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Nurse's Knowledge and Practice Regarding Care of Head Injury Patients at a Selected Tertiary Care Hospital in Bangladesh

Fazila Begum [1], Tasnim Akter [1,2*], Roksana Khatun [1,3], ARM Myeenuddin Chowdhury [4]

[1] Department of Public Health, Daffodil International University, Daffodil Smart City, Birulia, Savar, Dhaka-1216, Bangladesh
[2] East West Nursing College, Turag, Dhaka 1711, Bangladesh
[3] Sheikh Hasina National Institute of Burn & Plastic Surgery, Dhaka
[4] Faculty of Environmental Earth Science, Hokkaido University, Hokkaido, Japan

Corresponding author*
Tasnim Akter
Department of Public Health, Daffodil International University, Dhaka 1216, Bangladesh.
Email: tasnimmunni23@gmail.com

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ABSTRACT

All medical professionals should use a comprehensive approach for providing care of patients with head injuries. This study was designed to explore the knowledge and practice of the nurses regarding the care of head injury patients in Bangladesh. This cross-sectional study was conducted among 288 respondents at Dhaka Medical College Hospital from January 2020 to June 2020 by using systematic random sampling technique. Statistical tests, including descriptive statistics and the χ^2 test, were used to analyze associations between variables. The p-value level of 0.05 or below was considered to test statistical significance. Study findings showed that most of the participants 120 (75.9%) were in between 21-30 years of age group and majority (37.54%) of the nurses have working experience of 11 to 15 years. Among all the respondents, 81.15% had excellent level of knowledge and 85.63% had excellent level of practice on care of head injury. There is a significant association of age group, level of education and year of experience with the level of knowledge and sex, level of education was statistically significant with the level of practice among the nurses regarding care of head injury patients (p-value<0.05). The study findings suggested the development of a system for periodic evaluation of nurses to identify strategies for updating their knowledge and enhancing their practice.

INTRODUCTION

One of the primary causes of mortality and disability worldwide is head injury, which is also a public health concern (Dewan et al., 2019). Traumatic brain injury (TBI) and head injury are terms that are interchangeable. Brain injuries can arise from a variety of sources, including physical assaults, falls, mishaps, and traffic accidents, as head traumas cover a wide range of injuries (Hardman et al., 2019). Traffic accidents are a major source of health problems and a source of concern for health institutions worldwide. Every year, approximately 1.35 million people are killed or disabled in traffic accidents; 3700 people die in fatal accidents alone; of these, half are vulnerable road users, such as cyclists, motorcyclists, or pedestrians (WHO, 2018).

Traumas brought on by injury and secondary damage resulting from inpatient hypoxia that causes ischemia are the main direct impacts of trauma (Oropello et al., 2016). The expense of more severe brain trauma is disproportionately higher (Coronado et al., 2012). The likelihood of problems rises with the severity of the trauma (Lonser et al., 2020). However, even mild traumatic brain injuries can result in a number of issues, such as neurological, emotional, physical, and personality disorders that affect daily

functioning, employment, and social interactions. They can also cause disruptions to neuro-functional circuits that are not visible on a standard structural MRI, which is why these injuries need to be taken seriously in forensic and clinical evaluations (Calvillo & Irimia, 2020).

Head injuries continue to be the most prevalent cause of death after trauma in low- and middle-income countries (LMIC), such as Bangladesh, with particularly high rates of morbidity and mortality (Hyder et al., 2007). By 2020, head injuries are expected to overtake several diseases as the leading cause of mortality and disability (Murray & Lopez, 1996). According to estimates from the World Health Organization (WHO), it claims about 21,000 lives in Bangladesh each year (Roy et al., 2019). Most patients with head trauma are seen in the emergency room, and these cases are frequently linked to other organ ailments. A patient with head trauma requires interdisciplinary care because nearly all organ systems are impacted. Most patients need to be admitted to an intensive care unit and monitored there. The severity of the head trauma, the initial GCS score, and any other organ damage all affect how these patients turn out. According to data, individuals who have an initial GCS of 8 or lower have a 30% death rate within two weeks after the injury (Fitzpatrick & Leach, 2019; Hussain, 2018).

