Evaluation of Nursing Care Provided To Children With Convulsion in Different Pediatric Departments At Zagazig University Hospital

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Abstract

Background: Convulsions are the most common and frightening neurologic disorder of childhood. Thus, providing adequate caring of convulsed child properly is the most important contribution to the successful management and outcomes. **Aim of the study** was to assess nursing care provided to convulsed children in Different Pediatric Departments at Zagazig University Hospital .**Subjects Methods**. **: Research design,** A descriptive study was conducted in the present study. **Setting:** This study conducted at different Pediatric unites in pediatric departments At Zagazig University Hospital **.Subjects:** include 62 children as well as 62 nurses. **Tools of data collection:** Three tools were used in this study. **The first** was questionnaire interview sheet to collect nurses′ characteristic as well as knowledge regarding convulsions. **The second** was children assessment sheet. **The third** tool was an observational checklist to evaluate nurses' care regarding convulsed children. **Results:** relation between total score of nurses' knowledge & practice regarding convulsions and its care. It was found that there was a statistical relation between total nurses' knowledge scores and their practice ($P<0.05$). **Conclusion:** The study findings concluded that, nurses' practice regarding care of convulsed children was unsatisfactory. **Recommendations:** Nurses: children ratio should be 1:2 to ensure good nursing care provided to each child. Development and providing of training program should be conducted periodically for nursing regarding convulsion.

Key words: convulsions, convulsed children, nursing care, neurologic disorder of childhood.

Introduction

Convulsions are a leading cause of emergency department visits and hospitalizations which constitute the commonest pediatric neurological disorders, that causes considerable disability in children and are often associated with significant physical, psychological long-term consequences and long-term medical as well as nursing treatments. Moreover, convulsions are the most common cause of morbidity and mortality in children and adolescents as well as a serious health problem [(1).]

Convulsions are one of the most common serious disorders of the brain affecting about 50 million people worldwide annually. [(2)] About 4% to 10% of children in USA suffering at least one Convulsion in the first 16 years of life. The incidence is highest in children younger than 3 years of age, with a decreasing frequency in older children.

Epidemiologic studies reveal that approximately 150,000 children will sustain a first-time, unprovoked Convulsions each year, and of those, 30,000 will develop epilepsy, In Egypt The prevalence rate for Convulsions constitutes approximately lie between 4 to 10/1000 child annually[(3).] .

During Convulsions, cerebral blood flow, oxygen and glucose decreased, while , carbon dioxide and lactic acid production increased. Early systemic

changes include tachycardia, hypertension, hyperglycemia, and hypoxemia. Brief Convulsions rarely produce lasting effects on the brain. Prolonged Convulsions, however, can lead to lactic acidosis, hyperkalemia, hyperthermia, and hypoglycemia, all of which may be associated with permanent neurologic damage. Airway management and termination of the Convulsions are the initial priorities in patients who are actively seizing [(4)].

Initial management of the child who is having a Convulsion should focus on the stabilization of the airway, breathing, and circulation and stopping the Convulsion. This will ensure that the Convulsion does note compromise supply of oxygenated blood to the brain and is not secondary to hypoxia or ischemia [(5)]

The pediatric nurse caring for a hospitalized epileptic children must be knowledgeable about the disease, its treatment, and Convulsion management. This knowledge will help the nurse to provide a safe environment for the child and keep Convulsion to a minimum so that recovery will not be delayed by unnecessary Convulsion injuries. Teaching needs regarding the disease and its management can also be identified and implemented by the nurse [(6)].

Significance of the study:

The incidence of epilepsy from birth to 16 years is approximately 40 in 100.000 children per year. In Egypt the mortality rate is 5 - 10% of status epileptics. Death in convulsion due to airway obstruction, apnea ,cardiac arrest so the pediatric nurse had a crucial role in preventing these complication .through her knowledge &sufficient care provided to theses children[(7)]. .

Aim of the Study

The aim of the present study was to

Evaluate nursing care provided to children with convulsions at different Pediatric units in Pediatric departments At Zagazig University Hospital.

