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Health Problem and Complication among Patients with Ischemic and Hemorrhagic Stroke: Comparative Study

Mohammed Hakim Shamran Al-Hchaim[1], Shatha Saadi Mohammed[2]

[1]College of Nursing, University of Babylon, Iraq, Email: muhammad.shamran.nurh16@student.uobabylon.edu.iq, https://orcid.org/myorcid?orcid=0000-0002-2532-148X Adult Nursing Branch

[2]Prof. Dr. University of Babylon, College of Nursing, Iraq, Email: nur.shatha.sadeli@uobabylon.edu.iq, Adult Nursing Branch.

Correspondence: Mohammed Hakim Shamran Al-Hchaim, E-mail: muhammad.shamran.nurh16@student.uobabylon.edu.iq

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Abstract

Background: Stroke is the third ranking cause of death, with an overall mortality rate of 18 % to 37 %. There are approximately two million people surviving strokes that need assistance with activities of daily living. Stroke is the second leading cause of disability, after dementia. Disability may include loss of vision and / or speech, paralysis and confusion.

Methods: A Comparative Descriptive Study is carried out in Al-Najaf City/Al-Najaf Al-Ashraf Health Directorate/ at Middle Euphrates Neuroscience Center, from 13th March to 10th December, 2022, in order to assess the health problem and complication for ischemic versus hemorrhagic stroke. A non-probability (purposive sample) of 82 patients (53 with ischemic stroke and 29 with hemorrhagic stroke). The information is gathered using a constructed questionnaire, which is divided into three sections: (1) Patients' Demographic data. (2) Clinical data from patients (3) Stroke complication. The questionnaire's validity is assessed by a panel of ten specialists with more than ten years of expertise in the nursing field. The data was statistically characterized and analyzed using descriptive and inferential statistical analysis methodologies..

Results: The study results indicate that the both type of stroke have pneumonia, epileptic seizures, painful shoulder, joint contracture, constipation, and dysphagia. These results may appear because of the impaired brain functions due to stroke or because of the immobility results from the hemiplegia or the hemiparesis.

Conclusion: the study concluded that the both type of stroke increased as the age group increases and patients who live in urban regions are more likely to suffer a stroke than those who live in rural areas.

Recommendations: the study recommends that a further studies should be conducted to involve a large sample size at a national level to obviously determine the health problem and complication for patients with ischemic versus hemorrhagic stroke.

Keywords: Complication, Ischemic, Hemorrhagic, Stroke.

Introduction

Stroke is one of the top causes of mortality and disability worldwide. Because of the availability of acute therapies, ischemic stroke is currently considered a time-dependent condition, accounting for 87% of all strokes [1]. Intracerebral hemorrhage accounts for 10% of all strokes, while aneurysmal subarachnoid hemorrhage accounts for 3% of all strokes [1]. In 2017, 2.7 million people died from an ischemic stroke, 3 million from intracerebral hemorrhage, and 0.4 million from aneurysmal subarachnoid hemorrhage [1]. Overall, the prognosis of ischemic stroke is thought to be better than that of hemorrhagic stroke, in which mortality occurs most frequently during the acute and subacute phases[2]. 80% of first-time stroke patients have reduced stability, which is linked to poor recovery of daily living activities and mobility as well as a higher risk of falling. Stiffness and difficulty transferring weight to the afflicted side while sitting or standing are all signs of stroke-related asymmetry in the trunk and pelvis. They also have a lower degree of trunk performance compared to healthy people. Disruption of the patient's ability to maintain a stable/dynamic equilibrium and to engage in fundamental physical activities diminishes their quality of life [3]. One of the primary reasons for long-term impairment in adults globally is stroke, and the optimization of therapy management in these patients has a high socio-economic importance [4]. The complications or health problems that occur after CVA report that up to

96% of all patients hospitalized with CVA experience one or more medical or neurological complications during their hospitalization. The most common medical complications are aspiration pneumonia Urinary tract infection (UTI), falls after CVA, pressure ulcer or bed sore, constipation, and fewer patients appear to experience symptomatic venous thromboembolism (VTE). Most medical complications after CVA develop within the first few weeks of CVA [5].

Materials and Method:

Design of the Study:

A comparative study carried out in order to assess the health problem and complication for ischemic versus hemorrhagic stroke. The period of the study was from 13th March to 10th December, 2022.