In both acute and non-acute care settings, nurses are essential to the management of patients with moderate-to-severe brain injuries (Oyesanya et al., 2016). Since nurses are the medical experts who may most effectively change a patient's path of recovery and fully understand the impact of traumatic brain injury, it is critical that they have access to a great resource that offers evidence-based suggestions for nursing interventions to help them attain the best results. For nurses to treat individuals with STBI with quality, they need to possess certain knowledge and abilities. Bangladesh's nursing workforce is growing, and nurses are doing a variety of jobs both inside and outside the healthcare delivery system (Hasnat M, 2022).

Numerous studies have been done on the evaluation of nurses' expertise in managing medical emergencies, disaster relief, palliative care, and other topics (AlShibi & Hamdan-Mansour, 2020; Hasan et al., 2021; Sultana et al., 2023). In Bangladesh, several researches have examined the treatment and epidemiological outcomes of traumatic brain damage and head injuries (Biswas et al., 2017; Maksuda Khatun et al., 2023). Upon conducting a thorough assessment of the literature, we were unable to locate any studies that evaluated nurses' knowledge and skills in relation to caring for patients with head injuries in Bangladesh. Thus, this study was carried out to assess the level of knowledge and practice among nurses regarding care of head injury patients in Bangladesh.

MATERIALS & METHODS

Study design & settings

This descriptive type of cross-sectional study was conducted in Dhaka Medical College and Hospital (DMCH) during the time period of January 2020 to June 2020.

Study population, sample size and sampling strategy

The study population consisted of all nurses in Dhaka Medical College and Hospital (DMCH). The sample size was determined using the formula $n = z^2pq/d^2$. A total of 288 samples were drawn for data collection through a systematic random sampling

technique. The study team first gathered a list of all working nurses in the hospital and then applied the simple random sampling (SRS) technique to select the target sample size. Samples were chosen at a fixed pre-determined interval. The sampling process began by randomly selecting a respondent from the population, followed by selecting every kth element, where k represented the sampling interval. This was calculated as: k = N/n, where n was the sample size and N was the total population. Nurses who were on leave, unwell, or unwilling to participate were excluded from the study.

Study population, sample size and sampling strategy

A self-administered semi-structured questionnaire was used for data collection. The questionnaire was pretested among 25 non-sampled population for suitability, appropriateness, acceptability and sequences of the questionnaire. The researcher conducted face-to-face interviews with respondents while ensuring that they understood the goals of the study and gaining verbal consent. The respondents were made aware that they had complete freedom to choose whether or not to respond to any inquiry. In terms of some ethical considerations, they received full assurance that the study findings would never be shared with anybody not involved in the study or for the study's intended use.

Data processing and analysis

To avoid including any incomplete or inconsistent information after interviews, each questionnaire was meticulously examined for accuracy, completeness, and internal consistency. The researchers themselves reviewed and edited all the data before coding and analysis was done by using "Statistical Package for Social Science (SPSS). The study's objectives were taken into consideration when creating the analytical strategy. Statistical tests, including descriptive statistics and the χ^2 test, were used to examine associations between variables. A p-value of 0.05 or below was considered for testing statistical significance.

Ethical Issues

The study proposal was submitted to 'FAHS Research Ethics Committee, DIU for approval. Before collecting data, the study participants were taken written informed consent from the participants. The participants identities were protected, and they were made aware that they could withdraw at any time during the data collection process. Administrative approval was also taken from the DMCH authority.

RESULTS

Socio-demographic information of the participants

The findings showed that 22.80% respondents were in the age group of 21 to 30, 29.80% respondents were in the age group of 31 to 40, 29.80% respondents were in the age group of 41 to 50. Most of the respondents (93.70%) were female. A number of (66.70%) respondents have completed Diploma in Nursing and only 15.80% have completed MS or higher studies. Our study found that 78.90% respondents were staff nurse, 12.30% respondents were attending nurse and 8.80% respondents were head nurse. More than half (57.98%) of the respondents were involved in nursing management. The findings of this study also showed that 10.67% respondents were from general department, 22.80% respondents from ICU, 19.90% respondents from emergency unit, 12.98%

respondents were from laboratory unit and the rest 33.65% were from other units (Table: 1).