Research Question:

Is nursing care provided to children with convulsions adequate or not?

Subjects and Method

Research Design

A descriptive exploratory design was used in carrying out the present study.

Study Setting

1. Pediatric (ICU) Care Unit at Zagazig Pediatric University Hospitals(20).
2. General unite at Zagazig Pediatric University Hospitals(10).
3. Neonate Intensive care unit at Zagazig Pediatric University Hospitals(NICU)(21).
4. Nephrology unite at Zagazig Pediatric University Hospitals(11).

Study Subjects

The subject of this study was composed of two groups **Group I**: All nurses working in the above mentioned settings and they were summing 62 nurses and whom provide direct care to convulsed children at different ages and years of experience as well as different qualification

Group II: All available convulsed children during the study period "6 months". (Totaled 62)

Tools of data collection

Three tools were used to collect the necessary data as follows;

Tool I: Questionnaire sheet

A questionnaire sheet was developed by the researcher under supervision of the supervisors after thorough review of relevant literatures which includes the following:

1- Personal Characteristics of the studied nurses included their age, level of education, any previous training programs and years of experience.

2- Nurses' knowledge about appropriate nursing care provided to convulsed children

Scoring System of Nurses Knowledge:

Total nurses´ knowledge score was developed by the researcher. Each right answer was given 1 point and zero point for wrong one .The total score of nurses´ knowledge about convulsions and its care was 64 points (32question) and calculated as the following.

The total score of nurses' knowledge about convulsions and its care was classified as follows:

- **Good level of knowledge ≥75%**
- **Fair level of knowledge 60-**
- **Poor level of knowledge < 60%**

Tool II: Observational checklist

Observational checklist was designed by the researcher to evaluate nurses' care provided to convulsed children such as assessment during convulsions, care during convulsions, assessment after convulsions, and care after convulsions

Scoring System of Tool II*:*

Total nurses' practice score was developed by the researcher. Each observed item was checked as done or not done. Each correct step was given 1 point and zero was given to not done.

Assessment during convulsion	8 points
Care during convulsions	12 points
Assessment after convulsions	9 points
Care after convulsions	14 points

Practice score totaled 43 points distributed as follows: The total practice score of nurses was classified as follows:

- **Good level of practice ≥75%**
- **Fair level of practice 60-**
- **Poor level of practice < 60%**

Tool III: Children assessment sheet for convulsions:

It was developed to collect necessary data about Characteristics of the studied Children including their age and sex, Unite, Investigation (blood investigation, CT on brain, CSF) diagnoses and causes of convulsions

Content validity and reliability:

Content validity was done by five expertise's in the field, three professors of pediatric nursing and two professors of pediatric medicine, who revised the tools for clarity, relevance, applicability, comprehensiveness, understanding and minor modifications was applied. Content reliability of the tool was done by using Cronbach's Alpha test (2004) reliability coefficient (range 0-1) when α test >0.9 (very good), >0.8 (Good), >0.7 (Acceptable), >0.6 (Questionable), >0.5 (Poor) and <0.5 (Unacceptable).The reliability of nurses knowledge assessment tool (Questionnaire sheet) used was acceptable, it was 0.724.

Field work

Data was collected during 6 months, starting in the period from the beginning of January 2013 to the end of

June 2013. Each nurse was individually interviewed to complete tool I. The time consumed to answer each questionnaire sheet ranged from 20 to 30 minutes. The researcher observed nurses' practical skills about studied procedures. The time needed to complete the checklist ranged between 15-30 minutes depending upon the time of the procedure. The checklist was completed by the researcher during nurse's practice inside the department. Each child was assessed to complete tool II. The time consumed to answer each sheet ranged from 10 to 15 minutes.

