A Holistic Overview on Stroke Patients: Longitudinal Measure of Social Cognition and Self-Care Competency

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ABSTRACT

Over recent decades people have died due to strokes, an untreated disease that affects the arteries, brain, and blood vessels in a human body. Hemorrhagic, Ischemic and Transient Ischemic are the three types of strokes that affect different types of populations based on comorbidity factors which can influence the post-stroke recovery for an individual. The purpose of this research is to study the impact these strokes have based on age, gender, and ethnicity to increase the awareness and decrease the statistics of reoccurring stoke symptoms. A survey generated by the Stroke Recovery in Underserved Populations 2005-2006 had a pool of participants that answered closed ended questions based on their experiences from surviving a stroke. Preliminary findings from this data show that 74% of men suffered from ischemic strokes and 15% from hemorrhagic. Compared to females in which 19% reported hemorrhagic strokes and 72% suffered from ischemic strokes. By ethnicity, the sample portrayed a dominance in Ischemic stroke patients that were 78.5% African American. 22% of Hispanics that suffered from stroke reported hemorrhagic, the highest proportion among each ethnicity. The mean average for the age sample within our study is 67.87 years, out of the mean average provided 51% were female and 48.8% were male. The present study will explore best predictors for changes in depression over three time periods after stroke presentation (at discharge, at 3 months and at one year). Predictor variables include social support, marital status, and the functional independence scale (α= .87).

INTRODUCTION

The Phenomenology of Stroke Patients provided in this research is based on a Quantitative research analysis based on secondary data.

What is a Stroke? A Stroke is caused by the cerebral not functioning properly the way it should. This form of disease is quite dangerous to where it can cause hemorrhaging. Hemorrhaging is caused because the oxygen leading to the brain is being blocked by a clot in the artery where it flows (Warlow, 1998A stroke is more common in men than in women by 0.05%. In an average lifetime by the 85th year about 1 in 4 men and 1 in 5 women are bound to experience a stroke (Wolfe, 2000).

Types of Strokes There are three different types of strokes in which they are all associated with arteries. The first type of stroke is the Hemorrhagic stroke which is caused by a ruptured artery that causes bleeding in the brain. The second type of stroke is a Transient Ischemic stroke which is caused by atherosclerosis, this is when the artery becomes blocked. The third type of stroke is also an Ischemic stroke, but it is caused by an embolism, this is when a blood clot blocks oxygen from traveling to the brain in an artery.

AIMS

To determine the different symptoms, paralysis, and statistical data on mortality between Age, Gender, and Ethnicity in stroke patients. By doing this would create a better analytical representation on how awareness and prevention could take place in the future.

Demographics and Symptoms

AGE

Based on discernment strokes are more common in males than in females based on daily living. The health, physique, and complications of a human body are based on how you treat it. The reason strokes are more common in males is because the risk of a stroke increases based on alcohol intake, drug use, lack of exercise, and poor health conditions.

GENDER

Stroke symptoms based on gender have been unraveled in previous research that explains how males are more prone to get a stroke (Gibson, 2013). Gibson stated those women who get a stroke tend to be older and have a history of at least one parent that have had a stroke (Gibson, 2013). The differences based on gender are impacted because of their immune systems and inflammatory responses (Gibson, 2013).

Group	Hemorrhagic	Ischemic	Other/Unclear
Male	89	440	65
Female	118	450	56

ETHNICITY

Environmental factors influence the behaviors and habits for those patients who have strokes such as smoking, abusing the intake of alcohol, and drugs. Studies have shown the prevalence between these environmental habits with ethnicity backgrounds and the risks are higher in Hispanics than African Americans because they abuse the nicotine and alcoholism, while African Americans only abuse drug intake.

Group	Hemorrhagic	Ischemic	Other/Unclear
White	157 (17%)	661 (72%)	99 (11%)
African American	26 (13%)	157 (78.5%)	17 (8.5%)
Hispanic	16 (22%)	55 (74%)	3 (4%)

POST-STROKE FACTORS

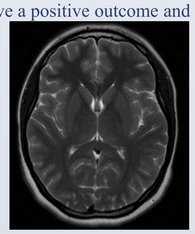
SELFCARE

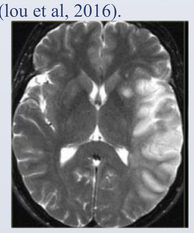
The stroke survivors daily activities will more than likely be affected by the stroke. About 80% of stroke survivors will be discharged and moved with a family member, a rehabilitation home, or a nursing home that would be able to provide physical care for them.

