Prevalence and Predictors of Sexual Dysfunction After Stroke

Dr. Hatice Ozkan
UCL Queen Square Institute of Neurology

Co-Authors: Lisa Woodhouse, Rosalind Brown, Ellen Backhouse, Richard J McManus, Terry Quinn, Fergus Doubal, Hugh Markus, Philip M Bath, Adrian Parry-Jones, Yee-Haur Mah, Nikola Sprigg, Robert Simister, Joanna Wardlaw, David J Werring,
R4VaD investigators

R4VaD
Rates Risks and Routes to Reduce Vascular Dementia

UCL STROKE RESEARCH CENTRE

NHS
University College London Hospitals
NHS Foundation Trust

THE NATIONAL HOSPITAL FOR NEUROLOGY AND NEUROSURGERY

10-11 March 2025

SAFE
STROKE ALLIANCE FOR EUROPE

#lifeafterstroke

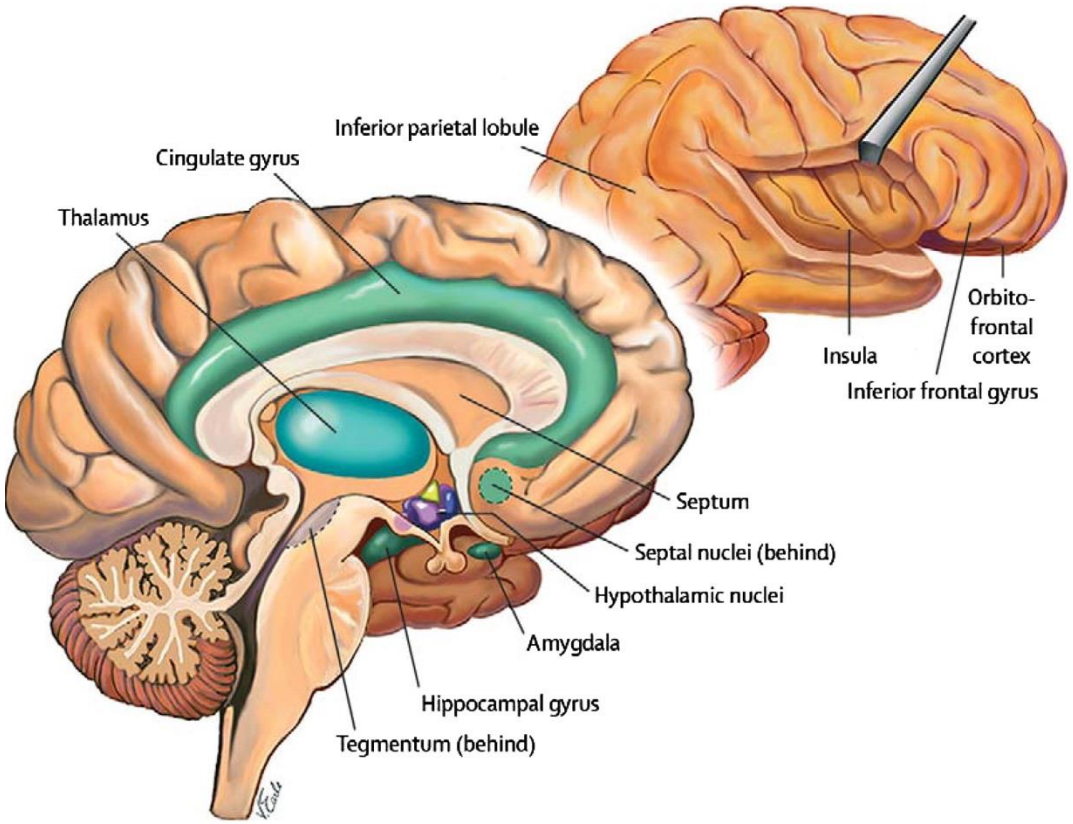
Disclosures

European Life After Stroke Forum

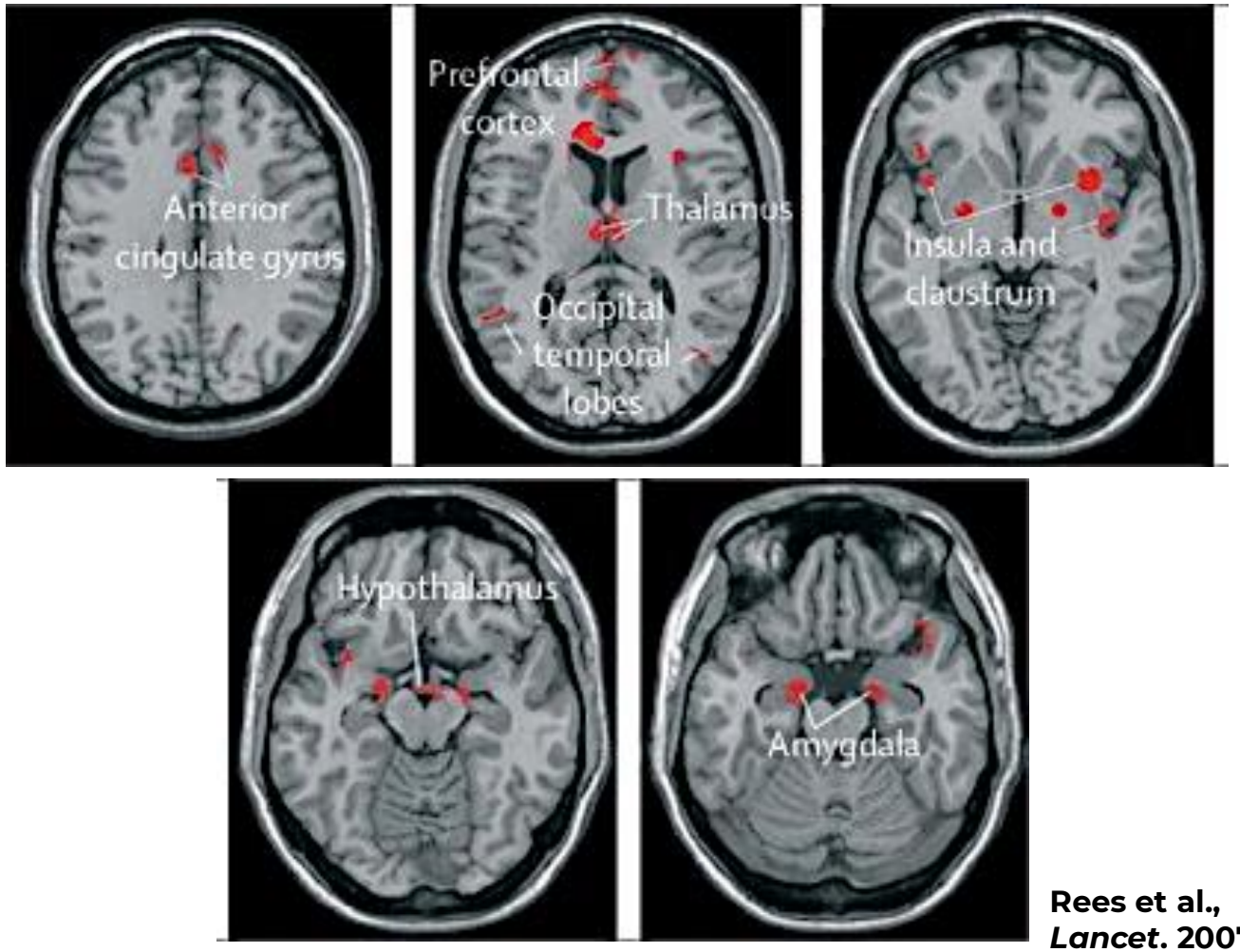
Personal: No relevant conflict of interest to disclose X

The R4VaD study was jointly funded by the Stroke Association, Alzheimer's Society, Dementias Platform UK, and the British Heart Foundation

