Results

The results of the study are presented in the following sequence of:-

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Part I : Socio demographic Characteristics of the Studied Subjects

Table (1): Percentage distribution of the studied children regarding to their characteristics

Characteristics of children	No (N=80)	% (100.0)
- Age (in years):		
• 2 < 5	20	25.0
• 5< 8	25	31.25
• 8-12	35	43.75
$\overline{X}$ ± SD	**6.35 ±1.96 years**	
- Sex:		
• Male	45	56.25
• Female	35	43.75
- Birth Order:		
• The first	30	37.5
• The second	28	35.0
• The third	17	21.2
• The fourth & more	5	6.3
- School Stage:		
• Nursery school	14	17.5
• Primary school	64	80.0
• Preparatory school	2	2.5

Table (1): This table shows the socio-demographic data of children, where the mean age of them is 6.35 ± 1.96 years. Regarding the children sex, this table illustrates that 56.25% of them are males. As regards birth order, more than one third (37.5%) of children are the first child in the family and 6.3% of children are the fourth and more. In relation to child's school stage, this table reflects that the majority (80%) of them are in primary school and 2.5% of them are in preparatory school.

Table (2): Distribution of the studied mothers by their characteristics

Characteristics of mothers	No (N=80)	% (100.0)
- Age (in years):		
• < 20	7	8.75
• 20 < 30	53	66.25
• 30 ±	20	25.0
$\bar{X}$ ± SD	**27.48 ± 2.17 years**	
- Level of education:		
• Illiterate	22	27.5
• Technical education	34	42.5
• High education	24	30.0
- Working status:		
• Working	20	25.0
• Not working	60	75.0

Table (2): This table describes characteristics of the studied mothers, were their mean age is 27.48 ± 2.17 years. Regarding the level of education, more than one third (42.5%) of mothers were had technical education and 27.5% of mothers were had illiterate. As regards working status of mothers, this table shows that more than two thirds (75%) of them are not working and 25% of mothers were had working.

Table (3): Number and percentage distribution of children regarding to time and symptoms of their head injury

Head injury Characteristics	Total (N=80) No.	Total (100.0) %
- Time of child complaints from head injury		
• 2 years - < 3 years	10	12.5
• 3 years - < 4 years	20	25.0
• ≥ 4 years	50	62.5
- Symptoms :		
• Headache, convulsion.	42	52.5
• Vomiting.	26	32.5
• Drowsy.	8	10.0
• appearance of blood or C.S.F. leakage from nose or mouth or ear, convulsion	4	5.0

Table (3): This table illustrates the time of child complaints from head injury, it was found that about two third (62.5%) of children complaints from head injury four year and more, meanwhile (12.5%) of them complaint from 2 years- < 3 years . According to symptoms of head injury, this table shows that more than half (52.5%) of children complaints from convulsion and headache. One the other hand, this table reveals that 10%,5% of these children are appearance of drowsy and blood or C.S.F. leakage respectively.

Table (4): Distribution of children regarding to season of their head injury occurrence

Season of Occurrence	Total N= 80 (100.0)	
	No.	**%**
- Seasonal occurrence of head injury:		
• Winter	20	25.0
• Summer	42	52.5
• Autumn	3	3.7
• Spring	10	12.5
• During seasonal changes	5	6.3

Table (4): This table shows that more than half of children have their head injury during summer and winter (52.5%, 25%) respectively, meanwhile the minority (3.7%) of them had their head injury during autumn.

Table (5): Distribution of children regarding to their trauma

Child's trauma	Total N= 80 (100.0)	
	No.	**%**
- Child suffers from general trauma:		
• Yes.	22	27.5
• No.	58	72.5
- Kind of general trauma:		
• Eye trauma	9	11.25
• Skin trauma	5	6.2
• Nasal trauma	2	2.5
• No trauma	6	7.5
- Experiences of head injury in the family:		
• Yes	48	60.0
• No	32	40.0

Table (5): This table reveals that more than two thirds 72.5% of children don't suffer from other kind of trauma. According to types children of trauma, this table shows that 2.5% of children have nasal trauma, while 6.2% has skin trauma. In relation to relatives' trauma, this table shows that more than half 60% of children's relatives are complaint from head injury.