Setting of the Study:

The study conducted in Al Najaf City/Al-Najaf Al-Ashraf Health Directorate/ at Middle Euphrates Neuroscience Center

Sample of the Study:

In the current study, 82 stroke patients (53 ischemic stroke patients and 29 hemorrhagic stroke patients) were included as a non-probability (purposive sample). choosing a sample size based on a statistical power analysis with a power greater than 90%.

Criteria for Including the Sample (Ischemic and Hemorrhagic Stroke Patients):

- The age of all participants is between 18 years old and older; because the present study focused on adult patients, and stroke most common occur in adult patients.
- All participants are from Iraqi Nationality because of the nature of the Iraqi society that differs from other societies.
- Patients who are alert and who have not experienced any shift in their state of awareness are needed for the investigation since subjective measures are required.
- Patients are free from psychiatric (according to physician report); because the researcher needs to explain and clarify the steps of participation in the program, it depends on the patient's cooperation.
- The patient agreed to participate in the study; because it is one of the ethical considerations to obtain patient consent.

Study Instrument:

An assessment tool used to assess health problem and complication for patients with ischemic and hemorrhagic stroke. The final copy consists of the following parts:

Part I: Patients' Demographic Data.

Part II: Patients' Past Medical History.

Part III: Patients' Health Problem and Complication.

Data Collection:

Data were gathered using the developed questionnaire and a structured interviewing technique with subjects who were interviewed individually by using the Arabic version of the questionnaire. All of the subjects who made up the study sample were interviewed in a similar manner using the same questionnaire.

Validity of the Instrument:

A panel of professionals with more than 10 years of experience in the nursing field conducted a content validity of the research instrument.

Statistical Analysis:

The data were analyze through application of the descriptive and inferential data analysis method, included:

- **Frequency.**
- **Percentage**
- **Chi-Square.**

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Results

Table (1) Distribution of the Study Subjects by their Demographic Data:

Demographic Data	Rating and Intervals	Ischemic Stroke		Hemorrhagic Stroke	
		Freq.	%	Freq.	%
Age	<= 21	1	1.9	1	3.4
	22 - 31	0	0.0	2	6.9
	32 - 41	1	1.9	1	3.4
	42 - 52	14	26.4	3	10.3
	53 - 62	13	24.5	7	24.1
	63+	24	45.3	15	51.7
		Mean/S.D. (59.49/10.17)		Mean/S.D. (57.93/13.77)	
Gender	Male	36	67.9	16	55.2
	Female	17	32.1	13	44.8
Residency	Rural	17	32.1	10	34.5
	Urban	36	67.9	19	65.5
Marital Status	Single	0	0.0	2	6.9
	Married	45	84.9	18	62.1
	Widowed/widow	8	15.1	9	31.0
Occupational status before the stroke	Governmental employee	7	13.2	3	10.3
	Private or self employed	7	13.2	5	17.2
	Retired	13	24.5	1	3.4
	Housewife	10	18.9	9	31.0
	Jobless	16	30.2	11	37.9

Table (1) show the statistical distribution of the study sample according to their socio-demographic data. Regarding the Ischemic stroke, the study result indicates that the majority of the participants are 60 and more years old (45.3%), male (67.9%), urban residents (67.9%), married (84.9%), and high percentage of study group are jobless (30.2%) in related to their occupational status before the stroke.

While the hemorrhagic stroke, the study results indicate that the majority of participants are 60 and more years old (51.7%), male (55.2%), urban residents (65.5%), married (62.1%), and there jobless (37.9%) in related to the occupational status before stroke.

