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Assessment of Nurses' Performance regarding to Children Suffering from Guillian Barre Syndrome undergoing PlasmaPharesis

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Abstract: ***Background*** *Guillain-Barré syndrome (GBS) is an autoimmune disorder that affect mainly motor but also sensory and autonomic nerves. Nurses play a vital role in the delivery of the two primary therapies for GBS, intravenous immunoglobulin and plasma pharesis especially****. Aim of the Study*** *This study aimed to assess nurses' performance regarding to children suffering from GBS undergoing plasma pheresis.* ***Research design:*** *A descriptive design was utilized for conducting this study. Methods: All available nurses (50) working in pediatric intensive care units and conducted with plasma pheresis session affiliated to Cairo University (Abu El-Rish Child Hospitals).****Tools:*** *Data were collected through three main tools: Self-administered questionnaire sheet, observational checklist and Children' assessment sheet.* ***Results:*** *Less than two thirds of the studied nurses (64%) were males, most of them (92%) were in the age group of (20-<30) years old, less than two thirds of them (62%) were single and (64%) had Bachelor degree in nursing science. As regards of nurses' performance, most of the studied nurses (80.0%) had satisfactory total knowledge regarding to Guillian Barre syndrome and plasma pheresis session and more than three quarters of them (76.0%) had competent practices.* ***Conclusion:*** *Nurses had good level of performance (knowledge and practice) regarding to children suffering from Guillian Barre syndrome undergoing plasma pheresis.* ***Recommendations:*** *Periodic assessment of performance (knowledge and practice) for all nurses providing care to children undergoing plasma pheresis and procedure book should be available in pediatric intensive care units as a reference for all nurses.*

Key words: ***Auto-immune disease, Guillian Barre syndrome, Plasma pheresis, Nurses' performance.***

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I. Introduction

Today's children are Tomorrow's citizens, a well-developed child adds to the nation's welfare, and children are the precious resources of the nation. The most precious resource of any country is children, a responsibility of health team to protect children against all forms of exploitation and discrimination. Each new child offers to humanity another chance for survival, a child is considered as the future hope of the family as an individual, and will determine the kind of status the family would gain in the future [1]

Guillain Barre Syndrome (GBS) (known as polyneuritis) is an acute segmental demyelinating polyneuropathy with a progressive ascending flaccid paralysis and a recognizable clinical entity that is characterized by rapidly evolving symmetrical limb weakness, loss of tendon reflexes, absent or mild sensory signs and variable autonomic dysfunction. Since the virtual elimination of poliomyelitis, GBS has become the leading cause of acute flaccid paralysis .[2] The Guillain Barre Syndrome associated with pathologic changes in spinal and cranial nerves consist of inflammation and edema with rapid, segmented demyelination and compression of nerve roots within the dural sheath. Nerve conduction is impaired, producing ascending partial or complete paralysis of muscles innervated by the involved nerves. [3]

Guillain-Barre syndrome, with the eradication of polio, is now the leading cause of flaccid paralysis in the United States. The GBS can affect one to two person every 100,000 people. In Western countries, the number of new episodes per year has been estimated to be between 0.89 and 1.89 cases per 100,000 people. Children and young adults are more likely to be affected than the elderly. The risk increases by 20% for every decade of life. The Guillian Barre Syndrome (GBS) has three phases; the first phase is acute or progressive that the disease begins with onset of symptoms and continues until new symptoms stop appearing or deterioration ceases; may last as long as 4 weeks. The second phase is plateau; symptoms which remain constant without further deterioration; may last from days to weeks and the third phase is recovery where the pediatric child begins to improve and progress to complete recovery; usually lasts a few months .[4]

The Guillian Barre Syndrome (GBS) is often affected children more than adults; among children, those between ages 3 and 10 years have higher susceptibility. The male/female ratio 1.5/1. Two peak time periods have been identified with an increased incidence of GBS: late adolescence and young adulthood. Diagnosis is based on the paralytic manifestations and electro-myo-gram (EMG), Motor and sensory nerve conduction and cerebrospinal fluid analysis. These investigations are to differentiate between spinal paralytic poliomyelitis and acute flaccid paralysis (GBS). Treatment modalities for children include aggressive ventilator support, steroids and plasma pheresis sessions, or intravenous administration of immunoglobulin. [5]