Pilot study:-

The pilot study was conducted on ten children with convulsion as well as three nurses to ensure applicability and visibility of questions and to estimate the time required to complete the tools. Children included in the pilot study were excluded from the study sample (62 nurses and 62 children)

Administrative and Ethical Considerations –

An official permission was obtained by submission of an official letter issued from the dean of the Faculty of Nursing, Zagazig University to the director of (Intensive care unit, Neonatal intensive care unit and General unite, Nephrology unite) at Zagazig university Hospitals. Meetings and discussions were held between the researcher and the nursing administrative personnel to make them aware about aims and objectives of the research, as well as, to get better cooperation during the implementation phase of the research.

Statistical Analysis

The collected data was coded and entered in a data base file using the FoxPro for windows program. After complete entry, data was transferred to the SPSS version 19.0 program by which the analysis was conducted applying frequency tables with percentages and cross tabulations. The tests of significance used were the Chi-square, Fisher exact, Spearman's. Chi-square & Fisher exact are used for Qualitative data.

Results

Table (1) shows the characteristics of studied children it was found that 25.8% of studied children were from PICU and 12.9 % were from NICU , while 54.8% from general unite and only 6.5% from renal unite . Concerning age of children, it was found that 12.9% aged less than 1 month (neonate) followed by 35.5% aged 1-12 months with mean age 2.3±0.71 month. As regards to gender it was found that 62.9% were males compared to 37.1% were females.

Diagnosis &investigation was illustrated in **Table (2).** it was found that 24.2% of children diagnosed as febrile Convulsions and 16.1% disturbed conscious level while only 1.6% of children diagnosed with hypocalcaemia, while 54.8% done blood investigation ,followed by 48.4% investigated with CT scan, meanwhile MRI on brain was constitute 12.9% while only 6.5 % investigated with CSF

Table (3) shows Characteristics Of Studied Nurses It was found that 33.9%of studied nurses were working at NICU & 32.3% working at PICU while 17.7% in Nephrology unite and 16.1% working in general unite .As regards to nurse's age it was found that 20 to less than 25 years was constitute 27.4%, followed by 21.0% who aged 25 to less than 30 years with mean age of 29.61 ± 6.59 years. Regarding marital status, it was found that 95.2% of studied nurses were married. As regards to qualifications, it was found that 90.3% of studied nurses had

diploma degree; while 9.7% had graduated from technical health institute.

The same table also reveals that, 8.1% had 5 years of experiences or less, followed by 33.9% of nurses who had 5 to 10 years of experiences, with mean years of experience 11.63 ± 6.04 years. As regards years of experience of studied nurses in pediatric nursing , it was found that 88.7% of nurses had 3 years of experience or more. Regarding to the training courses, it was found that, 95.2% of studied nurses did not had any previous training courses related to Convulsions , while 4.8 % had attended training courses related to Convulsions

Assessment of Nurses during child's convulsion was portrayed in **Table (4).** It was found that 79.0% of nurses assessed intravenous infusion, while 64.5% assessed duration of convulsion, 59.7% of studied nurses assessed face, while 4.8% of studied nurses assessed patency of airway.

Nursing care provided to convulsed children during Convulsions was illustrated **in table (5)**. It was found that all nurses checked physician's orders/ patient's needs, followed by 95.2% who didn't put anything in the child's mouth, and 88.7 % eased the child down if he/she was standing or seated.

Meanwhile, 80.6% of studied nurses loosened restrictive clothing, as well as 62.9% didn't attempt to restrain the child or use force effort. In addition, 48.4% turned the child to one side as a unit if vomiting occurs and only 21.0% of nurse's gave the child 100% oxygen by face mask

Nurse's assessment of child after convulsion was showed in **Table (6).** It was found that 79.0% of studied nurses assessed state of consciousnesses, unresponsiveness, drowsiness, confusion; this was followed by 33.9% who assessed duration of postictal period, as well as 25.8% who evaluated motor ability.

Meanwhile, 19.4% of studied nurses assessed method of termination of the child, and 17.7% of nurses assessed duration of sleeping. In addition, 8.1% of nurse's assessed extent of any abnormality (urination -defecation).