Table (6): Distribution of children regarding to effect of head injury on their physical health

Effect of head injury on child	Total N= 80 (100.0)	
	No.	**%**
• Limitation in usual physical activities	8	10.0
• Sleep interruption due to night time injury symptoms	11	13.8
• Difficult to concentrate on schoolwork	21	26.2
• Missing school days	17	21.3
• Emotional hyper sensitivity	13	16.2
• Disrupt social interaction and interpersonal relationships	10	12.5

Table (6): This table reflects that all studied children their health is affected by head injury where, more than one quarter (26.2%) of children having difficult to concentrate on schoolwork. In addition, (10%, 16.2%, 13.8% and 21.3%) of these children are complaints from, limitation in usual physical activities, emotional hyper-sensitivity, sleeping interruption during night and missing school days respectively. Moreover, 12.5 % of children suffer from disrupt social interaction and interpersonal relationships.

Table (7): Distribution of the studied mother's regarding the source of information about head injury

Source	No (N=80)	% (100.0)
• Doctor	54	67.5
• Nurse	5	6.2
• Relatives	7	8.75
• Books and TV	6	7.5
• Other mothers in similar situation	8	10.0

Table (7): This table, as regards source of mother's knowledge about head injury, shows that more than two thirds (67.5%) of them acquired their information from child's doctor, meanwhile the nurses have (6.2%) role for giving information about head injury for those mother.

Part (II): Mother's knowledge related to head injury before and after discharge program implementation

Table (8): Mean scores total knowledge of the studied mother's regarding to head injury during pre/ immediate post and after three months discharge guide program implementation

Knowledge	N= 80		100%		100%	
	Pre-program		Immediate post-program		After three months program	
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD
• Definition of head injury	1.13	± 0.34 t=17.11	1.92	± 0.26 P < 0.001	1.52	± 0.22 P < 0.001
• Causes of head injury	1.16	± 0.47 t=7.47	1.81	± 0.39 P < 0.001	1.62	± 0.26 P < 0.001
• Mild symptoms of head injury	1.13	± 0.34 t=13.58	0.84	±0.37 P < 0.001	1.65	± 0.21 P < 0.001
• Mediate symptoms of head injury	1.26	± 0.44 t=12.80	1.94	±0.24 P < 0.001	0.55	± 0.35 P < 0.001
• Sever symptoms of head injury	1.17	± 0.38 t=14.89	1.92	± 0.28 P < 0.001	1.80	± 0.22 P < 0.001
• Triggering factors of head injury	1.11	± 0.32 t=17.11	1.90	± 0.30 P < 0.001	1.82	± 0.24 P < 0.001
• Complications of head injury on long run	1.01	± 0.11 t=21.15	1.87	± 0.34 P < 0.001	1.85	± 0.15 P < 0.001
• Complications of head injury	1.38	± 0.49 t=6.16	1.97	± 0.19 P < 0.001	1.75	± 0.36 P < 0.001
• Impact of head injury on child's life	1.08	± 0.30 t=23.51	1.96	± 0.19 P < 0.001	1.90	± 0.16 P < 0.001

Table (8): Concerning the changes in mothers' mean knowledge about head injury of their children pre and post program implementation, this table points out that there is an improvement in mothers' post-program mean scores knowledge as compared to pre-program mean scores. There is a statistical significance difference P-value of < 0.001.

Table (9): Precentage distribution of mothers' knowledge regarding their children's head injury medications.