Background



Activated Brain Areas



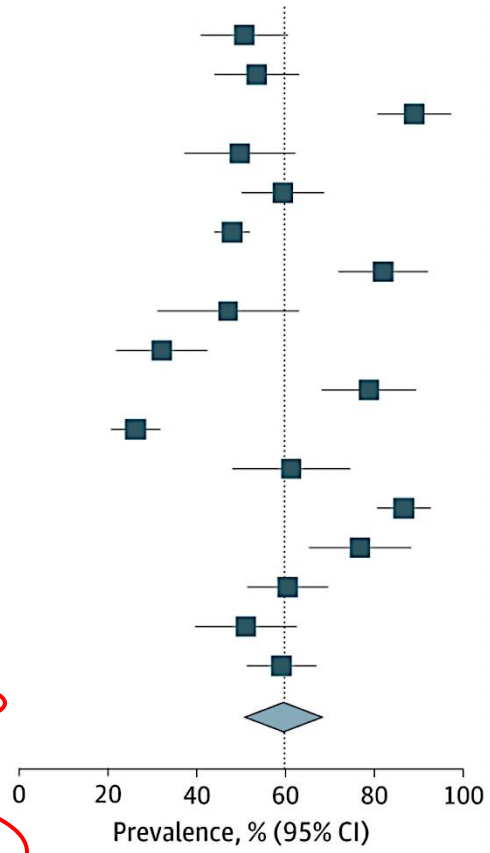
Rees et al., *Lancet*. 2007

Previous Estimates and Natural History

Pooled Estimate

Study	Prevalence, % (95% CI)
Kimura et al,[274] 2001	51.00 (41.35-60.56)
Cheung,[275] 2002	53.77 (44.32-62.97)
Choi-Kwon et al,[276] 2002	89.09 (78.17-94.90)
Giaquinto et al,[277] 2003	50.00 (37.92-62.08)
Jung et al,[278] 2007	59.63 (50.25-68.36)
Bener et al,[279] 2008	48.26 (44.31-52.24)
Hilz et al,[280] 2012	82.14 (70.16-90.00)
Stein et al,[281] 2012	47.37 (32.48-62.74)
Bugnicourt et al,[282] 2014	32.50 (23.24-43.36)
Koehn et al,[283] 2015	78.95 (63.87-87.53)
Abhandadze et al,[284] 2017	26.61 (21.50-32.44)
Winder et al,[285] 2017	60.54 (47.96-73.53)
Oyewole et al,[286] 2017	86.78 (79.60-91.69)
Winder et al[x], 2017	76.96 (66.71-86.28)
Yilmaz et al,[287] 2017	60.71 (51.46-69.26)
Purwata et al,[288] 2019	51.35 (40.18-62.39)
Montalvan et al,[289] 2021	59.33 (51.33-66.87)
Overall	**59.80 (50.03-69.51)**

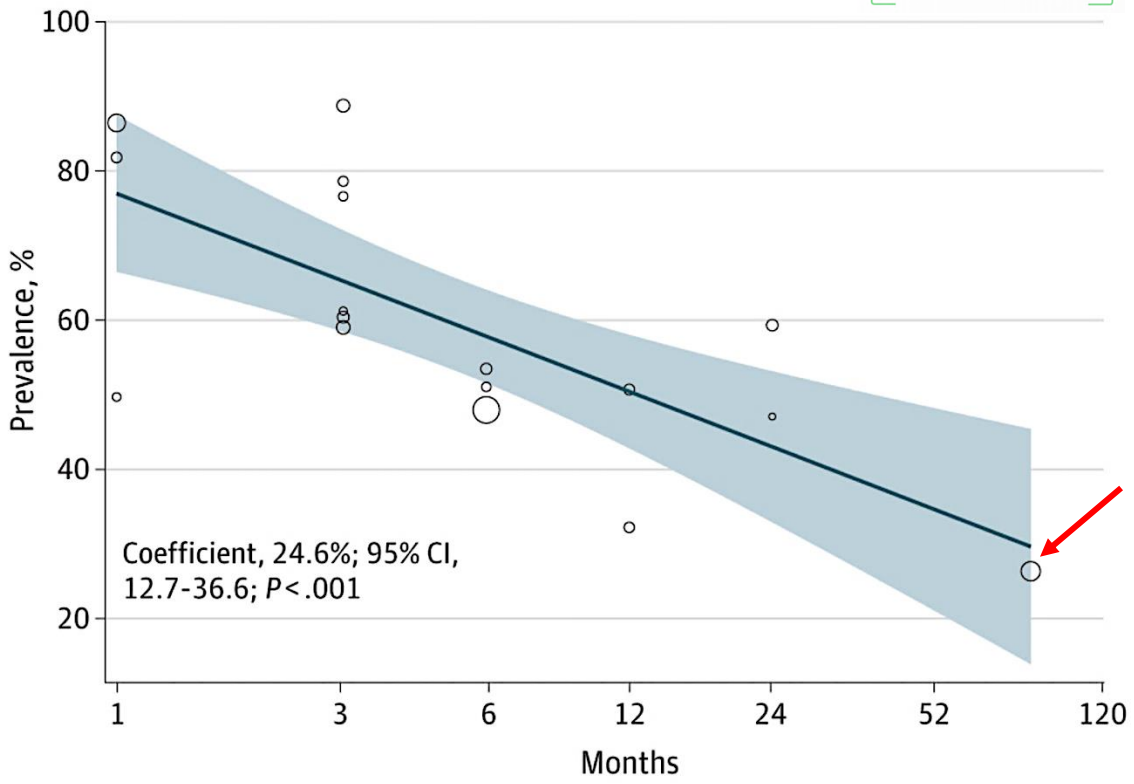
Heterogeneity: $\tau^2 = 0.03$, $I^2 = 94.51\%$, $H^2 = 18.21$