Table 1: Socio-demographic characteristics of the participants (n=288)

Participants' characteristics		Frequency	% Distribution
Age	21-30	66	22.80
	31-40	86	29.80
	41-50	86	29.80
	51-60	51	17.60
Sex	Male	20	6.30
	Female	108	93.70
Level of education	BSc (Nursing)	50	17.50
	Diploma (Nursing)	192	66.70
	MS/Higher	46	15.80
Marital status	Married	213	74.00
	Unmarried	52	17.90
	Widow	19	6.70
	Divorcee	4	1.40
Position	Staff nurse	227	78.90
	Attending nurse	35	12.30
	Chief/Head nurse	25	8.80
Specific role	Clinical nursing	95	32.87
	Nursing management	167	57.98
	Others	26	9.15
Department	General ward	31	10.67
	ICU	66	22.80
	Emergency	57	19.90
	Laboratory/imaging	37	12.98
	Others	97	33.65

Figure 01 shows the distribution of the respondents according to their work experience. The findings show that 23.70% respondents have experience less than 5 years, 28.70% respondents have experience of 5 to 10 years, 37.54% respondents have experience of 11 to 15 years and only 10.06% respondents have expertise of more than 15 years.

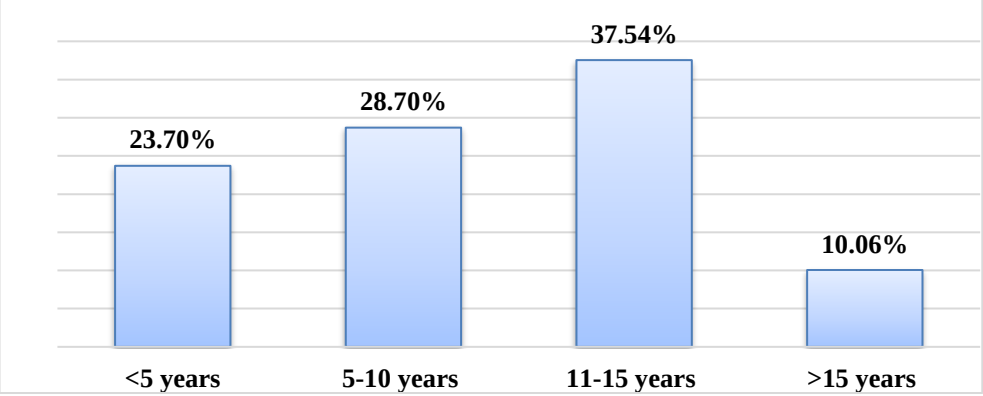

Figure 01: Distribution of the respondents according to their work experience

Knowledge & practice related information on care of head injury patient

Table 2 showed the knowledge related information regarding care of head injury patients. The findings show that, 93.10% respondents thought that a severe head injury is classified as a Glasgow Coma Score of 8 and below.

Among all the respondents, 96.89% respondents knew about the possible causes of head injury. Among those, 91.23% responded that traffic accidents, 98.88% responded falls, 67.80% responded physical assault, 99.00% told accidents and 76.23% said that there are other causes of head injury.

Among all the respondents, 98.77% respondents knew about the signs and symptoms of head injury. Among those, 89.97% responded dilated pupils, 71.12% told change in behavior, 65.57% said trouble walking, 59.98% respondents told trouble speaking, 89.65% said that drainage of clear fluid from water and nose, 98.99% respondents told vomiting, 88.43% said seizures, 64.34% told weakness in arms and legs and 76.41% respondents said that there are other signs and symptoms.

Among all the respondents, 97.24% respondents knew about the process of identifying head injury. Among those, 88.78% responded that complete blood count is the process of identifying head injury, 100.00% told that CT scan, 96.50% said MRI, 98.23% responded brain scan, 91.11% told Electroencephalography (EEG), 86.98% said that Nerve Conduction Velocity (NCV), 77.43% told that Electronystagmography (ENG), 54.89% said that Ultrasound imaging and 98.87% responded that there are other processes to identify a head injury.