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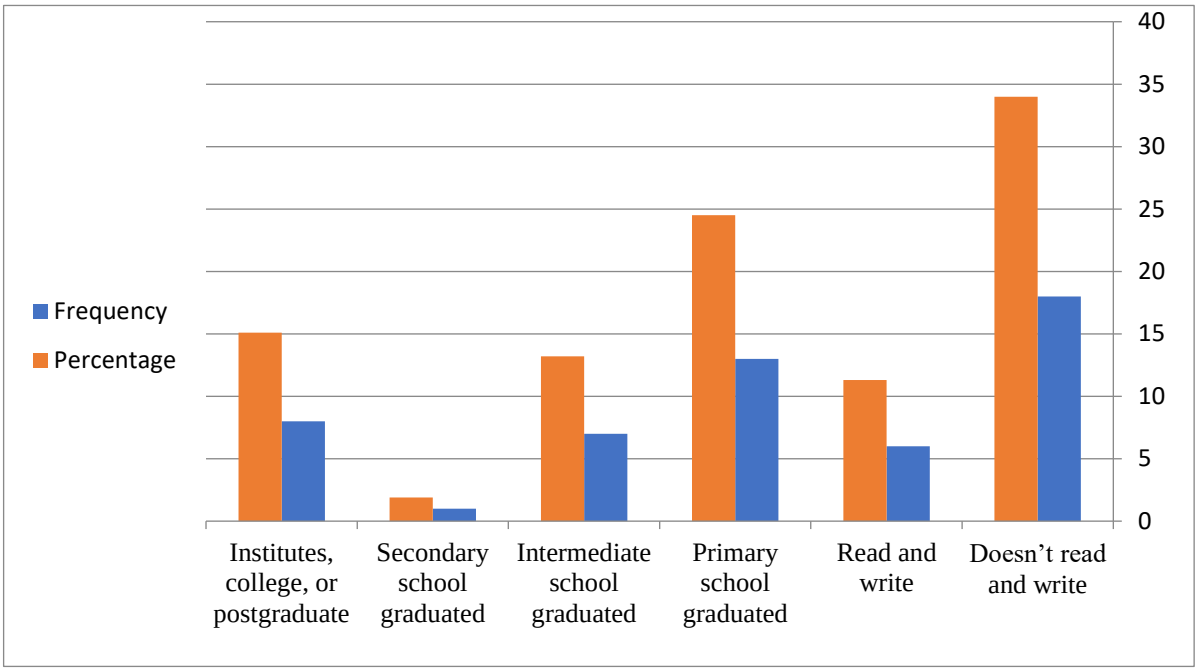

Figure (1) Distribution of the Ischemic Stroke patients According to their Levels of Education

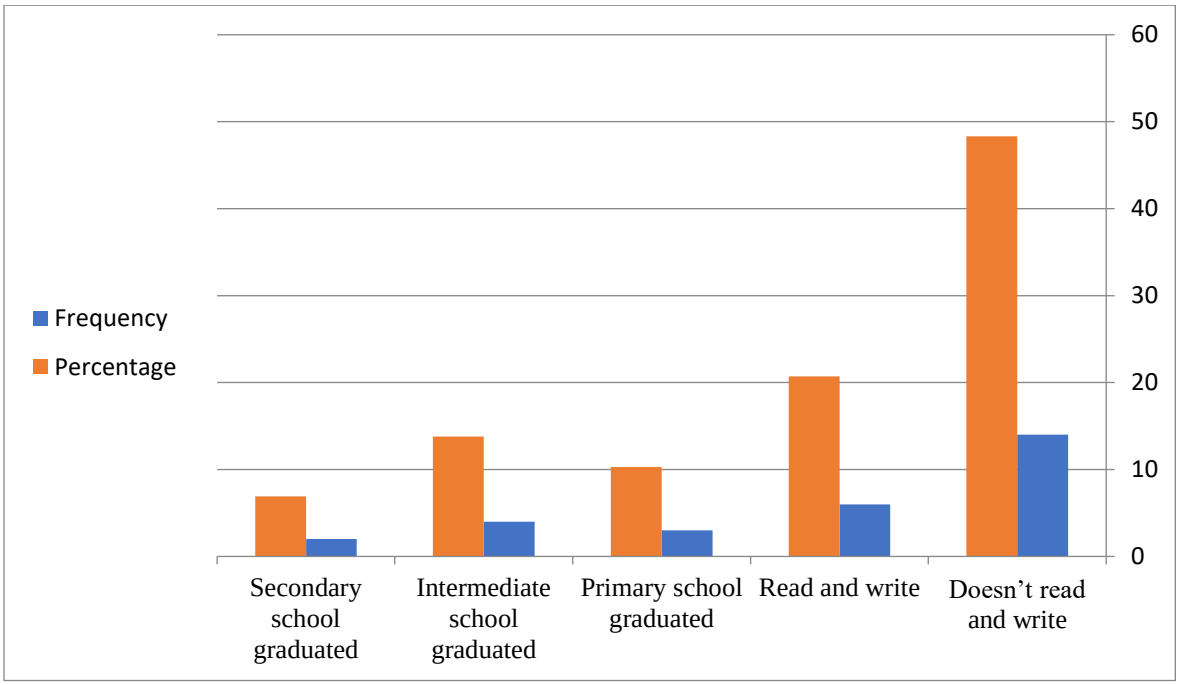

Figure (2) Distribution of the Hemorrhagic Stroke patients According to their Levels of Education

Table 2: Distribution of the Study Subjects by their Clinical Data:

Present Medical History	Rating and Intervals	Ischemic Stroke		Hemorrhagic Stroke	
		Freq.	%	Freq.	%
Body side that is affected by stroke	Right side	31	58.49	17	58.6
	Left side	22	41.51	12	41.4
Recurrence of stroke	Yes	29	54.7	11	37.9
	No	24	45.3	18	62.1
How many strokes is recurrent	No recurrence	0	0.00	17	58.6
	1.00 - 2.00	26	49.1	8	27.5
	3.00+	27	50.9	4	13.8
Smoker	Yes	27	50.9	13	44.8
	No	26	49.1	16	55.2

Table (2): this table illustrates the clinical data of ischemic and hemorrhagic stroke. The result of study indicate that the majority of both group are right side affected by stroke, ischemic group (58.49%) and hemorrhagic group (58.6%), the majority of patients with ischemic stroke have recurrent of stroke (54.7), while, the majority of hemorrhagic stroke patients have no recurrence of stroke (58.6%). In related to the how many strokes is recurrent, the majority of ischemic patient have 3 and more recurrent (50.9) while, the majority of hemorrhagic patients have no recurrent of stroke (58.6). Finally, in related to the smoker, the majority of ischemic stroke are smoker (50.9%), while patients with hemorrhagic stroke are no smoker (55.2%).

Table (3) Summary Statistics of the Ischemic and Hemorrhagic Groups according to the stroke related problems and complications:

Complications	Rating and Intervals	Ischemic Stroke		Hemorrhagic Stroke	
		Freq.	%	Freq.	%
Pneumonia	Yes	1	1.9	0	0.00
	No	52	98.1	29	100.0
Epilepsy	Yes	1	1.9	0	0.00
	No	52	98.1	29	100.0
DVT	Yes	0	0.00	0	0.00
	No	53	100.0	29	100.0
Painful shoulder	Yes	11	20.8	5	17.2
	No	42	79.2	24	82.8
Pressure sore	Yes	0	0.00	1	3.4
	No	53	100.0	28	96.6
Joint contractures	Yes	0	0.00	0	0.00
	No	53	100.0	29	100.0

Dysphagia	**Yes**	15	28.3	6	20.7
	No	38	71.7	23	79.3
Constipation	**Yes**	13	24.5	4	13.8
	No	40	75.5	25	86.2

Table (3): shows the present history (stroke related problem and complication) of ischemic and hemorrhagic stroke. The majority of both groups have no complications for ischemic and hemorrhagic groups: no pneumonia (98.1%) (100%), no epilepsy (98.1%) (00%), no deep vein thrombosis (100%) for both groups, no pressure sore (100%) (96.6%), both groups have no joint contracture (100%). While the both ischemic and hemorrhagic group have painful shoulder, dysphagia and constipation (20.8) (17.2), (28.3%) (20.7%), (24.5%) (13.8%).

Table 4: Association between the Ischemic Stroke Patients complication and Their Demographic:

	Chi-square (p-value)				
	Age (years)	**Gender**	**Residency**	**Educational Level**	**Occupation**
Pneumonia	.376	.488	.488	.852	.670
Epilepsy	.535	.492	.142	.068	.153
Painful shoulder	.141	.701	.286	.836	.383
Dysphagia	.292	.015	.013	.438	.046
Constipation	.001	.138	.570	.095	.140

P-value < 0.05: significant relationship

Table (4), shows that there is a non-significant association between patients ischemic stroke complication and their demographic data at p-value < 0.05.

Except the Dysphagia with gender, educational level and occupation. Also constipation with age at p-value < 0.05.

Table 5: Association between the Hemorrhagic Stroke Patients complication and Their Demographic:

	Chi-square (p-value)				
	Age (years)	**Gender**	**Residency**	**Educational Level**	**Occupation**
Painful shoulder	.233	.027	.187	.031	.005
Pressure sore	.000	.359	.460	.006	.005
Dysphagia	.331	.227	.303	.305	158
Constipation	.145	.048	.178	.403	194

P-value < 0.05: significant relationship

Table (5), shows that there is a non-significant association between patients hemorrhagic stroke complication and their demographic data at p-value < 0.05.

Except the painful shoulder and pressure sore with educational level and occupation. Furthermore there is a significant association between constipation and gender at p-value < 0.05.