Plasma pheresis or plasma exchange and intravenous-immunoglobulin administration have equal benefit for treatment; but plasma pheresis has been shown to decrease length of recovery in child with severe GBS. However, it is expensive and has some side effects as hypotension, bradycardia and fever. [6]Nursing care is essential in all phases of the disease because children with GBS are immobilized and have respiratory depression. Care is emphasized on close observation of the child to assess the extent of paralysis and on prevention of complications including; autonomic dysfunction as hypertension, orthostatic intolerance, respiratory dysfunction, pain management and life threatening dysrhythmias**.** [7]

Nurses play a pivotal role in the delivery of the two primary therapies for GBS, intravenous immunoglobulin and plasma pharesis. Nurses spend a significant amount of time with the child compared to other healthcare professionals. Increasing nurses' awareness of Guillain Barre syndrome and the related child care management strategies for all phases of the illness; to enhance care provided to child, provide a more informed and higher level of care for children and their families impacted by this unique and challenging illness. Also, the role of nurse in the plasma pheresis unit is important, creative and clearly charged with responsibilities related to nursing activities and their quality. [8]

Nurse is responsible for plasma pheresis sessions that started by preparation, connection to machine, performing session, finalize and disconnect filter as hemodialysis session for child with chronic renal failure or renal impairment. [9] The nurse is the one who will direct, coordinate, train, advise, propose changes in care and participate in clinical research studies for children undergoing plasma pheresis. [10]

1.1 Significance of the Study

The Guillian Barre Syndrome (GBS) is a significant cause of long-term disability for at least 1,000 children per year in the United States and is considered a medical emergency. It is affecting approximately 100,000 children per year. The incidence of non-polio acute flaccid paralysis in Egypt from 2014 to 2015 was 1534 children and the incidence of using plasma pharesis as a first line for treatment was 60 % of total number of previous cases. So the expected cases for Egypt are 2/100,000 among children < 15 years of age. [11]

Nurses should have qualifications to develop and deliver nursing care to children who require nursing assistance. Nurses should assess GBS children frequently to observe changes due to the progressive nature of this syndrome. In order to provide prompt care for children impacted by the syndrome, nurses should know the progression of the syndrome, basis for diagnosis and treating the illness, and the issues that GBS children may face during hospitalization. Nurses play an essential role in providing the complex care that is required by GBS children**.** [12] Nursing management has the main role before, during and after plasma pheresis sessions in pediatric intensive care units. Therefore, this study was carried out to explore nurses' Knowledge and practice regarding to children suffering from GBS undergoing plasma pharesis.

1.2 Aim of the study

This study aimed to assess nurses' performance (knowledge and practice) regarding to children suffering from Guillain-Barre Syndrome undergoing plasma pheresis..

1.3 Research Question:

What is the nurses' performance (knowledge and practice) regarding to children suffering from Guillain-Barre Syndrome undergoing plasma pheresis?

II. Subject and methods

2.1 Research design:

A descriptive research design was used to conduct the present study.

2.2 Research setting:

The study was conducted in Abu El-Rish pediatric Hospitals affiliated to Cairo University Hospitals at Three (3) pediatric critical care units: Pediatric Critical Care Unit 7th floor at El-Monira hospital, Pediatric Critical Care Unit 4th floor and Pediatric Critical Care unit 6th floor at Japan Hospital. These units specialized in plasma pheresis session for children suffering from Guillain-Barre Syndrome.

2.3 Subjects:
A purposive sample of all available nurses (**50 nurses**) **regardless** their age, gender and educational levels who were providing care for children suffering from Guillian Barre Syndrome in the previously mentioned settings and accepted to participate in the study over a period of 6 months.

2.4 Tools of data collection:

Three tools were used to collect data as the following:

Tool (I):) Nurses self-administered questionnaire: This tool was developed by the researcher in an Arabic language to suit the nurses' level of understanding and divided into two parts as the following**:**

Part (1) Characteristics of nurses: The studied nurse's characteristics included age, gender, level of education, years of experience and attending previous courses and training about Guillian Barre syndrome and plasma pheresis sessions.