Among all the respondents, 96.54% respondents knew about the complications of head injury. Among those, a total of 87.99% responded that coma is a complication of head injury, 76.99% told chronic headache is a complication, 66.09% said loss of sensation, hearing, vision, taste, smell; 89.09% told that paralysis is a complication, 91.87% said seizures, 98.52% told that speech and language problems, 61.90% told death and 78.00% said that there are some other complications of head injury.

Among all the respondents, 97.54% respondents knew about managing head injury. Among those, 87.54% said that breathing helps to manage head injury, 81.12% told that circulation can manage head injury, 89.76% said airway control may help to manage head injury, 96.65% told surgery can help managing head injury, 56.12% responded that diet therapy may help to manage head injury, 59.87% said physical therapy may help managing head injury, 72.12% said that mental rehabilitation may help to manage head injury and 51.87% responded that some other processes may help to manage head injury.

Among all respondents, 32.98% mentioned that a patient's positioning affects an intracranial pressure reading, 67.34% stated that the Reverse Trendelenburg position is one of the fastest and least invasive methods for acutely lowering intracranial pressure, 76.12% indicated that the extra-ventricular drain (EVD) should be kept open at all times, and 43.89% noted that bradycardia, increased pulse pressure, irregular respirations, and a rise in blood pressure are symptoms of Cushing's response.

Table 2: Knowledge related information regarding care of head injury patients

Question/Statement	Yes		No		Don't know	
	Freq.	Per.	Freq.	Per.	Freq.	Per.
A severe head injury is classified as a Glasgow Coma Score of 8	268	93.10	14	4.88	6	2.02

and below						
Do you know what are the possible causes of head injury?	279	96.89	6	2.11	3	1.00
Traffic accidents	255	91.23	14	5.12	10	3.65
Falls	276	98.88	3	0.92	1	0.20
Physical assault	189	67.80	59	21.17	31	11.03
Accidents	276	99.00	3	1.00	0	0.00
Others … (Please specify)	213	76.23	49	17.43	18	6.34
Do you know what are the signs & symptoms of head injury?	284	98.77	4	1.23	0	0.00
Dilated pupils	256	89.97	15	5.17	14	4.86
Change in behavior	202	71.12	62	21.98	20	6.90
Trouble walking	186	65.57	89	31.23	9	3.20
Trouble speaking	170	59.98	99	34.98	14	5.04
Drainage of clear fluid from water and nose	255	89.65	20	7.12	9	3.23
Vomiting	281	98.99	2	0.53	1	0.48
Seizures	251	88.43	18	6.34	15	5.23
Weakness in the arms and legs	183	64.34	71	24.98	30	10.68
Others … (Please specify)	217	76.41	39	13.64	28	9.95
Do you know how to identify a head injury?	280	97.24	3	1.12	5	1.64
Complete blood count	249	88.78	21	7.40	11	3.82
CT scan	280	100.00	0	0.00	0	0.00
MRI	270	96.50	3	1.11	7	2.39
Brain scan	275	98.23	3	1.21	2	0.56
Electroencephalography (EEG)	255	91.11	17	6.23	7	2.66
Nerve Conduction Velocity (NCV)	244	86.98	27	9.80	9	3.22
Electronystagmography (ENG)	217	77.43	45	15.90	19	6.67
Ultrasound imaging	154	54.89	90	32.11	36	13.00
Others … (Please specify)	277	98.87	3	1.13	0	0.00
Do you know what are the complications of head injury?	278	96.54	3	1.11	7	2.35
Coma	245	87.99	19	6.97	14	5.04
Chronic headache	214	76.99	59	21.10	5	1.91
Loss of sensation, hearing, vision, taste, smell	184	66.09	77	27.54	18	6.37
Paralysis	248	89.09	22	7.89	8	3.02
Seizures	255	91.87	15	5.23	8	2.90
Speech and language problems	274	98.52	4	1.48	0	0.00
Death	172	61.90	89	31.95	17	6.15
Others … (Please specify)	217	78.00	40	14.43	21	7.57
Do you know how to manage head injury?	281	97.54	3	1.13	4	1.33
Breathing	246	87.54	26	9.12	9	3.34
Circulation	228	81.12	44	15.63	9	3.25
Airway control	252	89.76	20	7.25	8	2.99
Surgery	272	96.65	4	1.26	6	2.09
Diet therapy	158	56.12	106	37.83	17	6.05
Physical therapy	168	59.87	95	33.71	18	6.42
Mental rehabilitation	203	72.12	62	21.98	17	5.90
Others … (Please specify)	146	51.87	103	36.72	32	11.41
Patient's positioning affects an intracranial pressure reading	95	32.98	156	54.25	37	12.77
Reverse Trendelenburg position is one fastest, least invasive ways to acutely lower intracranial pressure	194	67.34	77	26.79	17	5.87