Knowledge about medication	N = 80				100%				100%			
	Pre-program				Immediate Post-program				After 3 months			
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory	
	No	%	No	%	No	%	No	%	No	%	No	%
Name and type of child's medication: - Know	5	6.3	75	93.7	77	96.2	3	3.8	70	87.5	5	6.25
Regularlty for giving medication: - Regulary.	9	11.2	71	88.8	69	86.2	11	13.8	60	75.0	15	18.75
Total mean ± SD	1.10 ± 0.30				1.82 ± 0.39				1.32 ± 0.47			
	Paired T test = 13.57				P < 0.001				P < 0.001			

A highly statistical significant difference (P ≤ 0.001)

Table (9): This table shows that there is highly statistically significant difference between pre and post program implementation in relation to head injury medication, where the mean score before program was 1.10 ± 0.30 compared to 1.82 ± 0.39 after program implementation (P < 0.001, T=13.75). where, the majority of mothers (96.2) have satisfactory knowledge after program implementation regarding to name and type of their child's medication. Moreover, the majority of mothers (86.2%) give medication to their child regularly after program implementation not only during injury.

Table (10): Distribution and mean scores of the studied mothers' knowledge regarding head injury triggering factors.

Head injury triggering factors	N = 80				100%				100%			
	Pre-program				Immediate Post-program				After 3 months			
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory	
	No	%	No	%	No	%	No	%	No	%	No	%
Falls	21	26.2	59	73.8	72	90.0	8	10.0	68	97.5	10	12.5
Child abused	9	11.2	71	88.8	74	92.5	6	7.5	70	87.5	8	10.0
Sporting accident	17	21.2	63	78.8	78	97.5	2	2.5	70	87.5	3	3.75
Home accident	13	16.2	67	83.8	78	97.5	2	2.5	75	93.75	3	3.75
Pedal cycle Accident	24	30.0	56	70.0	75	93.8	5	6.2	66	82.5	7	8.75
Emotional stress	18	22.5	62	77.5	77	96.2	3	3.8	72	90.0	3	3.75
Child neglect	32	40.0	48	60.0	80	100.0	0	0.0	76	95.0	2	2.5
Total mean ± SD	1.18 ± 0.49				1.92 ± 0.28				1.42 ± 0.38			
	Paired T test = 14.89				P < 0.001				P < 0.001			

A highly statistical significant difference (P ≤ 0.001)

Table (10): This table illustrates that, there is highly statistical significant difference between pre and post program implementation in relation to the studied mothers' knowledge regarding to head injury triggering factors, where the mean score before program was 1.18 ± 0.49 compared to 1.92 ± 0.28 after program implementation (P < 0.001, T = 14.89). Where, the majority of mothers have satisfactory knowledge after program implementation in relation to falls, child abused, pedal cycle accident and emotional stress (90%, 92.5%, 93.8% and 96.2%) respectively. Meanwhile, 97.5% of mothers have satisfactory knowledge regarding sporting trauma, home accident and all of them (80%) have satisfactory regarding child neglect.

Table (11): Comparison of mothers' total knowledge related to their child with head injury in pre/ immediate post and after three months discharge guide program implementation.

Item	Pre/Post program knowledge (n=80)						Total Knowledge
	Pre-		Immediate post-		After 3 months		
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
Total knowledge	31.68	6.01	45.11	7.97	42.15	7.12	-14.67 < 0.001

A highly statistical significant difference (P ≤ 0.001)

Table (11): This table shows mothers' mean scores total knowledge about head injury of their children during pre- and post- after three months program implementation. It indicates that there is a highly statistical significant (P<0.001) improvement in their knowledge post implementation.

Table (12): Distribution of children regarding to their head injury occurrence before and after discharge guide program implementation.