Part (2) Nurses' knowledge: This part was concerned with assessment of nurse's knowledge about Guillian Barre syndrome (definition, risk group, nature of disease, types, signs and symptoms, treatment, nursing care and complications) and secondly nurse's knowledge about plasma pheresis (definition, indications, contraindications, complications and preventive measures and care before, during and after the procedure. Questions were in form of open and closed ended and their number was 32 questions.

Knowledge scoring system: Nurses' knowledge was checked with a model key answer where correct answer scored (1) and wrong answer scored (0). According to nurse's answers, their knowledge scores were classified into either satisfactory ≥ (70%) or unsatisfactory < (70%).

Tool (II) Children assessment sheet to assess children's characteristics (children' age, gender, date of admission, duration of illness and laboratory investigations).The findings of children's laboratory investigations, vital signs and weight were compared with their normal peers.

Tool (III) Nurses observational checklist:

Nurses' observational checklist was adapted from Kumar, (2015) and used to assess the nurse`s actual practices related to care before, during and after care of children undergoing plasma-pharesis therapy. This tool included 34 steps about nursing practice (preparation of the child before plasma pheresis session and child' care during and after session) of children undergoing plasma pheresis session using the observational checklist which were filled by the researcher.

- The Scoring system of nursing practice: Total steps were 34, where score (2) were given for done complete practice, score (1) for practice incomplete done and score (0) for not done or incorrect practice. The scores of all items were summed up and total was (68) divided by number of the items, giving a mean score for the part. These scores were converted into a percent score.

- The nurse`s practices considered competent if the percent score was ≥ 70% and incompetent if the percent score was <70%.

Limitation of the study:

Very limited studies and references related to the research topic.

2.5 Pilot Study:

A pilot study was carried out involving **5 nurses (10%)** from the study subjects (Total is **50 nurses**) to test the clarity, applicability, feasibility & relevance of the tools used and to determine the needed time for the application of each one. The nurses who were included in the pilot study were included in the sample because no major modification was done after conducting pilot study.

2.6 Field Work:

The purpose of the study was simply explained to the nurses who agree to participate in the study prior to data collection. The actual work of this study started and completed within six months from the first of **December 2017** to the end of **June 2018.**

The researcher was available in each study setting during morning and afternoon shifts according to flow of pediatric patients (through phone contact with the nursing staff). Data were collected by the researcher through interviewing each nurse individually according to the mitigates circumstances of the study setting in addition to physical and mental readiness of each study subject in the previously mentioned settings as the time needed for completing the tools was about one hour for each nurse. The studied nurses were observed and assessed during their actual care provided to the children suffering from Guillian Barre syndrome and undergoing plasma pheresis session.

2.7 Ethical considerations:

Approval of the study protocol was obtained from the Scientific Research Ethical Committee / the Faculty of Nursing/ Helwan University before starting the study. The researcher clarified the objective of the

study to each nurse included in the study. The researcher assured maintaining anonymity and confidentiality of the subject data. Nurses were informed that their participation is voluntary and that they have the right to withdraw from the study at any time without giving any reasons. The nurses assured also that, the information collected were treated confidentially and used only for the purpose of the study.

2.8 Statistical Design:

The collected data were organized, categorized, tabulated and statistically analyzed using the statistical package for social science (SPSS) version 20. Data were presented in tables and graphs. The statistical analysis included; percentage (%), chi-square (X2), and Pearson correlation (r)

The observed differences and associations were considered as P .was > 0.05 it means insignificance (No difference), when P. was ≤ 0.05 it means significance difference, when P. was ≤ 0.01 it means moderate significance difference and when P. value was ≤ 0.001 it means highly significance difference. Frequency and percentage for qualitative data as gender, educational level, previous courses, knowledge and practice level. And for test of association the researcher used Chi-square test to compare between two or more groups.

III. Results.

Results of this study showed that: Regarding characteristics of the studied nurses (Table 1) less than two thirds of the studied nurses (64%) were males, most of them (92%) were in the age group of (**20-<30)** years old, less than two thirds of them (62%) were single and (64%) had Bachelor degree in nursing science. More than half of them (54%) work as nurse and more than two thirds of them (68%) had between **(5≤10)** years of experience in pediatric intensive care unit. Also more than half (54%) of them didn't attend any training courses about syndrome or plasma pheresis session.

