

Identifying factors associated with sitting time and patterns of accumulating sitting time after stroke:

A data modelling study

Wendy Hendrickx^{1,2,3}, Carlos Riveros⁴, Coralie English² on behalf of contributing authors

1. Physiotherapy Research, Department of Rehabilitation, Physiotherapy Science & Sport, Brain Center Rudolf Magnus, University Medical Center Utrecht, The Netherlands 2. School of Health Sciences and Priority Research Centre for Stroke and Brain Injury, Faculty of Health and Medicine, University of Newcastle Australia 3. Center for Physical Therapy Research and Innovation in Primary Care, Julius Health Care Centers, The Netherlands 4. Bioinformatics, Hunter Medical Research Institute, Newcastle Australia
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Background:

Stroke survivors have a high risk of recurrent stroke¹.
Sedentary behaviour increases the risk of CVD².
Stroke survivors are highly sedentary³.
We have only limited evidence about the factors associated with sitting time⁴.

Aim/research questions:

- 1) What factors are associated with total sitting time during waking hours after stroke?
- 2) What factors are associated with time spent in prolonged sitting bouts during waking hours?
- 3) What are the patterns in which stroke survivors accumulate sitting time during waking hours?

Methods:

All published and ongoing studies that measured sitting time using activPAL in stroke survivors living at home were identified and raw files were collated.

A custom script was written to identify wake periods (based on validated methods by Winkler 2016).

Included only participants with min 3 days data⁵.

Created 3 sitting time variables:

%TOTALSIT = % waking time spent sitting

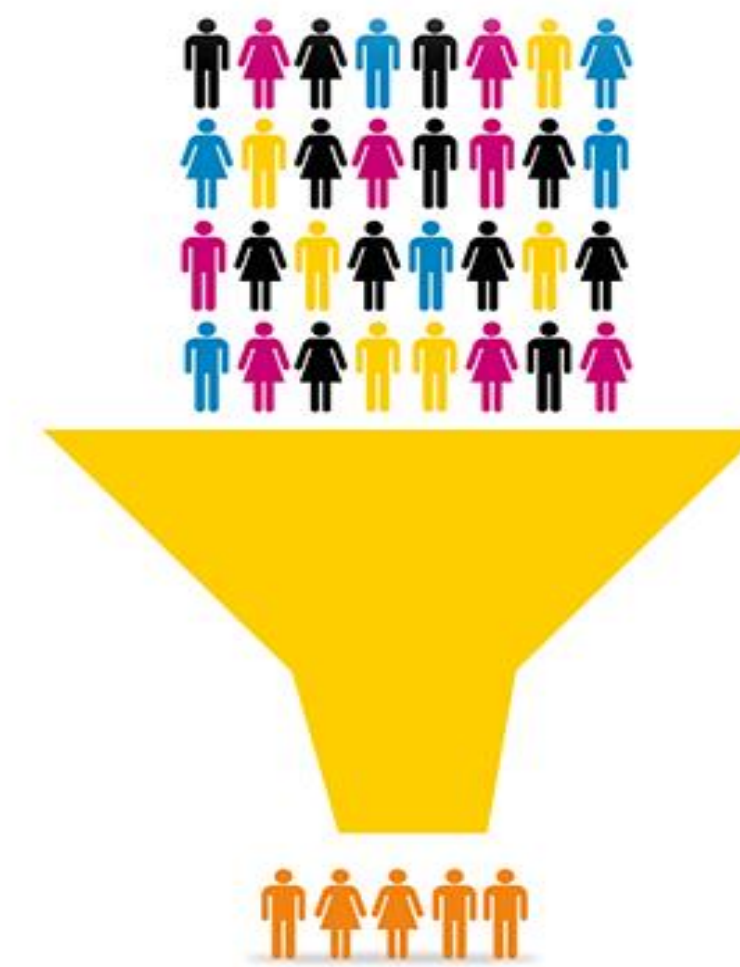
%SIT>30 = % waking time spent sitting in bouts >30 mins

%SIT>60 = % waking time spent sitting in bouts >60 mins

Demographic and stroke related variables were mapped across studies and converted to one dataset.

Regression models were used to examine factors associated with sitting time.