Childs convulsions occurrence	Total N = 80 (100.0)					
	Pre-program		Immediate post-program		After three months	
	No	%	No	%	No	%
Average occurrence of convulsion during a day:						
• One time.	24	30.0	53	66.2	50	62.5
• Two times.	50	62.5	28	35.0	20	25.0
• Three times.	5	6.2	1	1.25	1	1.25
• Four times and more.	1	1.3	0	0.0	0	0.0
Average length of convulsion:						
• Less than five minutes.	22	27.5	51	63.8	48	60.0
• Five minutes.	45	56.2	19	23.7	15	18.75
• From five to ten minutes.	13	16.3	10	12.5	8	10.0
They day time that injury occurs:						
• At the day.	9	11.3	48	60.0	40	50.0
• During the night.	17	21.2	8	10.0	5	6.25
• During day and night.	54	67.5	24	30.0	20	25.0

Table (12): This table shows that there is improvement regarding child's convulsion occurrence after discharge program implementation, where about two thirds (66.2%) of children have one attack of convulsion per-day, meanwhile the lowest percentage (1.3%) of them have three times of convulsion per-day. Regarding to the average length and day time of attack occurrence, this table reveals that more than half of children their attack lasts from less than 5 minutes and occurs at the day (63.8%) respectively.

Part (III): Mother's practice related to head injury before and after discharge program implementation

Table (13): Mean scores of the studied mother's practice regarding to their children during head injury occurrence pre/immediate post and after three months discharge program implementation.

practice	N= 80		100%		100%	
	Pre-program		Immediate post-program		After three months program	
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD
• Immediate hospital admission	1.74 ± 0.44 t=4.27		1.93 ± 0.72 P < 0.001		1.80 ± 0.60 P < 0.001	
• Putting the child in suitable position during injury	1.11 ± 0.31 t=21.15		1.96 ± 0.19 P < 0.001		1.72 ± 0.22 P < 0.001	
• Measuring vital signs	1.26 ± 0.44 t= 12.45		1.93 ± 0.26 P < 0.001		1.58 ± 0.32 P < 0.001	
• Measuring level of consciousness (Glass Gow Coma Scale)	1.03 ± 0.19 t=45.03		2.00 ± 0.00 P < 0.001		2.00 ± 0.00 P < 0.001	
• Mouth care for the child during injury	1.51 ± 0.50 t=55.50		1.90 ± 0.37 P < 0.001		1.70 ± 57 P < 0.001	
• Keeping child to take balanced diet	1.47 ± 0.50 t=4.27		1.28 ± 0.45 P < 0.001		1.12 ± 0.6 P < 0.001	
• Giving drug again for the child when convulsions continue	1.02 ±0.16 t=34.61		2.00 ± 0.00 P < 0.001		2.00 ± 0.00 P < 0.001	
• Providing complete relaxation and bed rest	1.01 ± 0.11 t= 79.00		2.00 ± 0.00 P < 0.001		1.00 ± 0.00 P < 0.001	
• Care of wound and maintain antiseptic technique	1.02 ± 0.15 t= 46.02		1.80 ± 0.38 P < 0.001		1.65 ± 0.48 P < 0.001	
• Exercise and physiotherapy	1.33 ± 0.47 t= 9.11		1.85 ± 0.36 P < 0.001		1.50 ± 0.47 P < 0.001	

Table (13): This table illustrates mother's mean practices related to their children with head injury throughout the program phases. It is points to obvious improvements in all tested areas at the post program phase. However, there is highly statistical significance difference ($P < 0.001$) between mother's practices pre, post and after three months discharge guide program implementation.