Median N= 80

Natural History

To Read



Ozkan et al., *JAMA N. Open.* 2025

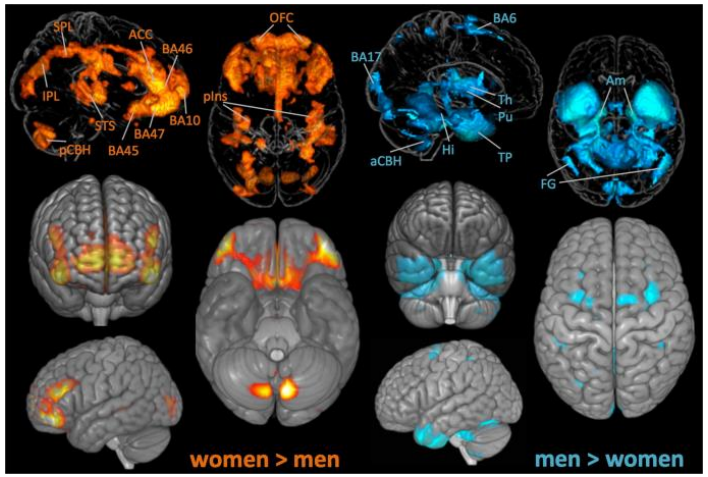
10-11 March 2025

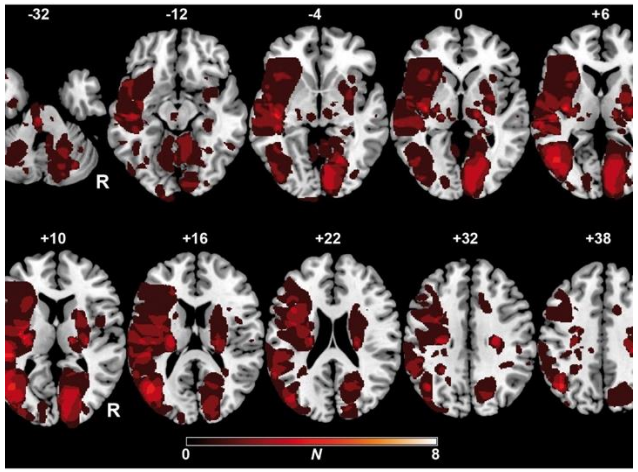
SAFE STROKE ALLIANCE FOR EUROPE

#lifeafterstroke

Previously Reported Predictors

- Medication Side Effects
- Psychological Factors
- Physical Impairments
- Mental Health Problems
- Sociodemographic Factors
- Hormonal Imbalance
- Stroke Location
- Cardiovascular Disease
- Neuro-anatomical Damage





10-11 March 2025

SAFE STROKE ALLIANCE FOR EUROPE

#lifeafterstroke

Aims and Objectives

We aim to investigate the prevalence of post-stroke sexual dysfunction across all stroke subtypes

Identify the sociodemographic and clinical factors associated with increased prevalence of sexual dysfunction

Methods

To Read

Design, Study Setting, Follow-up Model, and Participants

We used **sub-set of data** from the Multicenter Observational Cohort Study of **Rates, Risks, and Routes to Reduce Vascular Dementia (R4VaD)**