SOCIAL COGNITION

During the process of adaptation to their new lifestyle post-stroke this factor then influences their hope, uncertainty, and social relations. During the recovery process for a post-stroke survivor lots of emotional support is needed. The role of a care giver in this aspect is having a great mindset for the patient to be motivated by. With this determination the patient will have a positive outcome and recovery (lou et al, 2016).

Normal Brain





Brain after impacted by Stroke

DEPRESSION

The level of depression is based on the location the stroke took place and the amount of brain damage it encountered. If the stroke took place on the left or right hemisphere it would cause lesions which would cause further damage such as depression and the severity of it. A patients depression can also be caused by the physical impairment they may develop as well as in sexual intercourse, behavioral difficulties, and other social functioning contexts the patient is no longer able to do at their full capacity.

AWARENESS AND PREVENTION

Being aware of the signs and symptoms of a stroke can cause a better treatment outcome for the patient having a stroke. Knowing when, why, and how to seek help by medical officials would make the statistics for deaths caused by a stroke decrease. Understanding to look for medical advice as a stroke is in motion as soon as possible would decrease the chances of the strokes recurrence and increase the patients chances of coming out of rehabilitation therapy in good shape and appearance (Ranawaka et al, 2020).

MORTALITY

Approximately 4.5 million deaths and 9 million survivors a year proceeded from having a stroke. A stroke is more common in men than in women by 0.05% because in an average lifetime by the 85th year about 1 in 4 men and 1 in 5 women are bound to experience a stroke. 16% of the women that encounter a stroke are bound to pass away from the disease rather than the 8% death rate for men (Wolfe, 2000).

METHODS

DATA COLLECTION

- *Functional Independence Model* (FIM) is a widely used assessment model that assesses rehabilitation changes over time. The FIM is an 18-item survey that measures functionalities of daily living (e.g., self-care, toileting, movement and mobility, communication, and cognition).
- *Self-Care sub-scale.* As part of the Functional Independence Model (an 18-item scale that monitors changes in rehabilitation programs), the self-care scale measures activities such as dressing oneself (upper, lower half), eating, grooming, toileting, and bathing. Items were scored on a 7-point scale (1-total dependence to 7-total independence).
- *Social Cognition sub-scale.* The Social Cognition scale is comprised of five items that assesses social interactions, problem solving ability and memory as well as communication comprehension and expression.

PARTICIPANTS

Throughout the study provided we measured the variables based on 1,219 participants. The participants ranged from below 54 to above 85 years of age with 51.2% of the participants being female, 48.6% of them being male, and the remaining .2% chose not to answer. The majority of these participants were white (75.3%) and the remaining 24.7% of the participants classified themselves as African American, Hispanic, and other.

RESULTS

- A one-way repeated measured analysis of variance (ANOVA) was conducted to evaluate if there was a change in self-care (scaled items) when measured just after having a stroke, three months after a stroke, and 12 months after experiencing a stroke (N = 1218).

Table 3. Descriptive Statistics for Self-Care with Statistics test scores for Time 1, Time 2, and Time 3.

Time Period	N	Mean	Standard Deviation
Time I (post hoc stroke)	1218	17.4	7.19
Time II (3-month follow-up)	1218	29.04	16.78
Time III (12-month follow up)	1218	21.84	21.77

- A one-way repeated measured analysis of variance (ANOVA) was conducted to evaluate if there was a change in social cognition (scaled items) when measured just after having a stroke, three months after a stroke, and 12 months after experiencing a stroke (N = 1218).

Table 4. Descriptive Statistics for Social Cognition with Statistics test scores for Time 1, Time 2, and Time 3.

Time Period	N	Mean	Standard Deviation
Time I (post hoc stroke)	1218	12.06	5.151
Time II (3-month follow-up)	1218	15.74	9.688
Time III (12-month follow up)	1218	10.73	13.350

- An additional one-way repeated measures analysis of variance (ANOVA) was conducted to explore potential cross-cultural differences in self-care management across time after suffering from a stroke.