Methods




Author	n	Country	Design
Dean	4	Australia	Intervention
English	48	Australia	Observational
Ezeugwu	30	Canada	Intervention
Jones	21	Australia	Intervention
Kuys	29	Australia	Intervention
Mahendran	36	Australia	Observational
Paul	56	UK	Intervention
Simpson	30	Australia	Observational
Tieges	96	UK	Observational

Results

Univariable regression

Multivariable regression

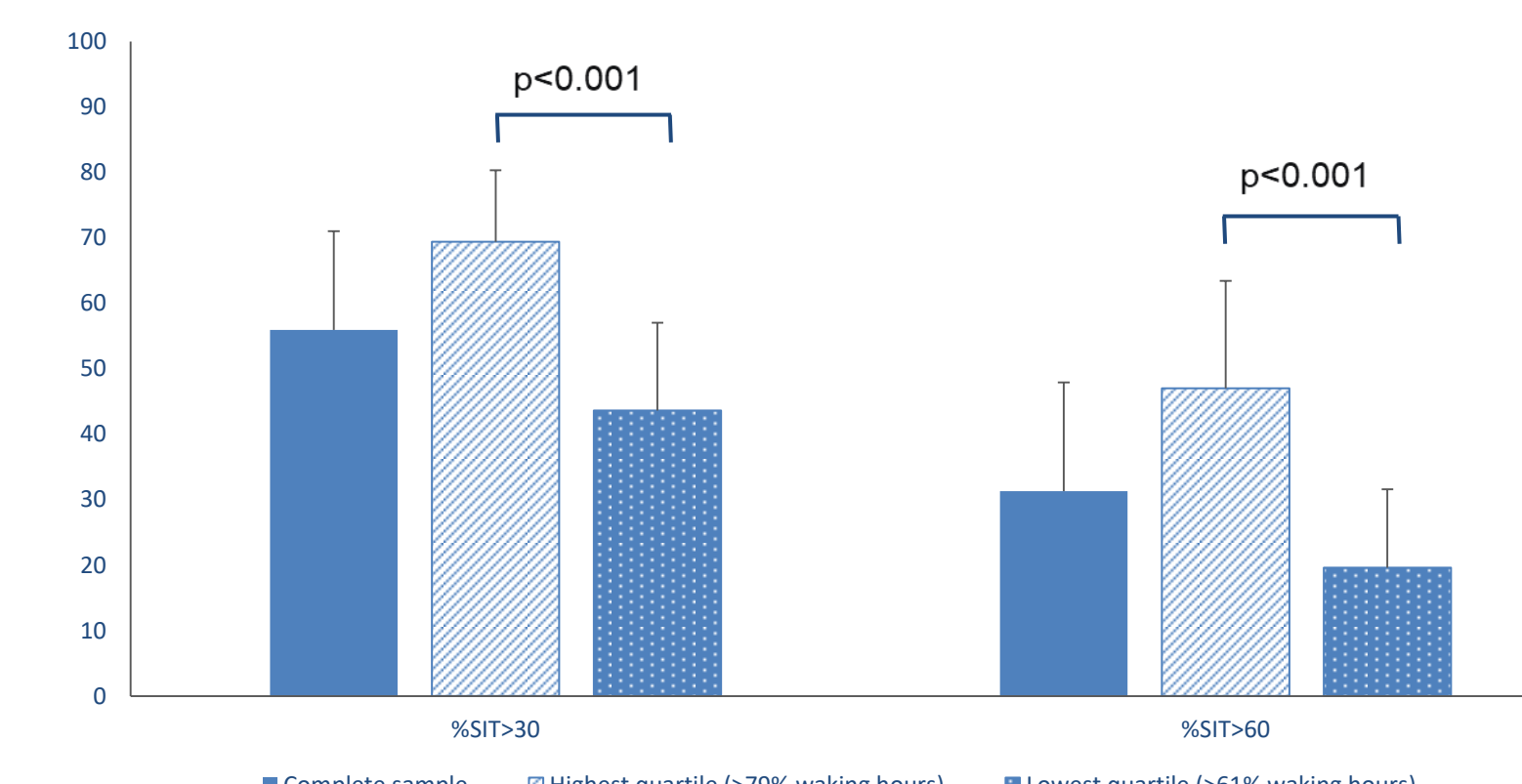
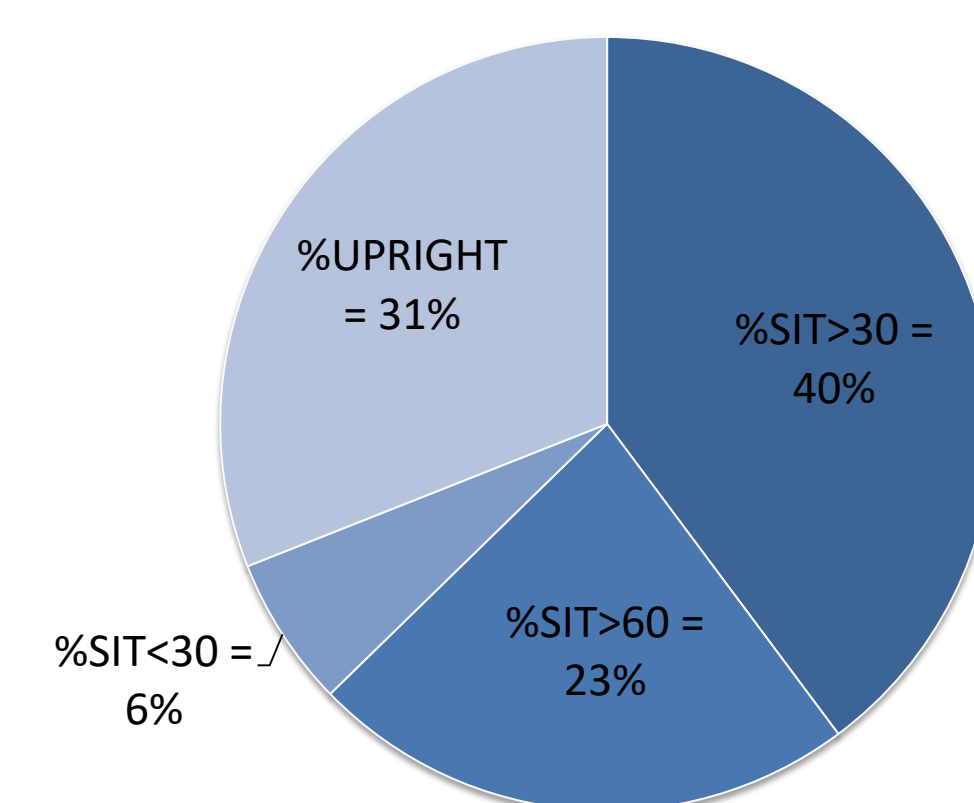
Significant (p<0.05)	Not significant (p<0.05)
BMI	Living arrangements
ADL independent	Cognitive functions
Walking speed	Time since stroke
Walking aid	Type of stroke
Fatigue	Mood disorder
Anxiety	Depression
Walking capacity	Comorbidities
Stroke severity	



Dependent variable	Independent variable	Sample Size	P-value	Adjusted R square
%TOTALSIT	Walking speed	195	0.001	0.139
%SIT>30	Walking speed	182	0.049	0.188
	BMI	195	<0.001	
%SIT>60	Walking speed	195	0.004	0.110

Percentage waking hours sitting

Patterns of accumulation



Results:

Walking speed was significantly associated with total sitting and sitting in prolonged bouts (p<0.004).

Stroke survivors with high total sitting time accumulated significantly more sitting time in bouts >30 minutes (69.4%) and >60 minutes (47.0%).

Variability in sitting time was largely unaccounted for by demographic and stroke-related variables (R-squared 0.11-0.18).

Discussion:

The average total sitting time was 69%; lower than previous studies³ (75-85%);

→ Consistent determination of waking hours may explain results

Walking speed was the only factor independently and significantly associated with sitting time and prolonged sitting time.

Only 11-18% of the variability in sitting time was explained by the regression models;

→ Environmental and behavioural factors may play a role and were not measured

Is the association causative?

Conclusion:

The variability in sitting time is largely unaccounted for by demographic and stroke-related variables. Further research is needed to explore the influences of behavioural and environmental factors on sitting time.