Extra-ventricular drain (EVD) should be kept open at all times	219	76.12	43	15.09	25	8.79
Bradycardia, widening pulse pressure, irregular respiration and rise in blood pressure are signs of Cushing's response	126	43.89	113	39.32	48	16.79

Table 03 shows the distribution of the respondents according to their level of knowledge. The findings show that 81.15% respondents had excellent level of knowledge on care of head injury, 14.16% had good level of knowledge and 4.70% had poor level of knowledge on care of head injury.

Table 03: Distribution of the respondents according to their level of knowledge

Knowledge level	No. of respondents	Percentage (%)
Excellent	234	81.15
Good	41	14.16
Poor	14	4.70
Total	**288**	**100.00**

Practice related information on care of head injury patient

Table 04 showed the practice related information regarding care of head injury patients. The findings show that, 83.40% respondents often take history of head injury, 3.63% never take history of head injury and 12.97% respondents sometimes take history of head injury. 89.34% respondents often do vital sign assessment, 3.01% never do vital sign assessment and 7.65% respondents sometimes do vital sign assessment. 79.65% respondents thought that Hyperosmolar therapy (mannitol or hypertonic saline) is often used to control raised ICP, 7.01% thought that Hyperosmolar therapy (mannitol or hypertonic saline) is never used to control raised ICP and 13.34% thought that Hyperosmolar therapy (mannitol or hypertonic saline) is sometimes used to control raised ICP. 69.78% respondents thought that Hyperventilation is often used as temporary measurement for reducing elevated ICP, 14.46% thought that Hyperventilation is never used as temporary measurement for reducing elevated ICP and 15.76% thought that Hyperventilation is sometimes used as temporary measurement for reducing elevated ICP.

94.09% respondents often observe if patient obeys a command for movement, 1.10% respondents never observe if patient obeys a command for movement and 4.81% respondents sometimes observe if patient obeys a command for movement. 90.43% respondents often observe if there is localization in response to pain stimulus, 4.71% respondents never observe if there is localization in response to pain stimulus and 4.86% respondents sometimes observe if there is localization in response to pain stimulus. 89.65% respondents often observe if patient is able to withdraw from pain, 2.37% respondents never observe if patient is able to withdraw from pain and 7.98% sometimes observe if patient is able to withdraw from pain.

83.25% respondents often detect extensor (rigid) response and decerebrate posture, 5.52% respondents never detect extensor (rigid) response and decerebrate posture and 11.23% respondents sometimes detect extensor (rigid) response and decerebrate posture. 87.96% respondents often observe abnormal movement (spastic) flexion, decorticate posture, 4.06% respondents never observe abnormal movement (spastic)

flexion, decorticate posture and 7.98% respondents sometimes observe abnormal movement (spastic) flexion, decorticate posture. 88.76% of respondents consistently identify when there is no response even after applying all previously described stimuli, 5.53% never identify it, and 5.71% sometimes identify it.

Table 04: Practice related information regarding care of head injury patients

Questions	Answers					
	Often		Never		Sometimes	
	Freq.	Per.	Freq.	Per.	Freq.	Per.
Do you take history of head injury?	240	83.40	10	3.63	37	12.97
Do you do vital signs assessment?	257	89.34	9	3.01	22	7.65
Hyperosmolar therapy (mannitol or hypertonic saline) is used to control raised ICP.	229	79.65	20	7.01	38	13.34
Hyperventilation is used as temporary measurement for reducing elevated ICP	201	69.78	42	14.46	45	15.76
Do you observe if patient obeys a command for movement?	271	94.09	3	1.10	14	4.81
Do you observe if there is localization in response to pain stimulus?	260	90.43	14	4.71	14	4.86
Do you observe if patient is able to withdraw from pain?	258	89.65	7	2.37	23	7.98
Detection of extensor (rigid) response, decerebrate posture	240	83.25	16	5.52	32	11.23
Do you observe abnormal movement (spastic) flexion, decorticate posture?	253	87.96	12	4.06	23	7.98
Do you identify if no response even after application of all previous described stimuli?	256	88.76	16	5.53	16	5.71

