

# Social support following stroke

Camilla Cookson and Joseph Casey discuss psychological and functional outcomes

**Many people are affected, indirectly or directly, by stroke. With health services under considerable financial pressure, the availability of cheap, easily delivered means of encouraging a quick and extensive recovery is of utmost importance. Evidence suggests that social support has long-term consequences for physiological and psychological well-being, and plays an important role during a patient's recovery from a range of maladies. This article summarises the research highlighting the importance of social support on physical and psychological recovery from a stroke. Also considered are cross-cultural studies, the mechanisms by which the process is thought to work, the effects social support can have for the carers of stroke patients and finally the relevance this research has for modern clinical practice.**

## questions

How does social support affect stroke recovery?

Why is it important to consider the well-being not only of the patient, but also their carer?

## resources

Lincoln, N.B., Kneebone, I.I., Macniven, J.A.B. & Morris, R.C. (2012). *Psychological management of stroke*. Chichester: Wiley.  
www.stroke.org.uk

There is accumulating evidence to suggest that social support has many long-term consequences on a person's physiological and psychological well-being. Social support has been defined in a number of ways; Shumaker and Brownell (1984) viewed it as the exchange of resources that the provider or recipient perceives to enhance the recipient's well-being. However, this definition somewhat neglects the different types of social support that may be provided. Wills and Shinar (2000) highlight the different dimensions of social support: emotional support (listening, caring, acceptance), instrumental care (practical help), informational care (providing knowledge to help solve problems), companionship (socialising, belonging), and validation (feedback, social comparison).

Social support has been found to play an important part in helping patients prevent or recover from a range of physical maladies. These include cancer (Peters-Golden, 2002), fractures (Cummings et al., 1988), osteoarthritis (Weinberger et al., 1990) and heart disease (Orth-Gomer et al., 1993). Social support also seems to have a particularly strong influence on functional and psychological outcome following a stroke.

A stroke occurs when the normal flow of blood in the brain is interrupted or diverted, resulting in the affected area being deprived of oxygen. This can happen when a clot forms in an artery in the brain, or when a detached clot from elsewhere in the body becomes lodged in a brain artery (both called an ischaemic stroke), or when

an artery wall in the brain ruptures (called a haemorrhagic stroke). Depending on the severity of the clot or rupture, a stroke can vary from a passing weakness in a limb to paralysis or even death. Often the sufferer might survive the stroke but is left with impaired physical and cognitive abilities. Over time, and with treatment, the affected skills may improve but often do not reach their former capacity. Common effects of a stroke include impairments to executive functioning, gross or fine motor movements, long- or short-term memory and speech, sight or hearing. The exact nature of the impairments to an individual will depend on the location in the brain at which the stroke took place and thus the area that was deprived of oxygen.

This review will focus on the evidence and mechanisms by which social support influences functional and psychological outcome following a stroke. Furthermore, the effects of social support on stroke patients' carers will be considered, along with the relevance this research has to clinical practice.

## Physical outcomes

Several studies have suggested that social support can affect the recovery of functional skills in stroke patients. However, such studies are scarce, as measuring the specific effects that social support can have on functional outcome following a stroke is difficult in practice. For example, Indredavik et al. (1999) found that the most important factor determining success in stroke treatment is how quickly the patient begins treatment. However, they said that other factors, including the involvement of relatives, could be more important, although this was not possible to measure accurately. Additionally, Hershkovitz et al. (2004) attributed stroke recovery to short-term intervention in a day hospital, but acknowledged that social integration could have had a positive effect, though this would have required a long period of time to measure effectively.

There are a few studies, however, that

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seem to have successfully identified the link between social support and functional recovery. Glass et al. (1993) looked at performance in both mobility and activities of daily living (ADL, which is thought to be a demonstrative indicator of recovery) and found that patients with more social support improved more extensively than those with less support. The researchers suggested that it is patients with milder strokes who are the most vulnerable, as friends and family may underestimate their need for social support, leading to a weaker physical recovery. Additionally, they found that social support not only affects the extent of recovery but also the speed at which it takes place. That is, higher levels of support are predictive of a more rapid rate of recovery, even among patients with severe strokes.

It seems clear that whilst there are some excellent studies investigating the

effects of social support on functional outcome, further research would be welcome in this area.

