

# P-77 Associated Factors of Stroke Severity among Young Adults Stroke Patients in Malaysia from National Neurology Registry from 2014 to 2018



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## INTRODUCTION

Incidence of stroke in Malaysian young adult is rising and exerts a financial and emotional burden on the families and imposes a negative effect on the health care system. The aims of this study were to estimate the proportion of stroke severity and to determine the factors associated with the stroke severity among young adult stroke patients.

## MATERIAL & METHODS

### STUDY DESIGN

- Cross-sectional retrospective secondary data analysis

### STUDY DURATION

- Young stroke patients who were registered from January 2014 to December 2018

### SOURCES OF DATA

- National Neurology Registry (NNR)

### INCLUSION CRITERIA

- Young adult (18 to 49 years old)
- First stroke event

### EXCLUSION CRITERIA

- Traumatic haemorrhagic stroke due to motor vehicle accident or head injury
- Intra-cerebral haemorrhage due to known cerebral metastasis or brain tumour
- Pregnancy related stroke

### DATA ANALYSIS

- Parametric test : Simple Ordinal Logistic, Multiple Ordinal Logistic
- Descriptive data : frequencies and percentage
- $P$ -value  $<0.05$  was considered statistically significant

## RESULTS

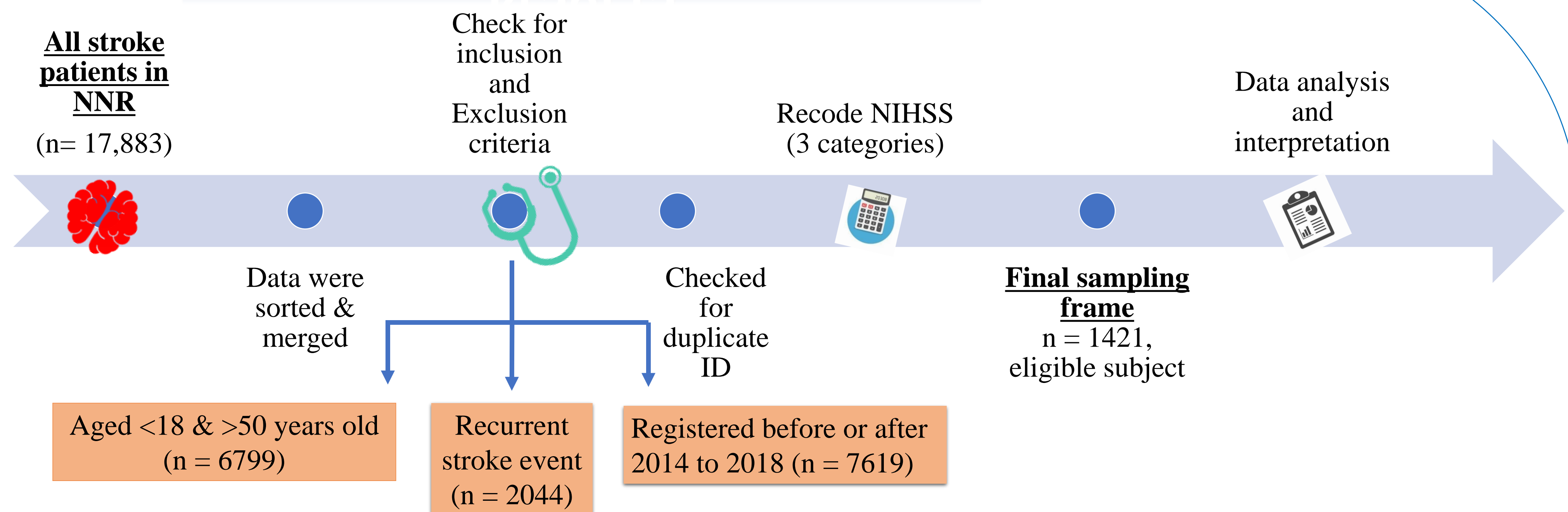


Figure 1: Flowchart of Data Management

Variables	Severity of stroke			
	Overall n (%)	Mild n (%)	Moderate n (%)	Severe n (%)
Age (year) <sup>a</sup>	41(7.6)	41(8.3)	41(6.8)	41(7.3)
Gender				
Male	896 (63.1)	347(52.0)	261(39.1)	59(8.9)
Female	525 (36.9)	192(48.6)	171(43.3)	32(8.1)
Ethnicity				
Malay	1038(73.6)	391(50.7)	320(41.5)	61(7.9)
Chinese	161(11.4)	59 (47.9)	51(41.5)	13(10.6)
Indian	34(2.4)	11(45.8)	11(45.8)	2(8.3)
Foreigner	29(1.9)	8(40.0)	10(50.0)	2(10.0)
Others	150(10.6)	63(55.8)	37(32.7)	13(11.5)

NOTES: <sup>a</sup>mean(SD)

Table 1: Socio-demographic characteristics of sample based on the severity of stroke (n = 1,421)

Variables	Full model of multiple ordinal logistic regression			
	b(SE)	Adjusted OR (95% CI)	Adjusted Wald statistics	P-value
WHO classification				
Non-ischaemic	0	1		
Ischaemic	0.76 (0.448)	2.15 (1.43, 3.23)	3.65	<0.001
Atrial fibrillation				
No	0	1		
Yes	1.37 (1.286)	3.94 (2.08, 7.47)	4.21	<0.001
Alcohol drinking				
No	0	1		
Yes	0.66 (0.586)	1.93 (1.06, 3.50)	2.16	0.030