According to children' vital signs in (**Table 2),** the $\overline{x}$ ± SD temperature of children was 37.15 ± 0.23 before plasma pheresis sessions while it decreased to 36.10 ± 5.21 after sessions, $\overline{x}$ ± SD heart rate of children before sessions was 104.33 ± 11.19 then decreased to 95.94 ± 13.81 after sessions and $\overline{x}$ ± SD diastolic blood pressure was 74.12 ± 8.31 before sessions decreased to 65.71 ± 9.01 after sessions. All reading of children' vital signs through before, during and after plasma pheresis sessions were normal when compared with peers.

Most of the studied nurses (80.0%) had satisfactory knowledge levels regarding to Guillian Barre syndrome and plasma pheresis session and (20.0%) of them had unsatisfactory knowledge levels in **(Figure 1).**

More than three quarters of studied nurses (76.0%) had competent practices regarding to plasma pheresis session and (24.0%) of them had incompetent practice level as **(Figure 2).**

There is a significant statistical positive fair correlation between nurses' knowledge about disease and their practice after session. But there is no significant statistical correlation between dimensions of knowledge and practice as in **(Table 3).**

In **(Table 4)** there is a significant statistical positive fair correlation between nurses' age and their experience and totally practice (r= 0.46, P - value ≤ .001, (r= 0.3, P - value ≤ .03) respectively. Regarding correlation between nurse's education and their experience and total practice, there is a significant statistical positive fair correlation between nurse's education and their experience and total practice (r= 0.29, P - value ≤ .04, (r= 0.43, P - value ≤ .001). Also, there is a significant statistical positive fair but there was positive moderate correlation between nurses' educational level and their total knowledge regarding plasma pheresis.

IV. Discussion

Nurses should have qualifications to develop and deliver nursing care to children who require nursing assistance and educated the best practices when caring for children with Guillain-Barre syndrome (GBS). Nurses should assess GBS children frequently to observe for changes due to the progressive nature of this syndrome. In order to provide prompt care for children impacted by the syndrome, nurses should know the progression of the syndrome, basis for diagnosing and treating the illness, and the issues that GBS children may face while hospitalized. Nurses play an essential role in providing the complex care that is required by GBS children. Also, the role of nurse in the plasma pheresis unit is important and occurs to be more creative, more enlarged and clearly charged with responsibilities related to nursing activities and their quality. That's because the nurse is the one who will direct, coordinate, train, advise, propose changes in care and participate in clinical research studies**.** [12] So, the current study aimed toassess nurses' performance regarding to children suffering from Guillain-Barre Syndrome undergoing plasma pheresis sessions.

As regards the nurses' characteristics **(table 1)**, the present study revealed that, more than half of the studied sample in age group ranged between 20 - < 30 years. This result in the same line with **Ahmed et al.** [13]**,** who assessed nurses' performance regarding nasogastric tube feeding among critically ill children at Cairo

hospitals - Egypt, showed that about more than half of the nurses' age was below 25 years. This result may be due to head nurses prefer hiring of newly graduated nursing student in the critical care unit.

As regards gender of nurses **(table 1)**, the present study revealed that, more than three quarters of the studied nurses were females. This finding was consistent with **Abdullah [14]** who assessed nurses' knowledge and practices about administration of medications via nasogastric tube among critically ill children reported that three quarter of the study subjects were females. This result might be attributed to the fact that the majority of nurses who graduated from secondary diploma school and clinical institute were females.

As relation to years of experiences among studied nurses **(table 1),** less than half of them were from 1 < 5 years of experience. This result in the same line with **Mohammed [15]** who assessed critical care nurses' knowledge and practice regarding administration of total parenteral nutrition at critical care areas in Egypt reported that, about two third of the study subjects' years of experience in ICU ranged between 1-5 years. This result may be due to most of the nurses under study were newly graduated nurses.