Table (7) shows Nursing care provided to convulsed children after convulsion it was found that the majority of nurses 82.3% checked time postictal period, as well as 74.2% called emergency medical service when necessary, followed by 71.0% who avoided giving food or liquids until fully alert and swallowing reflex has returned. Moreover, 48.4% of studied nurses gave rescue breathing and called emergency medical service if breathing was not present, checking inside of mouth to see if tongue or lips have been bitten was done by 19.4%, and only 16.1% of nurses checked for breathing.

Table (8) shows relation between total score of nurses' knowledge & practice regarding convulsions and its care. It was found that there was a statistical relation between total nurses' knowledge scores and their practice ($P<0.05$).

Figure (1) illustrated that total nurse's practice score about care of children with convulsion. It was found that 5.0% of studied nurses had good practice score followed by 21.0% who had fair practice score, while 74.0% had poor practice score.

Figure (2): shows nurse's knowledge score about child care with convulsions. It was found that 56.5% of studied nurses had Good knowledge score followed by 24.2% who had fair knowledge score, while 19.4% had poor knowledge score.

Discussion

Convulsion is the most common and frightening neurologic disorder of childhood that results in a change in function or behavior McAbee & Wark [8]. Nurses caring for a hospitalized epileptic patient must beknowledgeable about the disease, its treatment, and seizure management. This knowledge will help the nurse to provide a safe environment for the patient and keep seizures to a minimum so that recovery will not be delayed by unnecessary convulsion injuries. Teaching needs regarding the disease and its management can also be identified and implemented by the nurse Behrman et al., [9].

Concerning characteristics of studied children, the results of the present study showed that half of the studied children were at the childhood stage. This may be attributed to that seizures are a symptom of underlying disease process. Causes of convulsions may be infection, metabolic or related to ingestion of toxins, and this is most common at childhood stage. This finding goes in line with Isler et al., [10]. who conducted a study to determine parental knowledge and practices regarding febrile convulsion in Turky and reported that two third of convulsing children were at childhood stage. This was contraindicated with Chun et al., [11]. who conducted a study to analyze the clinical spectrum and prevalence rates of various etiologies in children with a first attack of acute convulsing disorder in emergency department at Changhua children's hospital, Taiwan. It was found that 94% of studied children aged less than one year.

The current study revealed that nearly two third of studied children were males, this may be due to genetic factors. These results agree with Khawaja et al., [12]. Who conducted a study about management and treatment of febrile convulsions in children at Mayo Hospital Lahore and found that slightly more than half of the included sample were males. Moreover, Huang et al., [13]. found in his study that the high incidence of convulsions was in boys

Nahin et al., [14]. Who carried out a study at Royal Liverpool children's Hospital to explore the possible roles, etiology, course and short term neurological outcome of children with convulsions admitted to ICU. It was found that two third of children presented with seizure and fever. This finding was in agreement with result of the present study where nearly one third of studied children had convulsions due to febrile attack. This may be related to that febrile convulsion is the most common convulsing disorder during childhood

The most common investigation done to studied children was blood test and this may be due to blood investigations which are easily done at any time in the pediatric hospital than other investigation. This agreed with Albert et al, [15]. who conducted a study to assess the clinical characteristics and the outcome of benign convulsions associated with mild gastroenteritis at Naples (Italy). The study revealed that the most of studied children went through blood investigations. This finding was contraindicated with Hassan et al. [16], who conducted a

study to determine parental knowledge and practices regarding febrile convulsion in Emergency Department service of Children hospital in Turkey. The study showed that the majority of studied children were investigated with CT scan

Knowledge is valuable, and its application in clinical practice is important, knowledge alone without practice has no effect. Moreover, new trends based on improving nurses' knowledge through nursing care standard could enhance their knowledge and consequently improve their practice. In addition, nursing staff must update their knowledge and skills through regular reviews & attendance of training program Hockenberry & Wilson [17]

The present study showed that there was a statistical relation between total nurses' knowledge score and total practice score. This result may be due to that knowledge alone without practice had no effect. Knowledge may be easily gained but sufficient training is necessary to improve performance. Therefore, attending training educational programs, national conferences and continuing formal education are necessary for keeping knowledge and practice up to date. This finding was in harmony with Chan & Abd El-Aziz [18] who found that there is a statistically significant relation between nurses' level of knowledge and practice. On the other hand, this finding was inconsistent with Soliman et al [19] who mentioned that there was no relation between nurses' knowledge and practice.