Table 2: Factors associated with the stroke severity among young adult stroke patients

Proportion of stroke severity

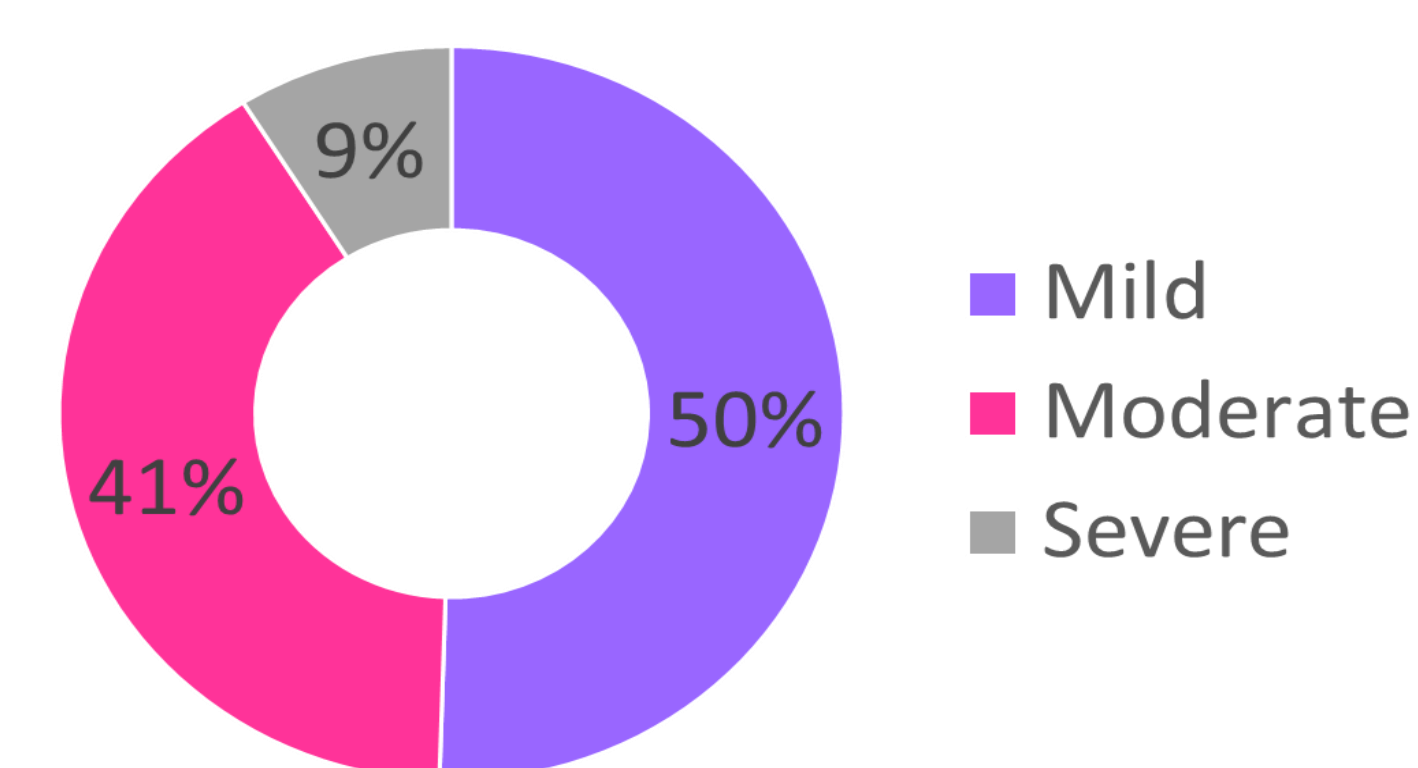


Figure 2: Proportion of stroke based on severity

## DISCUSSION

- Overall, there were 26 variables analyzed as predictors of stroke severity among young stroke patients in Malaysia. Among the variables, 3 factors (stroke classification, atrial fibrillation and alcohol drinking ) were identified as significant risk factors for young adult to have more severe stroke event.
- Study done in Taiwan and Greece showed similar pattern , 53.3% and 53.3% of mild stroke. However, Taiwan reported higher number of severe cases, 19.5% (Spengos and Vemmos, 2010 and Chang *et al.*, 2010)
- A population-based registry study done from 2001 to 2003 in Tartu, Estonia found patients with intra-cerebral haemorrhage was significantly more severe as compared to brain infarction ( $P$ -value $<0.001$ ) which was conflicted with this study finding.
- Parallel findings were discovered in Korea and Canada where patients with atrial fibrillation had higher chances of more severe stroke and significantly correlated with NIHSS (Saposnik *et al.*, 2013 & Kim, 2012).
- A study in Denmark by Andersen *et al.* (2009) identified that alcohol consumption mostly caused haemorrhagic stroke and generally more severe than ischaemic which supported this study discovery. Nonetheless, a study conducted by Fekete *et al.* (2014) in Hungary found that alcohol consumption does not have a significant influence on stroke severity.

## CONCLUSION

- Of total, about 50% of young adult patient was categorized as mild stroke.
- Stroke classification, atrial fibrillation and alcohol drinking were significant factors that influenced in having a more severe stroke among young adult in Malaysia.

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