

GUBMES



Tackling stroke through risk models

Sofia Hernandez Gelado

Aims and Objectives

What lifestyle factors influence suffering from stroke?

Do they cause stroke or are they secondary factors?

Can we define a risk model to help people understand these factors?

The NHS Long Term Plan – a summary

Find out more: www.longtermplan.nhs.uk | Join the conversation: #NHSLongTermPlan

**Delivering
world-class
care for
major health
problems**

- preventing 150,000 heart attacks, strokes and dementia cases
- providing education and exercise programmes to tens of thousands more patients with heart problems, preventing up to 14,000 premature deaths
- saving 55,000 more lives a year by diagnosing more cancers early
- investing in spotting and treating lung conditions early to prevent 80,000 stays in hospital
- spending at least £2.3bn more a year on mental health care
- helping 380,000 more people get therapy for depression and anxiety by 2023/24
- delivering community-based physical and mental care for 370,000 people with severe mental illness a year by 2023/24.

Previous Work

Hindawi
Computational and Mathematical Methods in Medicine
Volume 2020, Article ID 3217356, 12 pages
<https://doi.org/10.1155/2020/3217356>



Research Article

Influences of Daily Life Habits on Risk Factors of Stroke Based on Decision Tree and Correlation Matrix

Zeguo Shao,^{1,2} Yuhong Xiang,¹ Yingchao Zhu,³ Aiqin Fan,⁴ and Peng Zhang^{1,5,6}

¹School of Medical Instrumentation, Shanghai University of Medicine & Health Sciences, Shanghai 201318, China

²Center for Intelligent Medical Electronics (CIME), Fudan University, Shanghai 201318, China

³Nursing Department, Shanghai Pudong New District Zhoupu Hospital, Shanghai 201318, China

⁴Pudong New Area Lingqiao Community Health Service Center, Shanghai 200137, China

⁵School of Clinical Medicine, Shanghai University of Medicine & Health Sciences, Shanghai 201318, China

⁶Shanghai General Practice Medical Education and Research Center, Shanghai 201318, China

Correspondence should be addressed to Peng Zhang; zhangp@sumhs.edu.cn

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TABLE 1: Subjects' clinical data.

Type of data	Risk factor of stroke	Field	Data distribution
Clinical diagnosis	Hypertension	Hyte	y: 1242, n: 3782, uncertain: 575
	Dyslipidemia	Dysl	y: 511, n: 4508, uncertain: 580
	Diabetes	Diab	y: 403, n: 4618, uncertain: 578
	Atrial fibrillation	AF	y: 75, n: 4940, uncertain: 584
Medical history and family history	Family history of stroke	FSH	y: 449, n: 4460, uncertain: 690
	History of stroke	SH	y: 165, n: 4730, uncertain: 704
	TIA	TIA	y: 95, n: 4350, uncertain: 1154
Demographic information	Gender	Gen	M: 2491, F: 3108
	Age	Age	Refer to Figure 1
Physical examination	BMI	BMIc	B1: 205, B2: 2926, B3: 1760, B4: 520, B5: 150, uncertain: 38
	Smoking	Smok	y: 1192, n: 4379, null: 28
	Alcohol consumption	Alco	y: 1065, n: 4500, null: 34
	Drinking tea	Tea	y: 1563, n: 3997, null: 39
	Diet	DT	C1: 2812, C2: 263, C3: 2181, null: 370
	Sleep	Sleep	TS: 366, TB: 4958, BL: 205, null: 70
	Exercise sport	Sport	C1: 1518, C2: 1624, C3: 2275, null: 182
"y" means "yes," "n" indicates "no," and definitions of the types of BMI, diet, sleep, and exercise are presented in Figure 1. In Figure 1, we sometimes use fields to represent their corresponding stroke risk factors.			

Methods

Comparative Analysis of Feature Selection Methods to Identify Biomarkers in a Stroke-Related Dataset

Thomas Clifford
Computer Science Dept.
Southern Illinois University Edwardsville
Edwardsville, IL
tcliffo@siue.edu

Justin Bruce
Computer Science Dept.
Southern Illinois University Edwardsville
Edwardsville, IL
jubruce@siue.edu

Tayo Obafemi-Ajayi
Engineering Program
Missouri State University
Springfield, MO
tayoobafemajayi@missouristate.edu

John Matta
Computer Science Dept.
Southern Illinois University Edwardsville
Edwardsville, IL
jmatta@siue.edu

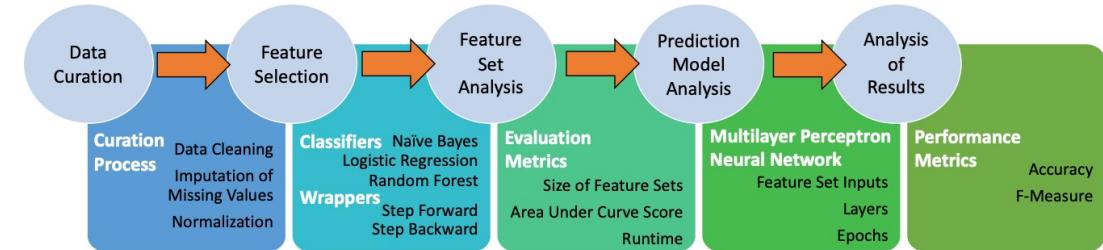


Fig. 1: Data-driven methodological framework to evaluate multiple feature selection methods.

Data

The image shows two side-by-side screenshots of the Kaggle website, displaying different datasets.

Top Screenshot (Pre-processed Stroke Dataset):

- Title:** Pre-processed Stroke Dataset
- Description:** Imputed with MICE, Encoded with OHE & Target Encoding
- Owner:** Mahmoud Limam
- Last Updated:** 8 months ago (Version 1)
- Downloads:** 355 kB
- Usability:** 3.5
- Tags:** health conditions

Bottom Screenshot (Cerebral Stroke Prediction-Imbalanced Dataset):

- Title:** Cerebral Stroke Prediction-Imbalanced Dataset
- Description:** Identify Stroke on Imbalanced Dataset
- Owner:** Shashwat Tiwari
- Last Updated:** 4 months ago (Version 1)
- Downloads:** 3 MB
- Usability:** 8.8
- License:** Attribution-NonCommercial-ShareAlike 3.0 IGO (CC BY-NC-SA 3.0 IGO)
- Tags:** health, heart conditions