Regarding to educational level of studied nurses **(table 1)** near half of them graduated from nursing school (Diploma). This result is in agreement with **Ibrahim et al., [16]** assessed nurses' performance regarding care of children undergoing hemodialysis therapy in Cairo University Hospitals and Ain Shams University hospitals reported that about three quarter of studied nurses graduated from diploma nursing. In Egypt there are three types of nurses: college graduates, technical institute graduates and secondary technical schools, also known as diploma nurses. The first two types of nurses comprise four and two percent of the Egyptian nursing staff respectively, while diploma nurses make up the remaining 94 %.

As regard nurses' previous courses **(table 1)**, the current result showed that more than half of studied sample have no previous training courses about care of children suffering from Guillian Barre syndrome and undergoing plasma pheresis therapy. This result in the same line with **Kudhaer and Mua'ala [17]** who assessed the level of pediatric nurses' knowledge toward children with Guillain-Barre Syndrome (GBS) and find out the relationships between nurses' knowledge and their demographic data in Iraq, reported that the most nurses has no training sessions about this disease. This may be due to shortage of nurses' staff, work load and lack of time in ICU.

Regarding assessment of vital signs before, during and after plasma pheresis sessions **(table 2)** the studied children showed normal ranges in their body temperature, their heart rate, respiratory rate, and their blood pressure. This result confirmed by **Van Doorn [18]** emphasis on assesses blood pressure and heart rate frequently to identify autonomic dysfunction and deep vein thrombosis (DVT) so that appropriate interventions can be initiated.

Regarding nurses' knowledge about Guillian Barre syndrome less than one quarter of them had satisfactory knowledge regarding definition, causes, signs and symptoms, diagnosis, treatment, and complications. This result might be due to recently new admission of GBS cases in the hospital and they started to have special wards and units for this disease and evidenced by **Egyptian Ministry of Health [11]** reported that incidence of non-polio acute flaccid paralysis in Egypt from 2014 to 2015 was 1534 children so pediatric nurses notice few cases yearly, so no available time to obtain training

Regarding nurses' total practice regarding plasma pheresis session **(figure 2)** revealed more than three quarter of studied nurses had competent practices regarding to plasma pheresis session and near to one quarter of them had incompetent practice level. This results in the same line with **Ramineni, et al., [19]** who mentioned that the treatment of Guillian Barre syndrome is plasmapheresis along with good nursing care.

Regarding correlation between domains of nurses' knowledge and their practice **(table 3)** showed that there is a significant statistical positive fair correlation between nurses' knowledge about disease and their practice after session. But there is no significant statistical correlation between dimensions of knowledge and practice.

Concerning correlation between nurses' demographic data and their total knowledge and practice **(table 4)** presented that there is a significant statistical positive fair correlation between nurses' age and their experience and totally practice. Regarding correlation between nurse's education and their experience and total practice, there is a significant statistical positive fair correlation between nurse's education and their experience and total practice. Also, there is a significant statistical positive fair but there was positive moderate correlation between nurses' educational level and their total knowledge regarding plasma pheresis. In additional, there is a positive fair correlation between nurses' experience and their total knowledge regarding plasma pheresis.

V. Conclusion

Based on findings of the current study, it can be concluded that, most of studied nurses had satisfactory level of knowledge regarding to Guillian Barre syndrome and plasma pheresis and more than three quarters of the studied nurses had competent practices regarding to plasma pheresis session; so nurses' performance (knowledge and practice) of the studied nurses was good.

VI. Recommendations

In light of the current study findings the following recommendations are suggested: Periodic assessment of nurses' performance (knowledge and practice) for all nurses providing care to children undergoing plasma pheresis therapy. In addition to emphasizing the importance of continuous training based on actual need assessment of nurses caring for children undergoing plasma pheresis therapy. Procedure book should be available in plasma exchange units as a reference for all nurses who providing care to children suffering from Guillian Barre syndrome and undergoing plasma pheresis sessions.

