurses had poor knowledge about function of valium drug and 29% of nurses had good knowledge about function of valium drug.

P < 0.001 statistical significance difference was found.

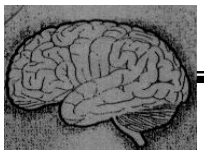


Table (10): Number and Percentage Distribution of Nurses' Knowledge Related to Complications and Problems of Head Injury.

Items	Total No. (100%)		X^2	P
	No.	%		
• **Complication of Head Injury:**				
- Convulsions, persistent headache and bed sores.	61	61.0	12.01	< 0.001
- Convulsions.	9	9.0		
- Don't know.	30	30.0		
• **Problems:**				
- School absenteeism, learning difficulties and not able to participate in daily activities.	30	30.0		
- School absenteeism and learning difficulties.	5	5.0	8.95	> 0.05
- Don't know.	65	65.0		

Table (10) showed that 61% of nurses had good knowledge about complications of head injury . While 65% of nurses had poor knowledge about problems of head injury. This table also illustrated that 9% and 5% of nurses had average knowledge about complications and problems respectively. P < 0.001 statistical significance difference was found with complication.

Table (11): Number and Percentage Distribution of Nurses' Knowledge About diet of Head Injured patients.

Items	Total No. (100%)		X^2	P
	No.	%		
***Diet of Head Injury patients:**				
- All type of the food .	10	10.0		
- Intravenous fluids.	15	15.0	14.01	< 0.001
- Don't know.	75	75.0		

Table (11) showed that the majority (75%) of nurses had a poor knowledge related to diet of head injured patient and 10% of nurses had a good knowledge.

P <0.001 statistical significance difference was found.

Table (12): Number and Percentage Distribution of Nurses' Knowledge About C.T Scan Follow up.

Items	Total No. (100%)		X^2	P
	No.	%		
• **Importance of C.T Scan follow up:**				
- yes.	30	30.0		
- No.	15	15.0	1.25	> 0.05
- Don't know.	55	55.0		
• **Pourpose form C.T follow up:**				
- To observe case improvement or deterioration.	7	23.3	7.14	> 0.05
- To detect any changes.	7	23.3		
- Don't know.	16	53.3		

Table (12) showed that 53.3 % of nurses didn't know the purpose from C.T follow up and 23.3 % of nurses had a good knowledge about purpose form C.T follow up.

This table also illustrated that 55% of nurses replied by don't know about importance of C.T follow up.

P > 0.05 statistical insignificance difference was found.

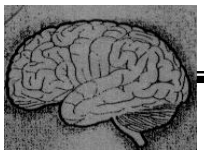


Table (13): Number and Percentage Distribution of Nurses' Knowledge Toward The Needs of Child With Head Injury.

Items	Total No. (100%)		X^2	P
	No.	%		
• **Needs of child with Head Injury:**				
- Good nutrition and hygienic care, health education about head injury and rehabilitations.	63	63.0		
- Good nutrition and hygienic care.	7	7.0	11.02	< 0.05
- Don't know.	30	30.0		

Table (13) showed that 63% of nurses had good knowledge about needs of child with head injury and 7% of nurses had average knowledge about their need and 30% of nurses had poor knowledge about in needs of child with head injury.

$P < 0.05$ statistical significance difference was found.

Table (14): Number and Percentage Distribution of Nurses' Knowledge Related To Important of Rehabilitation.

Items	Total No. (100%)		X^2	P
	No.	%		
*** Types of rehabilitation:**				
- To teach parent how to deal with new sequale, physiotherapy and continuous follow up .	10	10.0	7.0	> 0.05
- Physiotherapy.	15	15.0		
- Don't know.	75	75.0		

Table (14) showed that 75% of nurses had poor knowledge about type of rehabilitation and 10% of nurses had average knowledge about rehabilitation.

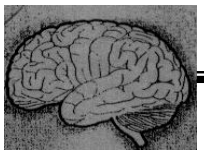
P > 0.05 statistical insignificance difference was found.

Table (15): Number and Percentage Distribution of Nurses' Knowledge About The Family Advices.

