Study finds persistent socioeconomic inequalities in stroke outcomes but not care

#inequalities #SES #SLSR

Key messages

There are important differences in outcomes after stroke between people with lower socioeconomic status (SES) - in this study, this means having lower-paying jobs or living in lower SES areas - and people with higher SES. People with lower SES:

- are more likely to be disabled.
- are more likely to have anxiety and/or depression.

These differences have persisted over time even though people in different SES groups have similar access to specialist stroke treatment.

To reduce these inequalities, different agencies (health care, social care, local government and others) need to work together to address medical and non-medical factors that influence stroke recovery.

What we did

Since 1995, the South London Stroke Register has collected information on

- Participant's job
- Participant's postcode at stroke
- specialist stroke care (thrombolysis*, stroke unit admission),
- disability and dependency
- anxiety and depression
- survival up to 5 years after stroke.

*When someone has an ischaemic stroke (when there is a blockage in the blood supply to the brain), a treatment called thrombolysis (using a clot-busting drug to clear the blockage) may be suitable. Stroke patients need to get this treatment within about four hours of symptoms starting.

We compared participants with routine/manual jobs with those with non-routine/non-manual jobs, and those from more deprived areas with those from less deprived areas. We divided all participants into three cohorts (groups) depending on year of stroke (1995-2003, 2004-2012, 2013-2022) to investigate if inequalities have changed over time.

What we found

Access to specialist care is similar between socioeconomic groups

People have similar access to specialist care (thrombolysis and stroke unit admission) between SES groups and across cohorts.

Survival inequalities have declined over time

In the earlier years of this study, people with lower SES were less likely to survive up to five years after their stroke. However, in more recent years the survival of people with lower SES has improved.

There are still inequalities in functional and mental health outcomes

People with lower SES:

- are more likely to be disabled.
- are more likely to have anxiety and/or depression.

People with lower SES might have worse outcomes for other reasons. For example, SES groups may have worse vascular risk factor profiles (vascular risk factors include high blood pressure, diabetes, obesity among others) or more severe stroke than higher SES groups. However, when we accounted for these possibilities in our data, the lower SES groups still had worse outcomes.

Many non-medical factors contribute to poorer health among stroke survivors with lower SES, including:

- poor housing
- being uncertain or worried about having enough money
- household or personal resources
- being stressed for a long time
- environmental factors.

The differences we found in outcomes between socioeconomic groups were also not explained by differences in the patient's job, or the deprivation level where they lived, or stroke type, or whether they got specialist care (thrombolysis, stroke unit admission). The inequalities might be driven by other factors, such as access to rehabilitation or social support once patients have left hospital.

What was known before this study

The evidence on inequalities in stroke care is inconsistent. Studies have mostly reported worse outcomes for people with lower SES. However, not many studies have investigated functional outcomes (disability or dependence) or mental health outcomes (such as anxiety or depression). Also, studies have taken different approaches to:

- measuring SES
- including other factors to see how they affect outcomes
- how long they follow up patients after their stroke.[2]

Other research has suggested several potential factors which might contribute to inequalities in outcomes. These factors include:

- vascular risk factors (such as high blood pressure, diabetes, obesity)[1]
- stroke severity
- access to rehabilitation
- access to specialist care after discharge from hospital
- social support
- ethnicity and gender, due to their overlap with SES.

How our study findings compare to other evidence

Access to specialist care

We found that people have similar access to specialist care (thrombolysis and stroke unit admission) between SES groups. This is different to a recent national UK study that found worse access to specialist care, although differences were small.[3] Our study's urban setting, with people living close to major stroke centres, might play a role in reducing some barriers to specialist hospital care.

Survival

We did not find any studies like ours which have investigated survival trends over a similar length of time. We did not find other evidence like ours of how inequalities in acute care (such as admission to a stroke unit, specialist treatment) have changed over time. However, evidence-based stroke care has become more accessible and of better quality during the study period, and stroke severity has declined. These factors might have contributed to reducing survival inequalities. Identifying reasons for declining survival inequalities might help us understand how to reduce inequalities in other areas, such as in outcomes.

Recommendations for healthcare planning and delivery professionals

1) Reducing inequalities in long-term functional and mental health outcomes might require integrated care approaches and cross-sectoral policies that address the clinical, but importantly also social and environmental determinants of stroke recovery.
2) Disparities in vascular risk factor profiles provide opportunities for targeted primary and secondary prevention.

Matters for further research

Future research should:

- focus on functional and patient-reported outcome measures. These are potentially more sensitive indicators of outcome inequalities than survival
- explore integrated care approaches and cross-sectoral policies addressing clinical, social, and environmental determinants of long-term recovery
- investigate other care processes, both acute (the short-term care someone with a stroke gets in hospital) and post-acute (follow-up care). Inequalities in care might still contribute to inequalities in post-stroke outcomes.

1. Pantoja-Ruiz C, Akinyemi R, Lucumi-Cuesta DI, et al. Socioeconomic Status and Stroke: A Review of the Latest Evidence on Inequalities and Their Drivers. *Stroke* 2024.
2. Marshall IJ, Wang Y, Crichton S, McKevitt C, Rudd AG, Wolfe CD. The effects of socioeconomic status on stroke risk and outcomes. *Lancet Neurol* 2015; **14**(12): 1206-18.
3. Bray BD, Paley L, Hoffman A, et al. Socioeconomic disparities in first stroke incidence, quality of care, and survival: a nationwide registry-based cohort study of 44 million adults in England. *Lancet Public Health* 2018; **3**(4): e185-e93.