Table (1): Number and percentage distribution of the studied nurses according to their characteristics (n=50)

Characteristics of the studied nurses	No.	%
Gender		
Female	18	36
Male	32	64
Age(years)		
20-<30	46	92
30≤40	4	8
$\overline{x}$ ± SD	2.56 ± 0.733	
Marital status		
Single	31	62
Married	19	38
Level of Education		
Technical Institute degree	18	36
Bachelor degree in nursing science	32	64
Job		
Nurse	27	54
Nurse specialist	23	46
Experience in Pediatric ICU (years)		
-<1	4	8
1< 5	6	12
5< 10	34	68
10≤15	6	12
$\overline{x}$ ± SD	2.44 ± 0.837	

Training courses		
No	27	54
Yes	23	46

Table (2): Mean and standard deviation of vital signs of children before, during and after plasma pheresis sessions (n=50)

Items	Before	During	After
	$\overline{x}$ ± SD	$\overline{x}$ ± SD	$\overline{x}$ ± SD
Temperature	37.15 ± 0.23	36.85 ± 0.36	36.10 ± 5.21
Heart Rate	104.33 ± 11.19	104.51 ± 12.60	95.94 ± 13.81
Respiratory Rate	22.78 ± 3.85	20.53 ± 3.83	23.71 ± 10.59
Systolic Blood pressure	105.88 ± 17.38	105.65 ± 9.09	110.88 ± 6.84
Diastolic Blood pressure	74.12 ± 8.31	70.20 ± 15.90	65.71 ± 9.01

Table (3): Correlation matrix between domains of nurses' knowledge and their practice

knowledge / practice	Knowledge about disease		Knowledge about sessions		Total knowledge	
	r	*P* – value	r	*P* – value	r	*P* – value
Before session	-0.13	0.36	-0.08	0.55	-0.11	0.43
During session	0.17	0.23	0.17	0.22	0.17	0.23
After session	0.29	0.04*	-0.14	0.34	-0.22	0.13
Total practice	-0.22	0.12	-0.13	0.38	-0.18	0.21

Figure (1): Number and percentage distribution of the studied nurses regarding to their total knowledge levels (n=50).

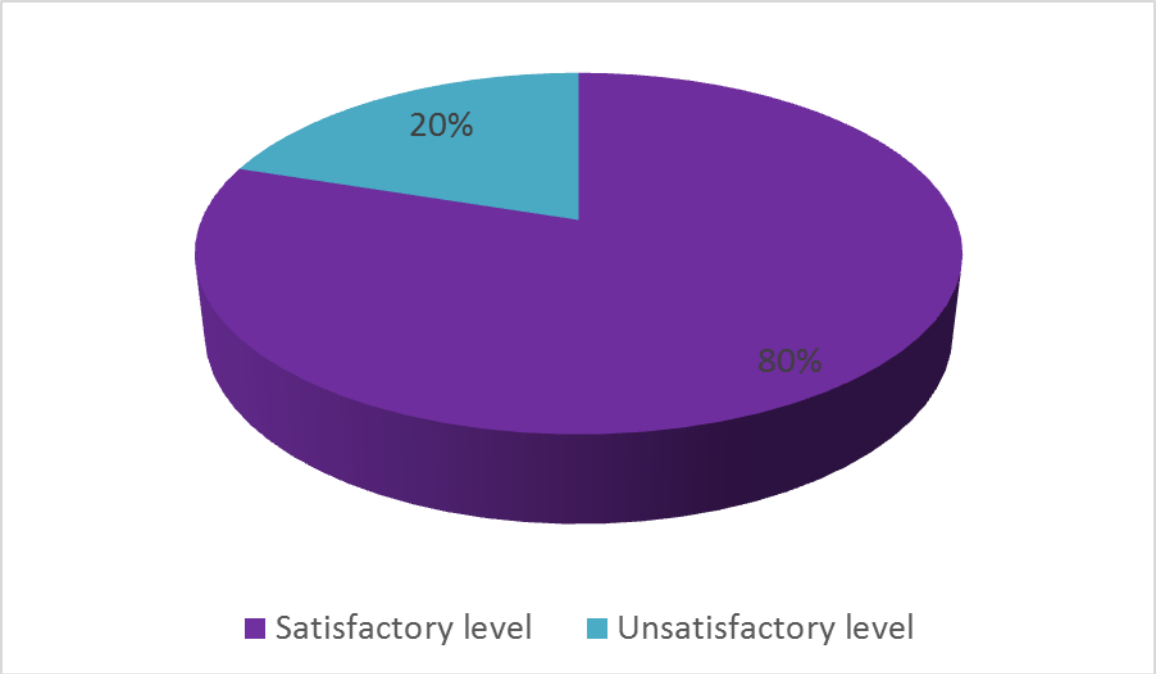

Figure (2): Number and percentage distribution of the studied nurses regarding to their total practice levels (n=50).