Discussion of the results

Discussion for Patients' Socio-Demographic Data:

Stroke is becoming a serious health issue in developing countries. It is a disorder that affects millions of individuals around the globe, and its incidence is influenced by patients' socio-demographic information. The results of the present study indicated that the ages of most of the study members are of advanced ages. This confirms that the incidence of stroke disease rises with age and vice versa. [6,7]. They found that patients aged 67 and older are the most common vulnerable age group for stroke. In addition, Dehno, et al., (2021) [10]: they have studied the "Unilateral Strength Training of the Less Affected Hand Improves Cortical Excitability and Clinical Outcomes in Patients With Subacute Stroke: A Randomized Controlled Trial" They discovered that the majority of patients are elderly (53 years old and more). The prevalence of stroke disease increases markedly with old age. The reason for this is because elderly individuals may suffer from systemic conditions and stress. Moreover, aged individuals are afflicted with atherosclerosis, which causes ailments that are exacerbated by the aging process, such as hypertension. The present study also describes gender. The findings indicate that the male is the dominant gender for study sample. This validates the incidence of stroke increased in males compared with females. [11,8]; They claimed that male made up the bulk of the research sample. Additionally, substantial research has been done on gender disparities in a wide range of health and illness, and nursing is now paying more attention to these issues. The male is more prone to stroke than the female due to the action of the sex hormone, the naturalness of the employment, stress displaying, and chronic illness distribution. Additionally, lifestyle variations like drinking and smoking may also contribute to the explanation of this gender disparity. Regarding the study subjects the marital status and residency of the "present study results indicate that the majority of the study subjects are married and are urban residents. This may be because that the urban environment is more stressful, noisy, pollutant compared with the rural environment. So the incidence of stroke may increase in urban residents compared with rural residents. In addition, these results might occur because the stroke refers to a modern scourge of industrialized society. Moreover, the stroke may increase in incidence among those persons in urban residential area, than in those from rural areas. Also, those persons in rural residential area often experience physical exercises every day as compared with those in urban, that make them less risky to get stroke. Furthermore, the individuals in rural residential areas are less prone to get stroke due to the risk factors that are more focused in urban than in rural areas such as the psychological stress. For the marital status, with respect to the eastern population, they tend to marry early as compared with other populations. So, we may see that the majority of the study subjects are married" [6]. With respect to the study sample, the level of education in the present study results show that the majority of the study sample don't read and write. Al-Ibraheemi and AL-Bayati, (2018); Pandit, (2020) [9]: in his study " Health Related Quality of Life of Cerebrovascular Accident Patient: A Descriptive Study" they found in their results that the majority of the study samples were unable to read and write only. This might be due to the fact that the majority of the people who participated in the research are of advanced age, and the living, social, and cultural situations in which they were raised did not let them to attend school or finish their education. In addition, this conclusion may have been brought about as a consequence of the ongoing economic and political problems as well as conflicts that our nation has been experiencing ever since the beginning of the eighties. Regards to occupational status, the study result indicate that the high percentage of study participants were jobless. These results are similar to other studies done by Ribeiro Lima, et al., (2020) [10], the study entitled “Socio-demographic factors associated with quality of life after a multicomponent aphasia group therapy in people with sub-acute and chronic poststroke aphasia” they mentioned that most of the study sample were unable to work. When compared to patients of a younger age, this outcome may have occurred because more than one-third of the patients who participated in the study are at an elderly age for which they are unable to work. And it's possible that this is because the sickness and its treatment for other chronic diseases have an influence on the lifestyle and everyday activities of the patients.

Discussion of stroke related problem and complication:

The study results indicate that less than a quarter of the study subjects have pneumonia, epileptic seizures, painful shoulder, joint contracture, constipation, and dysphagia. These results may appear because of the impaired brain functions due to stroke or because of the immobility results from the hemiplegia or the hemiparesis. Because the brain is responsible for coordinating and controlling all the body functions

Also, this result in fact is because most of the participating patients are in the acute phase of the disease and there was no long period for complications as a result of stroke. It was also mentioned previously that most patients when interviewed were in the first days of disease, most injuries were less than a month.

So if there is an impairment in its functions, all the related functions are also impaired, these evidences supported by (Okawara & Usuda, 2015; Al-Ibraheemi and AL-Bayati, 2018) [11, 5].

Conclusion

Based on the study results the study concluded
the following:

1. The incidence of stroke is increased as the age group increases
2. Patients who live in urban regions are more likely to suffer a stroke than those who live in rural areas.
3. Males are likewise more susceptible to stroke than females.
4. Dysphagia and constipation is one of the most common complications caused by both type of stroke.

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