Patients with **acute ischaemic stroke, transient ischaemic attack (TIA), and intracerebral haemorrhage (ICH)** from the larger R4VaD study who completed the sexual function questionnaire during the study's first year, between **October 2018 and June 2019** were included

The inclusion criteria were adult (age 18 years or older) patients who were **expected to survive to at least 12 weeks after stroke**

Sexual dysfunction **follow-up** was completed by clinical research practitioner via face to face, telephone or postal follow-up **at 6 to 12 weeks** post-recruitment

All data are entered into a **secure** password-protected electronic case record form (eCRF) hosted at the University of Nottingham

Data

Sociodemographic

On admission to the stroke unit of the participating centre:

- Age
- Sex
- Stroke sub-type
- Relationship Status
- Pre-stroke depression
- Pre-cognitive impairment
- Past medical history

Clinical

On admission to the stroke unit of the participating centre:

- Functional disability as measured with the modified Rankin Scale (mRS)
- Stroke severity measured with National Institutes of Health Stroke Scale (NIHSS)

Follow-up

6 to 12 weeks post stroke:

- In the past month how much have you been bothered by pain or problems during sexual intercourse?
- In the last month did you experience sexual dysfunction including: low sexual desire, erectile dysfunction, arousal problems, pain, and orgasmic dysfunction?

Statistical Analysis

Unadjusted

- Means and standard deviations (SD)
- medians and interquartile ranges (IQR)
- analysis of variance (ANOVA)
- Kruskal-Wallis
- Counts (N) or proportions (%)
- Chi-squared (χ^2) test