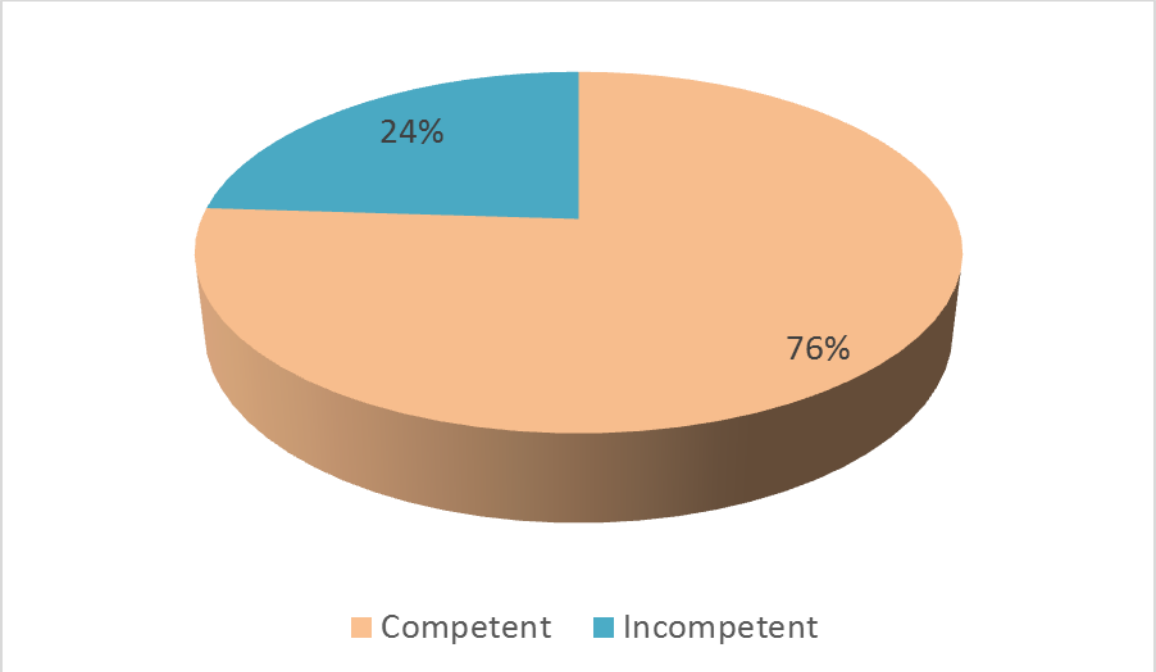

Table (4): Correlation matrix between nurses' demographic data and their total knowledge and practice

Variables	Age		Education		Experience	
	R	*P* – value	r	*P* – value	r	*P* – value
Education	-0.24	0.09				
Experience	0.46	0.001**	0.29	0.04*		
Total knowledge	0.09	0.53	0.58	0.001**	0.46	0.001**
Total practice	0.3	0.03*	0.43	0.001**	0.12	0.38

****Correlation is significant at $p < 0.01$**

References

[1]. Cea G, Jara P., and Quevedo F., (2015): Clinical features of Guillain- Barré syndrome in 41 patients admitted to a public hospital. Rev Med Chil. 143(2):183-9.

[2]. Kliegman, R.M (2011): Nelson Text Book of Pediatrics,19th ed., Mosby comp.,USA, ch., 608,p.p 2143-2146..

[3]. Jayasena, Y.A (2012): The Lippincott Mannual of Nursing Practice ,7th ed., Mosby comp., USA , chapter 15, p.p 478-480

[4]. Wilson, D (2015): Nursing care of infant and children, 10th ed., Mosby comp., USA, ch., 35, p . p 1643, 1644.