Items	Total No. (100%)		X^2	P
	No.	%		
• **Advices :**				
- Immediate hospital admission, to observe convulsions and observe C.S.F and blood leakage from nose or ear.	12	12.0	13.9	< 0.001
- Immediate hospital admission.	20	20.0		
- Don't know.	68	68.0		

Table (15) showed that 68% of nurses had poor knowledge about family advices related to head injury and 12% of nurses had good knowledge about its advices.

P < 0.001 statistical significance difference was found.



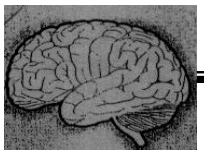
Part {IV}: factor Affecting The Nursing Care Of Nurses:

Table (16): Number and Percentage Distribution of Nurses' Knowledge About Factor Affecting The Nursing Care.

Items	Total No. (100%)		X^2	P
	No.	%		
*** Affective factors:**				
- Age, experience, resources.	65	65.0		
- Resources and age.	20	20.0	12.3	< 0.05
- Don't know.	15	15.0		

Table (16) showed that 65% of nurses had good knowledge about factor affecting the nursing care and 15% of nurses had a poor knowledge about these factors.

$P < 0.05$ statistical significance was found.

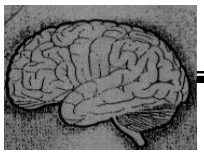


Part {V}: FACTOR AFFECTING OF DAILY LIVING ACTIVITIES

Table (17): Number and Percentage Distribution Of Nurses' Knowledge About Factor Affecting of Daily Living Activities.

Items	Total No. (100%)		X^2	P
	No.	%		
*** Affective factors:**				
- Nutrition, low self steem , attending school.	15	15.0		
- Afeard of any interaction with others.	9	9.0	8.0	> 0.05
- Don't know.	76	76.0		

Table (17) showed that majority (76%) of nurses had poor knowledge about factor affecting of daily activities and 15% of nurses had good knowledge bout these factors. P > 0.05 statistical insignificance differences was found.



Part {VI} : Assessment of Nurses' Skills.

Table (18): Number and Percentage Distribution of Nurses' Performances Regarding Measuring of Vital Signs.

Skills Items	Total No. (100%)					
	Competent		Incompetent		Not Done	
	No.	%	No.	%	No.	%
* **Measuring Temperature:**						
- washing hands.	10	10.0	90	90.0	0	0.0
- Correct measuring.	25	25.0	75	75.0	0	0.0
- Disinfected thermometer after use.	7	7.0	93	93.0	0	0.0
- Recording.	45	45.0	55	55.0	0	0.0
* **Measuring Respiratory Rate :**						
- Correct count.	21	21.0	79	79.0	0	0.0
- Recording.	38	38.0	62	62.0	0	0.0
* **Measuring Blood Pressure :**						
- Correct position.	89	89.0	11	11.0	0	0.0
- Correct Measuring.	82	82.0	18	18.0	0	0.0
- Recording.	91	91.0	9	9.0	0	0.0
- Store equipment.	12	12.0	88	88.0	0	0.0
* **Measuring of Heart Rate:**						
- Correct position.	92	92.0	8	8.0	0	0.0
- Correct time.	15	15.0	85	85.0	0	0.0
- Recording.	75	75.0	25	25.0	0	0.0

Table (18) showed that 93% and 79% of nurses had incompetent regarding temperature and respiration respectively while 91% and 92% of nurses had competent skills regarding blood pressure and heart rate and 7% and 12% of nurses had competent skills regarding

measuring temperature and blood pressure respectively.

Table (19): Number and Percentage Distribution of Nurses' skills Regarding Measuring Glasgow Coma Scale (Motor Response).

Skills Items	Total No. (100%)					
	Competent		Incompetent		Not Done	
	No.	%	No.	%	No.	%
* **Motor Response:**						
- Obying commands "6"	70	70.0	30	30.0	0	0.0
- Localizing to pain "5"	20	20.0	80	80.0	0	0.0
- With drawing "4"	7	7.0	93	93.0	0	0.0
- Flexion "3"	5	5.0	95	95.0	0	0.0
- Extension posturing "2"	2	2.0	98	98.0	0	0.0
- No response (flaccid) "1"	15	15.0	85	85.0	0	0.0

Table (19) showed that 80%, 93%, 95%, 98% and 85% of nurses were incompetent as regards measuring localizing to pain, withdrawing, flexion, extension posturing and no response respectively, while 70% of nurses were competent in measuring of obying commands and 2% of nurses were competent as regard measuring extension posturing.