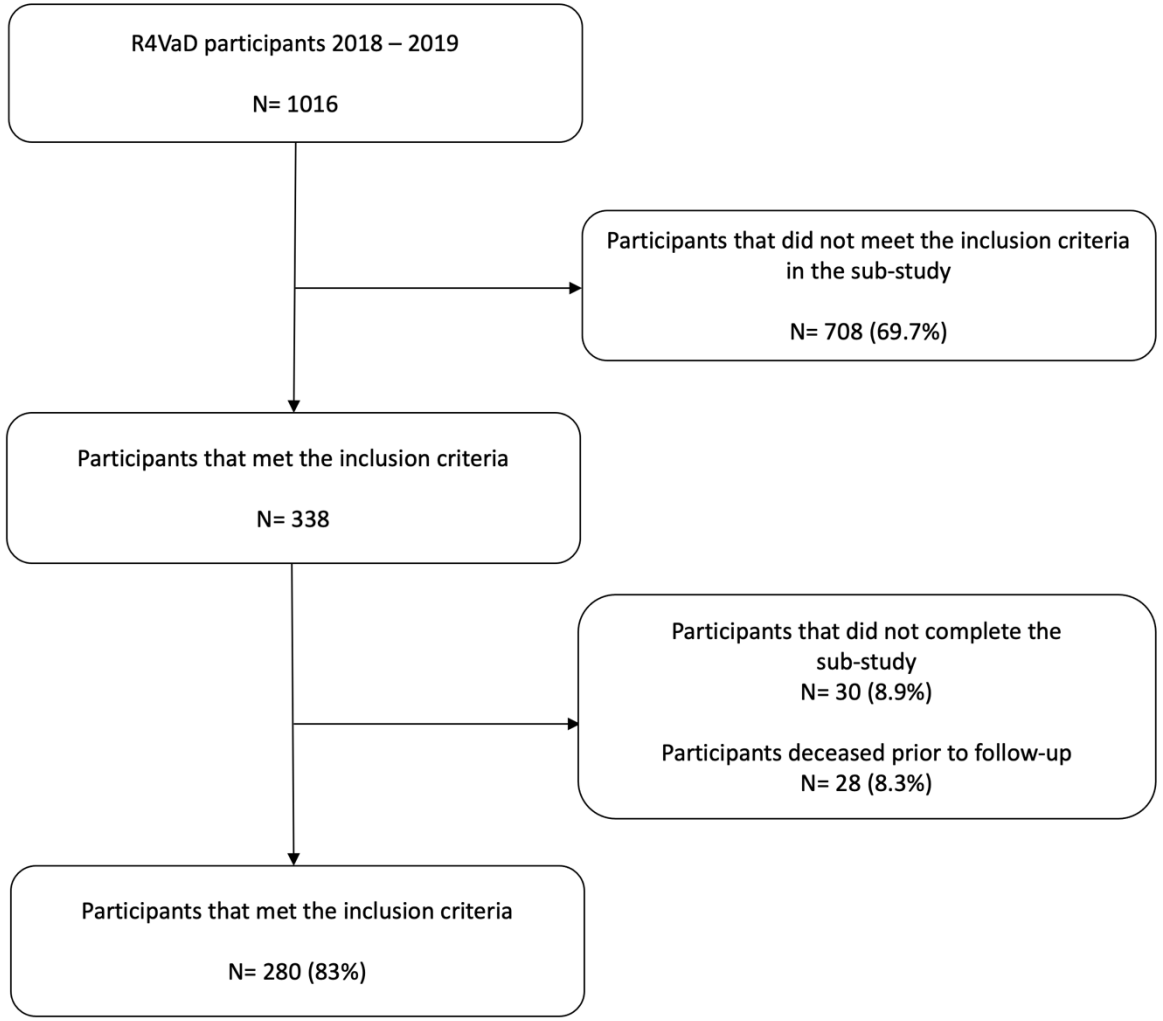
Adjusted

- Multivariable logistic regression
- Sociodemographic and clinically relevant confounding factors
- Predefined statistical threshold ($P < 0.05$) as a candidate covariates

Patient Selection

338 Patients met the inclusion criteria

280 (83%) Completed the sexual function follow-up



Patient Characteristics

Unpublished data
Please do NOT Distribute

Characteristics	All N= 280	Ischaemic Stroke N= 236	TIA N= 23	ICH N= 21	P Value
Age (yrs.), median IQR	65 (18 – 83)	67 (23 – 76)	63 (21 – 81)	65 (19 – 78)	0.5901
Female Sex, No. (%)	87 (31%)	72 (30.5%)	9 (39%)	6 (28.6%)	0.672
Marital Status, No. (%)					
Married	**183 (65.4%)**	155 (65.7%)	12 (52.2%)	16 (76.2%)	0.001
Medical History, No. (%)					
Hypertension,	166 (59.3%)	140 (59.3%)	9 (39.1%)	**17 (80.1%)**	**0.019**
Diabetes Mellitus	58 (20.7%)	48 (20.3%)	1 (4.3%)	**9 (42.8%)**	**0.007**
Depression	49 (17%)	35 (14.8%)	3 (13%)	**11 (52%)**	**0.034**
Cognitive impairment	12 (4.3%)	4 (1.7%)	1 (4.4%)	**7 (33.3%)**	**0.048**

Stroke Severity

NIHSS= 5 (3 – 11)