Conclusion

Based on the results of the present study it could be concluded that level of practice of studied nurses regarding care provided for convulsed children was poor

Recommendations

- Nurses: children ratio should be 1:2 to ensure good nursing care provided to each child
- Development and providing of training program should be conducted periodically for nursing regarding convulsion.

Table (1): Characteristics of Studied Children

Characteristics	No (62)	%
Attended unit:		
▪ PICU	16	25.8
▪ NICU	8	12.9
▪ General unite	34	54.8
▪ Nephrology unite	4	6.5
Age:		
▪ < 1 month (neonate)	8	12.9
▪ 1-12 months (infant)	22	35.5
▪ > 1 year (child)	32	51.6
Mean ± SD		2.38 ± 0.71
Range		(1-3)
Gender:		
▪ Male	39	62.9
▪ Female	23	37.1
Causes of convulsion :		
▪ Febrile episodes	22	35.5
▪ Intracranial infection	14	22.6
▪ Intracranial hemorrhage	2	3.2
▪ Hypocalcaemia	3	4.8
▪ Brain atrophy	4	6.5
▪ Hypoxic ischemic encephalopathy	5	8.1
▪ Poisoning	1	1.6
▪ Epilepsy	9	14.5
▪ Hypertention	1	1.6
▪ Hydrocephalus	1	1.6

Table (2): Diagnoses and investigation Of Studied Children(Total Number=62)

Diagnoses And Investigation	No	%
Diagnoses:		
▪ Encephalitis	6	9.7
▪ Intracranial Hemorrhage	3	4.8
▪ Neonatal Hypoxia	3	4.8
▪ Neonatal convulsion	3	4.8
▪ Respiratory distress	3	4.8
▪ Convulsion with pneumonia	2	3.2
▪ Febrile convulsion	15	24.2
▪ Disturbed conscious level	10	16.1
▪ Metabolic alteration	3	4.8
▪ Hydrocephalus	1	1.6
▪ Generalized edema for investigation	6	9.7
▪ Ketoacidoses	4	6.5
▪ Hypocalcaemia	1	1.6
▪ poisoning	2	3.2
Investigation:		
▪ CT on brain	30	48.4
▪ Blood investigation	34	54.8
▪ Chest x ray	4	6.5
▪ MRI	8	12.9
▪ CSF	4	6.5
▪ More than one type of investigation	22	35.5

Table (3): Characteristics Of Studied Nurses (N =62)

Characteristic		
Unit:	**NO**	**%**
▪ PICU	20	32.3
▪ NICU	21	33.9
▪ General unit	10	16.1
▪ Nephrology unit	11	17.7
Age (years):		
▪ 20-	17	27.4
▪ 25-	13	21.0
▪ 30-35	32	51.6
Mean ± SD	29.61 ± 6.59	
Range	20-35	
Marital status:		
▪ Single	3	4.8
▪ Married	59	95.2
Qualification:		
▪ Diploma in nursing	56	90.3
▪ Technical health institute	6	9.7
Years of experience:		
▪ < 5 years	5	8.0
▪ 5-	21	33.9
▪ 10+	36	58.1
Mean ± SD	11.63 ± 6.04	
Range	5-36	
Training program:		
Yes	3	4.8
No	59	95.2

Table (4): Nurse's Assessment of Child During Convulsions

Assessment During Convulsion	(n =62)	
	No	%
- Duration of convulsion	40	64.5
- Onset of convulsion	11	17.7
- Movement	16	25.8
- Face	37	59.7
- Respiratory effort	19	30.6
- Airway for patency	3	4.8
- Intravenous infusion	49	79.0
-Reporting	15	24.2