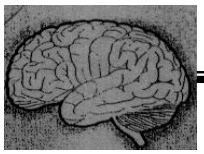


Table (20): Number and Percentage Distribution of Nurses' skills Regarding Measuring Glasgow Coma Scale (Verbal Response).

Skills Items	Total No. (100%)					
	Competent		Incompetent		Not Done	
	No.	%	No.	%	No.	%
* **Verbal Response:**						
- Oriented and Conversus "5"	65	65.0	35	35.0	0	0.0
- Confused Mentality "4"	15	15.0	85	85.0	0	0.0
- Inappropriate words "3"	7	7.0	93	93.0	0	0.0
- Incomprehensive sounds "2"	10	10.0	90	90.0	0	0.0
- No sounds "1"	67	67.0	33	33.0	0	0.0

Table (20) showed that 85%, 93% and 90% of nurses were incompetent as regards measuring confused mentality, inappropriate wards and incomprehensive sounds respectively. While 65% and 67% of nurses were competent in oriented and converses, no sounds and 7% of nurses were competent as regard measuring inappropriate words.

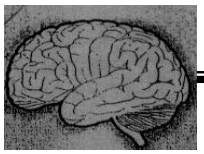


Table (21): Number and Percentage Distribution of Nurses' Skills Regarding Measuring Glasgow Coma Scale (Eye Response).

Skills Items	Total No. (100%)					
	Competent		Incompetent		Not Done	
	No.	%	No.	%	No.	%
* **Eye opening:**						
- Spontaneous "4"	39	39.0	61	61.0	0	0.0
- To speech "3"	30	30.0	70	70.0	0	0.0
- To pain "2"	8	8.0	92	92.0	0	0.0
- No response "1"	75	75.0	25	25.0	0	0.0

Table (21) showed that 61%, 70% and 92% of nurses were incompetent as regards spontaneous, to speech and to pain. While 75% of nurses were competent in no response and 8% of nurses were competent as regard measuring to pain.

Table (22): Number and Percentage Distribution of Nurses' Total Knowledge About Head Injury.

Items	Total No. (100%)	
	No.	**%**
- Good.	11	11.0
- Average.	25	25.0
- Poor.	64	64.0
- Don't know	0	0.0
Total	100	100.0

Table (22) as regards total knowledge about head injury, showed that 64% of them scored poor knowledge, while 11% of them scored good knowledge.

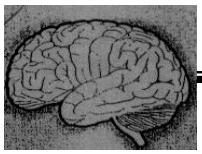


Table (23): Number and Percentage Distribution of Nurses' Total Skills About Care Of Children With Head Injury.

Items	Total No. (100%)	
	No.	**%**
- Competent. - Incompetent. - Not done.	8 92 0	8.0 92.0 0.0
Total	100	100.0

Table (23) showed that the majority (92%) of nurses were incompetent in giving care of children with head injury.

Part {VII}: Relation between characteristics of the study sample and their knowledge and performance {table 18 : 26 }

Table (24): Relation Between Nurses' Knowledge and Their Skills.

Knowledge	Skills					Total		X^2	P Value
	Competent		Incompetent		Not done				
	No.	%	No.	%		No.	%		
Good	3	37.5	6	6.5	0	9	9.0	33.7	< 0.001
Average	5	62.5	21	22.5	0	26	26.0		
Poor	0	0.0	65	70.6	0	65	65.0		
Total	8	100.0	92	100.0	0.0	100	100.0		

Statistical significant difference (P < 0.001).

Table (24) showed that there was statistical significant difference (X^2 33.7, p < 0.001) between nurses' knowledge and their performance regarding care of children with head injury, where 62.5% of nurses who had average knowledge scored competent performance. In addition, 70.6% of nurses who had poor knowledge their performance incompetent.

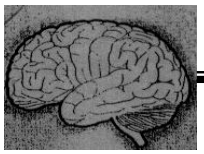


Table (25): Relation Between Nurses' Knowledge And Their Characteristics.