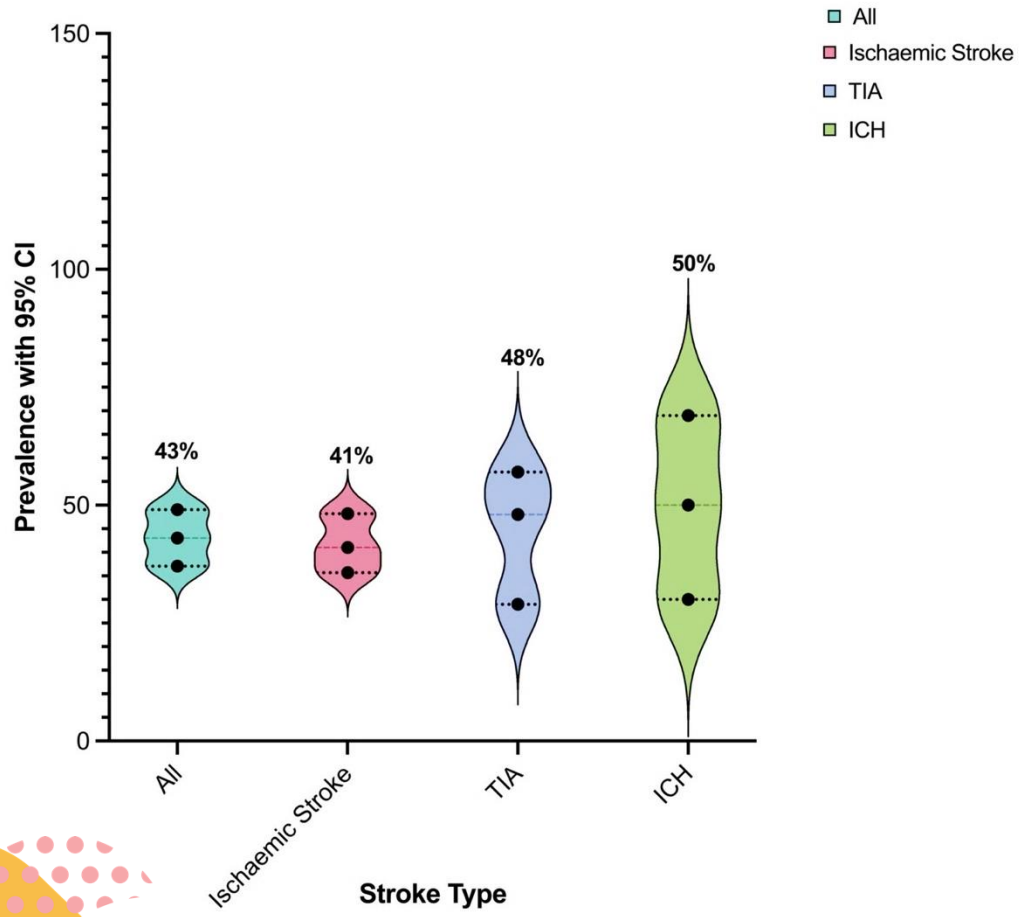
Functional Disability

Discharge mRS= 1 (0 – 1)