Table (14): Mean scores of the studied mother's practice regarding to their child after head injury occurrence pre/ immediate post and after three months discharge program implementation.

practice	N= 80		100%		100%	
	Pre-program		Immediate post-program		After three months program	
	$\overline{X}$	SD	$\overline{X}$	SD	$\overline{X}$	SD
• Regular giving balanced diet	1.42 ± 0.49 t=8.88		1.93 ± 0.27 P < 0.001		1.44 ± 0.22 P < 0.001	
• Regular giving medication	1.05 ± 0.21 t=11.84		1.67 ± 0.74 P < 0.001		1.82 ± 0.37 P < 0.001	
• Learn their child how to deal with new sequel	1.11 ± 0.32 t= 11.17		1.84 ± 0.37 P < 0.001		1.62 ± 0.47 P < 0.001	
• Regular physiotherapy	1.06 ± 0.24 t=16.49		0.73 ± 0.45 P < 0.001		0.42 ± 0.26 P < 0.001	
• Regular of rehabilitation (psychology, social work)	1.01 ±0.11 t=79.00		1.83 ± 0.37 P < 0.001		1.36 ± 0.42 P < 0.001	
• Exercise program for upper and lower extremities	1.07 ±0.26 t=15.92		2.00 ± 0.00 P < 0.001		1.00 ± 0.00 P < 0.001	

Table (14): This table shows a general improvement in mothers' practices related to care their children with head injury after program implementation as compared to pre-program mean scores as there is a highly statistical significance (P<0.001) difference between them.

Table (15): Comparison of mothers' total practice related to care of their child with head injury in pre/post discharge guide program implementation.

Item	Pre/Post and after three months program practice (n=80)						Total practice
	Pre-		Immediate Post-		After three months		
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	
Total practice	21.92	4.66	32.51	3.25	29.62	2.15	- 21.07 < 0.001

Table (15): This table illustrates mothers' mean scores total practice related to care of their children with head injury before and after the program implementation. It includes that there is a highly statistical significance difference ($P < 0.001$) where the mean practice was 21.92 before the program compared to $\bar{X}$= 32.51 after program implementation.

Part (IV): Correlation between mother's knowledge and practice in relation to their characteristics pre/post discharge guide program and implementation.

Table (16): Correlation coefficient between total mother's knowledge and practice scores regarding their children with head injury and their characteristics pre/immediate post and after three months discharge program implementation.

Variables	Knowledge						Practice					
	Pre		Post		After 3 months		Pre		Post		After 3 months	
	r	p	r	p	r	p	r	p	r	p	r	p
• Age	0.31	< 0.01	-0.09	>0.05	-0.11	>0.05	0.41	<0.01	-0.32	<0.01	-0.38	<0.01
• Level of education	-0.13	>0.05	-0.38	<0.01	-0.41	<0.01	-0.01	>0.05	-0.16	>0.05	-0.20	>0.05
• Working status	0.15	>0.05	-0.12	>0.05	-0.15	>0.05	-0.01	>0.05	-0.15	>0.05	-0.18	>0.05

A statistical significant difference ($P \leq 0.05$)

A highly statistical significant difference ($P \leq 0.001$)

Table (16): This table displays the correlations between mother's knowledge and practice and their characteristics throughout program phases. It shows statistical significant positive correlation between knowledge scores and mother's level of education at the post program phase ($P < 0.05$). Meanwhile, there is no statistically significant ($P > 0.05$) correlation regarding their age and working status during post program implementation.

However, correlations between mothers' practice and their characteristics throughout program phases shows that there is statistically significant positive correlation between practice scores and mother's age at pre/post program phases ($P<0.01$). meanwhile, there is negative statistically significant ($P>0.05$) correlation regarding their level of education and their working status during pre/post program phases.

Table (17): Correlation coefficient between total mothers' knowledge and practice scores during pre/post and after three months discharge program implementation.

Variables	Practice					
	Pre-program		Post-program		After 3 months	
	r	p	r	p	r	p
• Total knowledge pre program	0.596	< 0.01	--	--	--	--
• Total knowledge post program	--	--	-0.741	< 0.01	- 0.840	<0.01

A statistical significant difference (P ≤ 0.05)

A highly statistical significant difference (P ≤ 0.001)

Table (17): This table reveals the correlations between mothers' knowledge and practice throughout program phases. It shows statistically significant positive correlation between total knowledge scores and their practice at pre/post and after three months program implementation ($P < 0.01$).