Table (5): Nursing care of Child During Convulsions

Care During Convulsions	(n =62)	
	No	%
- Give child 100% Oxygen by face mask	13	21.0
- Gentle suction of excessive oral secretion	28	45.2
- Ease child down if child standing or seated	55	88.7
- Place pillow or folded blanket under head of child or place own hands if no bedding is available	20	32.3
-Don't Attempt to restrain child or use force effort	39	62.9
-Don't Put anything in child's mouth	59	95.2
-Don't Give any food or liquids	49	79.0
-Loosen restrictive clothing	50	80.6
-Establish intravenous line	20	32.3
- Check physician's orders/ patient's needs	62	100.0
-Turn child to one side as a unit if vomiting occurs	30	48.4
-Reporting	20	32.3

Table (6): Assessment of Child After Convulsions

Assessment After Convulsions :	No	%
- Assess duration of postictal period	21	33.9
- Assess respiratory effort	5	8.1
-State of consciousnesses-unresponsiveness, drowsiness, confusion	49	79.0
- Assess method of termination	12	19.4
- Duration of sleeping	11	17.7
- Motor ability	16	25.8
- Extent of any abnormality (urination – defecation)	5	8.1
- Sensations of pain	5	8.1
-Reporting	17	27.4

Table (7): Nursing care of Child after Convulsions

Nursing care of Child after Convulsions	(n =62)	
	No	%
- Check for breathing	10	16.1
- Check Time postical period	51	82.3
-Check position of head and tongue	23	37.1
- Reposition if head is hyper extended	21	33.9
- Give rescue breathing and call emergency medical service if breathing not present	30	48.4
-Check around mouth for evidence of burns or suspicious substances that might indicate position	15	24.2
- Keep child on side	22	35.5
-Remain with child until full recovery	28	45.2
-Avoid giving food or liquids until fully alert and swallowing reflex has returned	44	71.0
- Call emergency medical service when necessary	46	74.2
-Look for medical identification and determine what factors occurred before onset of convulsion and that may have been triggering factor	15	24.2
- Check head and body for possible injuries and fractures	13	21.0
-Check inside of mouth to see if tongue or lips have been bitten	12	19.4
-Reporting	27	43.5

Table (8): Relation between Total Score of Nurses' Knowledge & Practice regarding convulsions

Nurses' score	Knowledge		Practice		X^2	P
	N	%	N	%		
Poor	12	19.4	46	74.2	15.13	<0.05*
Fair	15	24.2	13	21.0		
Good	35	56.5	3	4.8		