Table 5 shows the distribution of the respondents according to their level of practice. The findings show that 85.63% respondents had excellent level of practice on care of head injury, 9.23% had good level of practice and 5.14% had poor level of practice on care of head injury.

Table 5: Distribution of the respondents according to their level of practice

Practice level	No. of respondents	Percentage
Excellent	247	85.63
Good	27	9.23
Poor	15	5.14
Total	**288**	**100.00**

Link between nurses' demographics and head injury care knowledge/practice

Table 6 shows the association between socio-demographic characteristics of the nurses and their level of knowledge regarding care of head injury patients. The findings reveal that there are significant association of age group, level of education and year of experience with the level of knowledge of nurses regarding care of head injury patients (p-value<0.05). No significant association was found in case of sex, marital status and position of the nurses.

Table 6: Association between socio-demographic characteristics of the nurses and their level of knowledge regarding care of head injury patients

Socio-demographic characteristics	Level of knowledge			χ^2 value	P value
	Excellent	Good	Poor		
Age group					
21-30	39	23	4	**8.451**	**0.044**
31-40	67	11	8		
41-50	79	6	1		
51-60	49	1	1		
Sex					
Male	11	4	3	**3.121**	**0.078**
Female	223	37	11		
Level of Education					
BSc (Nursing)	36	7	7	**12.114**	**0.026**
Diploma (Nursing)	161	26	5		
MS/Higher	36	8	2		
Marital status					
Married	191	15	7	**9.167**	**0.091**
Unmarried	34	14	4		
Widow	7	10	2		
Divorcee	1	2	1		
Position					
Staff Nurse	198	21	8	**7.342**	**0.084**
Attending nurse	24	9	2		
Chief/Head nurse	10	11	4		
Year of experience					
<5 years	51	11	6	**16.231**	**0.039**
5-10 years	71	8	4		
11-15 years	88	18	2		
>15 years	23	4	2		

Table 7 shows the association between socio-demographic characteristics of the nurses and their level of practice regarding care of head injury patients. Study results found that there are significant association between sex and level of education with the level of practice of nurses regarding care of head injury patients (p-value<0.05).

Table 7: Association between socio-demographic characteristics of the nurses and their level of practice regarding care of head injury patients

Socio-demographic characteristics	Level of practice			χ^2 value	P value
	Excellent	Good	Poor		
Age group					
21-30	56	5	5	**1.787**	**0.098**
31-40	64	18	4		
41-50	82	2	2		
51-60	45	2	4		
Sex					
Male	12	3	3	**23.45**	**0.021**
Female	235	24	12		
Level of education					
BSc (Nursing)	39	8	3	**17.79**	**0.047**
Diploma (Nursing)	178	4	10		
MS/Higher	29	15	2		
Marital status					
Married	192	15	6	**1.238**	**0.076**
Unmarried	37	8	7		
Widow	15	3	1		
Divorcee	2	1	1		
Position					
Staff nurse	201	19	7	**2.891**	**0.081**
Attending nurse	20	8	7		
Chief/Head nurse	25	0	1		
Year of experience					
<5 years	48	13	7	**0.676**	**0.126**
5-10 years	71	7	5		
11-15 years	101	5	2		
>15 years	26	2	1		

DISCUSSION

Nursing care for patients with head injuries includes interventions to maintain cerebral perfusion and prevent ischemia, along with patient education, thorough neurologic and physical assessments, and continuous monitoring. This study aimed to evaluate the level of knowledge and practice among nurses regarding the care of head injury patients in Bangladesh.