Table 5. Descriptive statistics for self-care with statistics test scores for time 1, time 2, and time 3 split by minority and non-minority groups.

	Minority Group		
Time period	N	Mean	Standard Deviation
Time I (discharge after stroke)	301	17.64	6.96
Time II (3 Months after discharge)	301	29.14	16.34
Time III (1 year after discharge)	301	20.60	22.25
	White/Non- Hispanic Group		
Time period	N	Mean	Standard Deviation
Time I (discharge after stroke)	918	17.37	7.27
Time II (3 Months after discharge)	918	29.01	16.93
Time III (1 year after discharge)	918	22.25	21.61

- An additional one-way repeated measures analysis of variance (ANOVA) was conducted to explore potential cross-cultural differences in Social Cognition across time after suffering from a stroke.

Table 6. Descriptive statistics for Social Cognition with statistics test scores for time 1, time 2, and time 3 split by minority and non-minority groups.

	Minority Group		
Time period	N	Mean	Standard Deviation
Time I (discharge after stroke)	301	13.39	5.13
Time II (3 Months after discharge)	301	16.04	9.30
Time III (1 year after discharge)	301	9.86	13.60
	White/Non- Hispanic Group		
Time period	N	Mean	Standard Deviation
Time I (discharge after stroke)	918	11.62	5.10
Time II (3 Months after discharge)	918	15.65	9.81
Time III (1 year after discharge)	918	11.01	13.26

DISCUSSION

In conclusion based on the statistical data represented by each of the ANOVA tests throughout this study it appears that the minority group does not have the means of physical or emotional help as much as the white/non-Hispanic group does. Throughout each of the four ANOVA's included in this study, they all show an increase between the periods of Time I and Time II and a sudden decrease between the period Time II and Time III. Although the correlations between these three time periods are similar between the two cultural groups the statistics show that the Minority group has decreased more From Time I to Time III in every ANOVA test above. This concludes that regardless of the treatment both cultural groups receive after they are discharged within the three time periods, the minority group has more trouble continuing daily activities independently. This is probably because the minority group does not have the same or any kind of help physically, mentally, and emotionally.

REFERENCES

Chong, J. Y., & Sacco, R. L. (2005). Epidemiology of stroke in young adults: race/ethnic differences. Journal of thrombosis and thrombolysis, 20(2), 77-83.
Gaillard, F. (n.d.). Normal brain (MRI): Radiology Case. Radiopaedia Blog RSS. https://radiopaedia.org/cases/normal-brain-mri-6.
Gibson, C. L., & Attwood, L. (2016). The impact of gender on stroke pathology and treatment. Neuroscience & Biobehavioral Reviews, 67, 119-124.
Gibson, C. L. (2013). Cerebral ischemic stroke: is gender important? Journal of Cerebral Blood Flow & Metabolism, 33(9), 1355-1361.
House, A. (1987). Depression after stroke. British medical journal (Clinical research ed.), 294(6564), 76.
Lou, S., Carstensen, K., Jørgensen, C. R., & Nielsen, C. P. (2017). Stroke patients' and informal carers' experiences with life after stroke: an overview of qualitative systematic reviews. Disability and rehabilitation, 39(3), 301-313.
Ranawaka, U., Mettananda, C., Thilakarathna, C., Peiris, A., Kasturiratna, A., & Tilakaratna, Y. (2020). Stroke Awareness in Patients with Incident Stroke Compared to Patients without Stroke or Ischemic Heart Disease. Journal of Stroke and Cerebrovascular Diseases, 29(6), 104790.
Stroke risk factors and prevention. Stroke risk factors and prevention - Better Health Channel. (n.d.). https://www.betterhealth.vic.gov.au/health/ConditionsAndTreatments/stroke-risk-factors-and-prevention#bhc-content
thurnher, M. (n.d.). Imaging in Acute Stroke. The Radiology Assistant : Imaging in Acute Stroke. https://radiologyassistant.nl/neuroradiology/brain-ischemia/imaging-in-acute-stroke.
Warlow, C. P. (1998). Epidemiology of stroke. The Lancet, 352, S1-S4.
Wolfe, C. D. (2000). The impact of stroke. British medical bulletin, 56(2), 275-286.