[5]. Nobuhiro, M.D. & Hartung, (2016): Guillain-Barre syndrome in preschool children, Neurology 76(9):807-10 .Retrieved from (http://www.ncbi.nlm.nih.gov/pubmedhealth).

[6]. Marcdant, K.J (2014): Essesntial of Pediatrics ,6th ed., Mosby comp.,USA, ch., 182, p.p 685,686.

[7]. Sarnat, H.B (2011): Text Book of Pediatrics,11th ed., Mosby comp., USA, ch.,40, P.P 687..

[8]. DeCort, M., (2011): Nursing a patient with Guillain-Barre' syndrome. Kai Tiaki Nursing, 17(7), Pp. 32-33.

[9]. Weerasinghe V.S. (2013): Physiological changes during and outcome following 'filtration' based continuous plasma exchange in Guillain Barre Syndrome. Transfus Apher Sci. 42(2):109-13. Retrieved from (http://www.medscape.com).

[10]. Gerogianni K., Panagiotou C., and Grapsa I., (2015): The Role of Nurses in Therapeutic Plasma Exchange Procedure. Review paper. International Journal of Caring Sciences, Volume 8 Issue 1 P 194.

[11]. . Egyptian Ministry of Health.(2016):Acute flaccid paralysis surveillance, 80th ed., MOHP ,Egypt.

[12]. Knight J., (2011**).** A special relationship, Nursing Standard, 25(42), Pp.1617.

[13]. **Ahmed H L., Mohamed H A., and Mahmoud A M. (2016).** Nurses performance regarding nasogastric tube feeding among critically ill patients. Unpublished master thesis faculty of nursing, Ain sham UniversityAlhantoushi, M. and Alabdullateef, S. (2014): Internet Addiction among Secondary School Students in Riyadh City, its Prevalence, Correlates and Relation to Depression: A questionnaire Survey. International Journal of Medical Science and Public Health, 3(1): 10-14.

[14]. Abdullah, M. (2014). Nurses' Knowledge and Practices about Administration of Medications via Nasogastric Tube among Critically Ill Patients, Journal of Education and Practice, 5 (1), Pp. 147-159. Retrieved from http://www.iiste.org/ Journals/ index.php/ JEP/ article/ view/ 10736. Accessed on 23 December 2015.Morsy, A.A. and Shalaby, N.S. (2012): The Use of Technology by University Adolescent Students and its Relation to Attention, Sleep and Academic Achievement, Journal of American Science, 8(1): 264- 269.

[15]. Mohammed, E.K. (2014): Critical Care Nurses' Knowledge and Practice Regarding Administration of Total Parenteral Nutrition at Critical Care Areas in Egypt, Journal of Biology, Agriculture and Healthcare, 4 (13), Pp. 10-22. Retrieved from http://www.iiste.org/ Journals/ index.php/ JBAH/ article/ view/ 13955. Accessed on 18 January 2016.Dinleyici, M., Carman, K., Ozturk, E., and Dagli, F. (2016): Media Use by Children, Parents' View on Children's Media Usage, Interactive Journal Medical Research, 5(2): 18. Available at DOI: 10.1093/acrefore/9780190264079.013.189 Accessed at 21 February 2019 22:30.

[16]. Ibrahim M A., (2018). Assessment of nurses' performance regarding care of children undergoing hemodialysis therapy. Unpublished master thesis, faculty of nursing, Helwan University.

[17]. Kudhaer W. and Mua'ala E G. (2010). Assessment of Nurses' Knowledge toward Children with Guillain- Barre Syndrome at Pediatric Hospitals in Baghdad City. Iraqi Sci. J. Nursing, Vol. 23, Special Issue.

[18]. Van Doorn A., (2013): Diagnosis, treatment and prognosis of Guillain-Barre´ syndrome. Presse Med. 42: e193–e201.

[19]. Ramineni, Sekiguchi Y., Uncini A., Yuki N., Misawa S., Notturno F., Nasu S., Kanai K., Noto Y., Fujimaki Y., Shibuya K., Ohmori S., Sato Y., and Kuwabara S., (2012): Antiganglioside antibodies are associated with axonal Guillain-Barré syndrome: a Japanese-Italian collaborative study. Journal of Neurol Neurosurg Psychiatry.; 83: 23-8.