The bulk of respondents (59.6%) fell within the age range of 21 to 40 years old, according to the respondents' age distribution. The mean age of the participants in a study on the care of patients with head injuries was found to be 32.1 (SD = 7.3) years [20]. According to our research, the majority of respondents (66.70%) had earned a diploma in nursing, and a higher percentage of respondents (93.70%) were female. Contrasting these results with those of another study, which showed that 128 (77.6%) of the participants had bachelor degrees and that more than half of the participants, at 96 (58.2%), were male. This difference may be the result of sociodemographic differences. We also found that over two thirds (74.00%) of the survey participants were married, 78.90% of the respondents were staff nurses, and 37.54% of the respondents had between 11 and 15 years of experience. According to a different survey, 65 people, or 39.4%, have less than five years of expertise managing patients with brain injuries (Shehade et al., 2023).

The results of this study's analysis showed that 85.63% of respondents had great head injury practice and 81.15% had outstanding head injury knowledge. In a similar vein, Farg et al. discovered that the nurses under study performed and knew enough about traumatic brain injury (Farg et al., 2016). Oyesanya et al.'s classification of nurses into three homogeneous groups based on perceived knowledge items—low, moderate, and high perceived knowledge—was further corroborated by another study (Oyesanya et al., 2017). Of the sample, 27.4% went to the group with low perceived knowledge, 45.7% went to the group with intermediate perceived knowledge, and 26.9% went to the group with high perceived knowledge.

The results of Shehab et al., however, showed that nurses' overall mean knowledge and practice scores with regard to caring for patients with traumatic brain injuries were unsatisfactory prior to program implementation and satisfied following program implementation (Shehab et al., 2018). These findings are in contrast to those of the study. The mean knowledge and practice scores of nurses also increased significantly, with a statistically significant difference, following the introduction of the protocol, according to (Sultan et al., 2014). According to a different study by Ahmed et al., nurses' care of trauma patients during the "golden hour" was inadequate in terms of knowledge and skill (Ahmed et al., 2018).

The relationship between the socioeconomic characteristics of the nurses and their level of knowledge about caring for patients with head injuries reveals a significant relationship between the age group, educational attainment, and year of experience of the nurses and their level of knowledge in this area. These results are corroborated by Farg et al.'s discovery (Farg et al., 2016) of a substantial disparity between nurses' expertise and educational attainment. This could be because postgraduate courses did not focus on or thoroughly examine the neurological and neurosurgical systems. It was thought that nurses holding postgraduate nursing degrees would be more knowledgeable than those holding diplomas. Results from an American study indicate that hospitals with a larger percentage of baccalaureate-degree holding nurses also have reduced 30-day mortality, in-patient mortality, failure to rescue, and cardiac fatalities (Blegen et al., 2013). However, these results are at odds with those of another study by Ahmed et al., which discovered no connection between the total knowledge of nurses and personnel information such age, training, and years of experience (Ahmed et al., 2018).
The results of the current study also showed a strong correlation between nurses' practice levels in terms of caring for patients with head injuries and their sex and educational attainment. These findings are in line with those of Shehade et al., who

discovered a substantial disparity between nurses' expertise in treating patients who have had a head injury and their demographic traits. On the other hand, these results are not consistent with those of another study conducted by Ahmed et al. (Ahmed et al., 2018), which discovered no connection between the overall performance of nurses and personnel information such years of experience.

CONCLUSION AND RECOMMENDATIONS

This study observed that most of the participants 120 (75.9%) were in between 21-30 years of age group and majority (37.54%) of the nurses have working experience of 11 to 15 years. Study findings showed that 81.15% respondents had excellent level of knowledge and 85.63% respondents had excellent level of practice on care of head injury patients. There are significant association of age, level of education and year of experience with the level of knowledge and sex & level of education with the level of practice of nurses regarding care of head injury patients (p-value<0.05). The study suggested that in order to achieve high quality of care and to enhance nurses' knowledge and practice, regular planning of continuing education programs for nurses caring for patients with head injuries should be undertaken. It is recommended that nursing educators draft and disseminate a manual procedure book that outlines the standards of practice that must be adhered to by all nurses caring for patients with head injuries in emergency and critical care units. The great limitation of our study is reduced sample size we chose due to time and budget constraints.

Thus, more investigation will be needed to draw more accurate findings regarding the expertise and methods used by nurses in the treatment of patients with brain injuries.

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