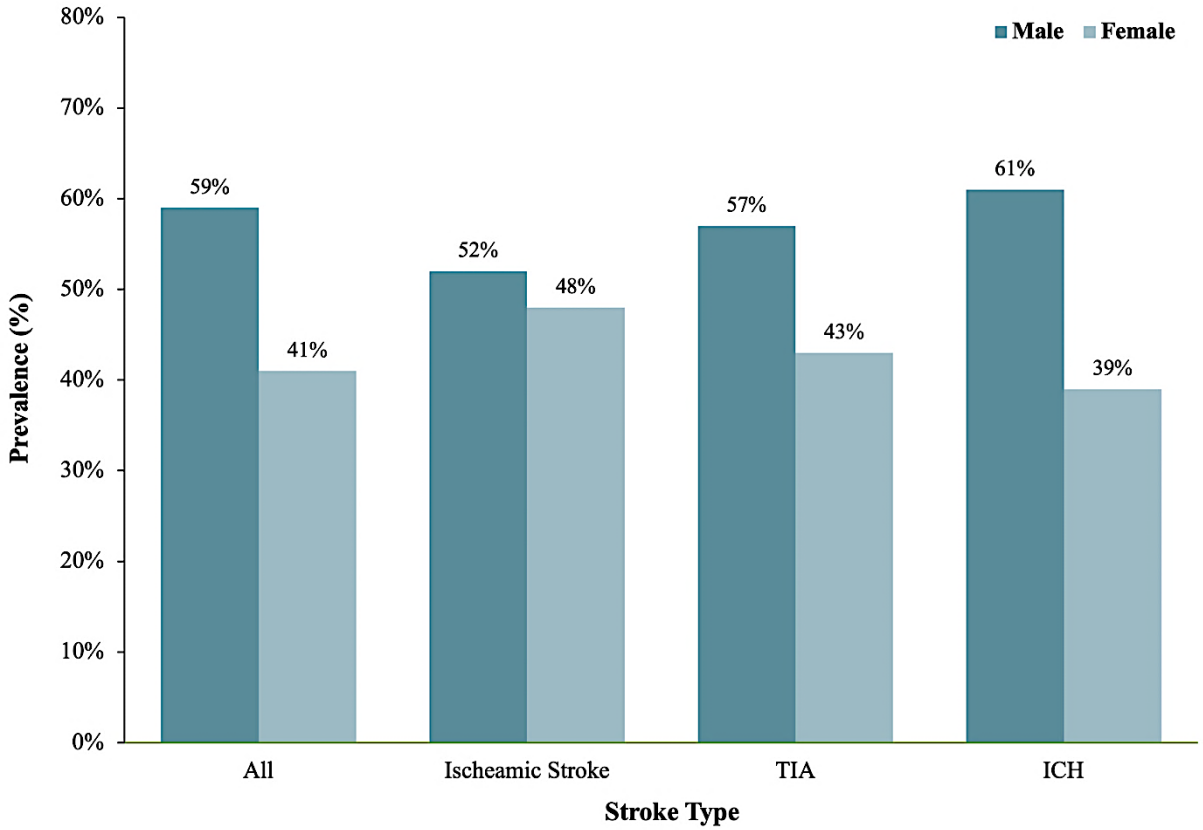
Results

Unpublished data
Please do NOT Distribute

6 to 12 weeks prevalence



Male *vs.* Female



10-11 March 2025

SAFE
STROKE ALLIANCE FOR EUROPE

#lifeafterstroke

Factors Associated with Sexual Dysfunction

Unpublished data
Please do NOT Distribute

Sociodemographic

1

Male Sex
OR: 2.17 (95% CI 1.29 – 3.09)
p= 0.042

Marital Status
(relative to being single)
OR: 1.81 (95% CI 1.63 – 2.08)
p= 0.005

Pre-Stroke

2

Diabetes Mellitus
OR: 1.72 (95%1.27 – 2.13)
p= 0.016

Depression
OR: 1.87 (95% CI 1.29 – 2.18)
p= 0.007

Cognitive Impairment
OR: 2.03 (95% CI 1.73 – 2.41)
p= 0.033

Clinical

3

mRS 4 – 5
OR: 3.80
(95% CI : 1.67 – 5.63)
p= 0.018

Strengths

1. Our study is the first to compare sexual dysfunction across acute ischaemic stroke, TIA, and ICH in a multi-center, large unselected cohort.
2. Highlights the high prevalence of post-stroke sexual dysfunction, emphasizing its inclusion in routine follow-ups and quality-of-life measures.
3. Identifies key sociodemographic and clinical factors associated with sexual dysfunction, providing evidence for tailored interventions to improve patient wellbeing.

Limitations

4. Limited female representation restricts the generalizability of findings across biological sex as recorded in the hospital records.
5. Definition of male and female were taken directly from hospital records, therefore there maybe ..
5. Underrepresentation of TIA and ICH patients may skew prevalence and associations compared to ischaemic stroke.
6. Use of limited assessment tools may affect the accuracy of prevalence and impact estimates for sexual dysfunction.

In Summary...

We found that sexual dysfunction affects **one in two patients** following a stroke or TIA, within 6 to 12 weeks of onset

Male stroke survivors were twice as more likely to report sexual dysfunction compared to female stroke survivors

Severe functional disability, indicated by an **mRS score of 4 to 5,** emerged as the strongest predictor of sexual dysfunction

Marriage, pre-stroke depression, cognitive impairment, and diabetes mellitus were also significantly associated with a higher prevalence of sexual dysfunction following stroke or TIA

Future directions

1. Establish a consistent **language and framework** for addressing sexual dysfunction, ensuring they become part of standard discussions during follow-ups.

2. Incorporate sexual health **screening** into large cohort studies and **registries** to track their prevalence, progression, and impact over time.

3. Identify and allocate **resources to triage** patients effectively, addressing sexual health needs based on their **severity and complexity**.

Acknowledgements

Patients and caregivers

Funders

R4VaD investigators: Lisa Woodhouse, Rosalind Brown, Ellen Backhouse, Richard J McManus, Terry Quinn, Fergus Doubal, Hugh Markus, Philip M Bath, Adrian Parry-Jones, Yee-Haur Mah, Nikola Sprigg, Robert Simister, Joanna Wardlaw, David J Werring

European **Life After Stroke** Forum

THANK YOU

Email: h.capar@ucl.ac.uk

X: HOzkan92

R4VaD Rates Risks and Routes to Reduce Vascular Dementia

UCL STROKE RESEARCH CENTRE

NHS University College London Hospitals NHS Foundation Trust

The National Hospital for Neurology and Neurosurgery

Stroke Association

Alzheimer's Society

UK Dementia Research Institute

British Heart Foundation

10-11 March 2025

SAFE STROKE ALLIANCE FOR EUROPE

#lifeafterstroke