Nurses' characteristics	Knowledge								Total		X^2	P Value
	Good		Average		Poor		Don't know		No.	%		
	No. (9)	%	No. (26)	%	No. (65)	%	No.	%				
*Age in years:												
- > 20 years.	1	11.1	3	11.6	20	30.8	0	0.0	24	24.0	14.5	< 0.001
- 20 > 30 years.	5	55.6	18	69.2	18	27.7	0	0.0	41	41.0		
- 30 > 40 years.	3	33.3	5	19.2	27	41.5	0	0.0	35	35.0		
* Level of education:												
- B. Sc. Nursing	5	55.6	8	30.8	2	3.1	0	0.0	5	5.0	59.7	< 0.001
-Technical Ng. institute.	2	22.2	13	50.0	5	7.7	0	0.0	20	20.0		
-Secondary Ng. School with specialty.	1	11.1	2	7.7	2	3.1	0	0.0	5	5.0		
- Secondary Ng. School.	1	11.1	3	11.5	56	86.2	0	0.0	60	60.0		
* Occupation:												
- Head of dep.	2	22.2	2	77	1	1.5	0	0.0	5	5.0	36.1	< 0.001
- Head Nurse.	2	22.2	14	53.8	4	6.2	0	0.0	20	20.0		
- Staff Nurse.	5	55.4	10	38.5	60	92.3	0	0.0	75	75.0		
* Years of Experience:												
- < 1 year.	0	0.0	2	7.7	8	12.3	0	0.0	10	10.0	9.34	< 0.001
- < 3 years.	0	0.0	5	19.2	10	15.4	0	0.0	15	15.0		
- < 5 years.	7	77.8	10	38.5	19	29.2	0	0.0	36	36.0		
- More than 5 years.	2	22.2	9	34.6	28	43.1	0	0.0	39	39.0		

Significant at < 0.001

Table (25) showed that there was a statistical significant references between nurses' knowledge to their age (X^2 14.5, p <0.001)**.** also regarding level of education, occupation and years of experience there was a statistical significance (X^2 59.7 , p <0.001), (X^2 36.1, p < 0.001) and (X^2 9.34 , p <0.001) respectively .

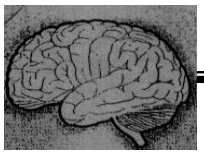


Table (26): Relation Between Nurses' Skills and Their Characteristics.

Nurses' characteristics	Skills						Total		X^2	P Value
	Competent		Incompetent		Not done		No.	%		
	No. (8)	%	No. (92)	%	No.	%				
*Age in years:									3.1	> 0.05
- > 20 years.	0	0.0	24	26.1	0	0.0	24	24.0		
- 20 > 30 years.	5	62.5	36	39.1	0	0.0	41	41.0		
- 30 > 40 years.	3	37.5	32	34.8	0	0.0	35	35.0		
* Level of education:										
- B. Sc. Nursing	5	62.5	10	10.9	0	0.0	15	15.0	16.9	< 0.001
- Technical Ng. institute.	2	25.0	18	19.6	0	0.0	20	20.0		
-Secondary Ng. School with specialty.	0	0.0	5	5.4	0	0.0	5	5.0		
- Secondary Ng. School.	1	12.5	59	64.1	0	0.0	60	60.0		
* Occupation:										
- Head of dep.	1	12.5	4	4.4	0	0.0	5	5.0	3.03	> 0.05
- Head Nurse.	3	37.5	17	18.5	0	0.0	20	20.0		
- Staff Nurse.	4	50.0	71	77.1	0	0.0	75	75.0		
* Years of Experience:										
- < 1 year.	0	0.0	10	10.9	0	0.0	10	10.0	1.46	> 0.05
- < 3 years.	2	25.0	13	14.1	0	0.0	15	15.0		
- < 5 years.	3	37.5	33	35.9	0	0.0	36	36.0		
- More than 5 years.	3	37.5	36	39.1	0	0.0	39	39.0		

Insignificant at > 0.05

Significant at < 0.001

Table (26) showed that there was a statistical insignificant difference between nurses' performance to their age, occupation and years of experience (X^2 3.1 , $p > 0.05$), (X^2 3.03 ,$p > 0.05$) and (X^2 1.46 , $p > 5.05$) respectively, while regarding the nurses' level of education there was significance (X^2 16.9 , $p < 0.001$).