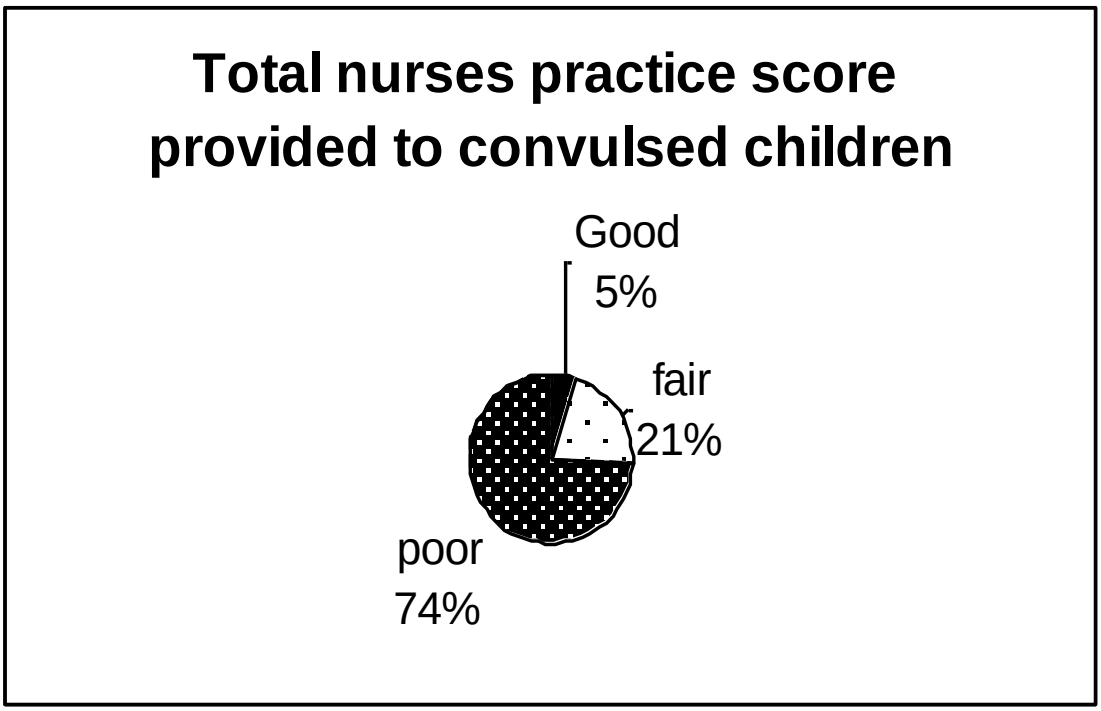

Figure (1): Total Nurse's Practice Score Provided To Convulsed Children

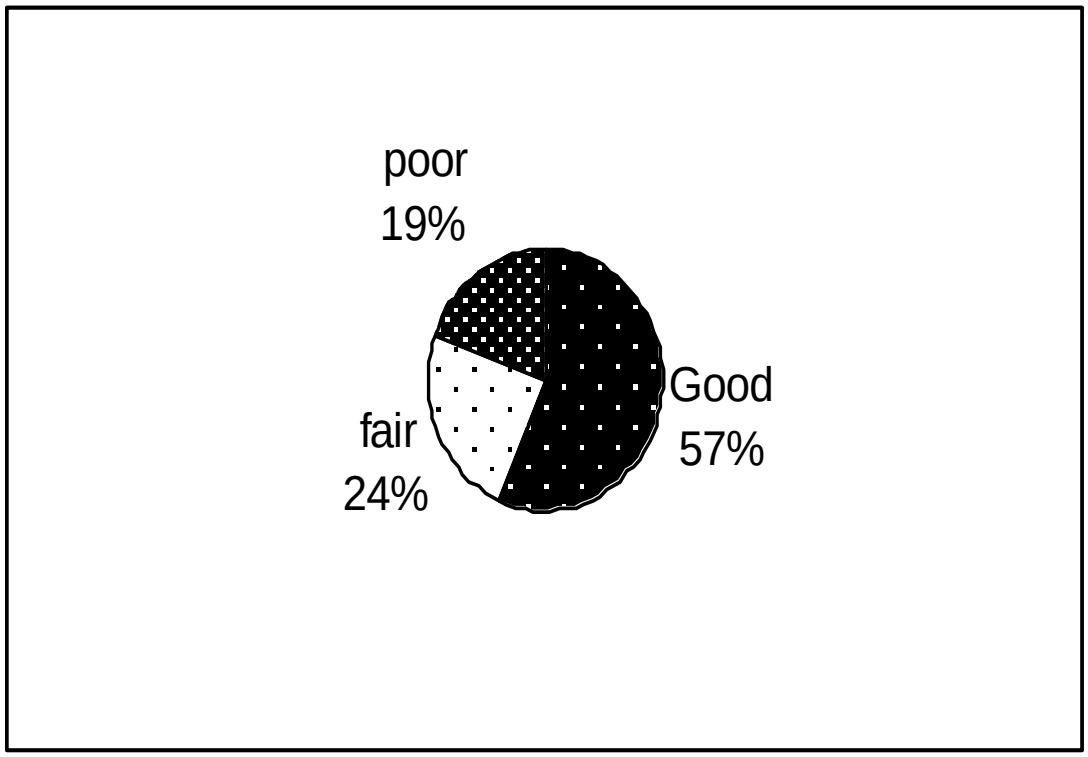

Figure (2): Total Nurse's knowledge Score Provided To Convulsed Children

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