### Psychological outcomes

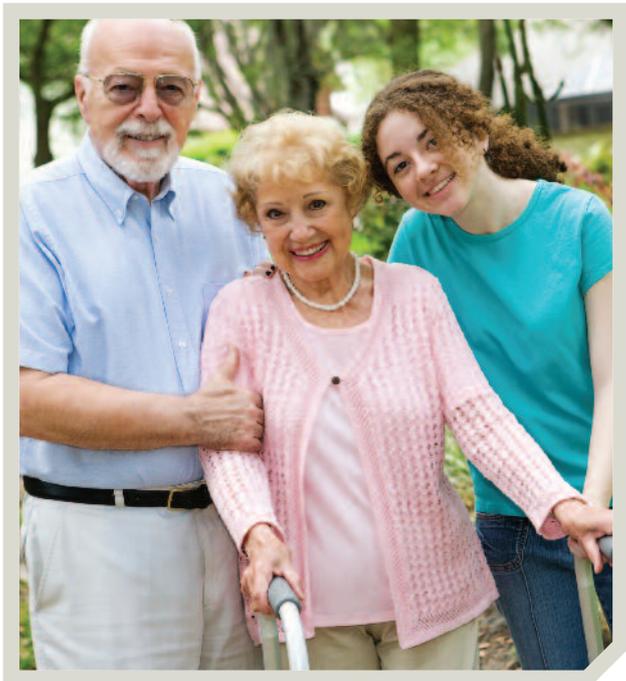
Many patients suffer from psychological problems following a stroke, with the most common problem being depression. While the prevalence of post-stroke depression varies considerably in the literature depending on the setting (community versus hospital), measures (clinical interview or questionnaire), time post-stroke and diagnostic criteria used, Hackett et al. (2005) used data from 51 studies to estimate that 33 per cent of stroke patients present depressive symptoms at some point during follow-up. It is important to ascertain what factors put stroke patients at particularly high risk of post-stroke mood disorders, and to use these predictors to guide treatment and prevention plans in clinical practice.

A number of studies have reported that the amount and perception of social contact following a stroke can influence the risk of developing depression (Åström et al., 1993; Morris et al., 1991; Tsouna-Hadjis et al., 2000). Knapp and Hewison (1998) found a significant relationship between support availability and mood scores, consistent with the buffering theory, whereby social support affects well-being by reducing or removing the impact of stressors.

However, as with a number of studies, the small sample size limits the

credibility of their results. Additionally, only survivors with a named carer were included, thereby excluding potentially more isolated stroke patients.

Evidence has suggested that social support may not be immediately implicated with post-stroke depression, but rather its influence manifests at a relatively late stage (Åström et al., 1993). This suggests a later shift towards the need for social support when patients have been discharged from hospital and are adapting to life after their stroke. Hilari and her colleagues (2010) found the main predictors of psychological distress were stroke severity at baseline, low social support at three months and loneliness and low satisfaction with social network at six months. This study should receive due recognition, given its inclusion of patients with aphasia, a condition often associated with stroke that results in difficulties in the production and/or comprehension of speech. Aphasic patients have traditionally been excluded from studies due to their assumed inability to complete self-report mood scales or interviews. A review article by Hackett and Anderson (2005) found that 17 of 20 studies excluded aphasic patients. However a particularly high proportion (62–70 per cent) of people suffering from aphasia have been reported to suffer from depression (Kauhanen et al., 2000). Hilari et al. (2010) were able to show that while aphasia was associated with distress at three months post-stroke, it was not predictive at a later stage, again pointing to the importance of other factors, such as social support, in relation to mood-caseness at a later stage post-stroke. Although the sample size of patients with aphasia at six months was notably small and patients with very severe aphasia were excluded from their study, the results mirror the earlier work of Åström et al. (1993). That study found that the presence of dysphasia – a similar condition involving the partial or complete loss of the capability to express and/or comprehend language – only predicted post-stroke depression at the immediate stages post-stroke. However, research on



Several studies have suggested that social support can affect the recovery of functional skills in stroke patients

A systematic review of observational studies. *Stroke*, 36, 2296–2301.  
 Hackett, M.L., Yapa, C., Parag, V. & Anderson, C.S. (2005). Frequency of depression after stroke: A systematic review of observational studies. *Stroke*, 36, 1340.  
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this is surprisingly inconsistent (e.g. Berg et al., 2003, found no effect of aphasia on post-stroke distress), perhaps due to the variety of tools used to measure post-stroke depression/distress and aphasia.

### Culture and mechanisms

The study of social support and psychological distress has traditionally focused on Western countries. However, it is important to include cross-cultural research to identify whether similar patterns are evident in other contexts and cultures.

In Taiwan, Huang et al. (2010) considered the effect of social support on post-stroke depression in ischaemic stroke patients. There are many differences between Taiwanese and Western health care (for a more detailed review of Taiwanese health care see Wu et al., 2010). Nearly half the Taiwanese stroke patients felt depressed and social support was found to be a mediator causally related to post-stroke depression. ADL and post-stroke depression were significantly mediated by social support.

Effects have also been found in Scandinavian populations. Jaracz and Kozubski (2003) investigated quality of life in stroke patients as a means of gauging recovery. They found that family support was a decisive factor in post-stroke quality of life. These studies suggest that the picture of social support is consistent across different cultures.

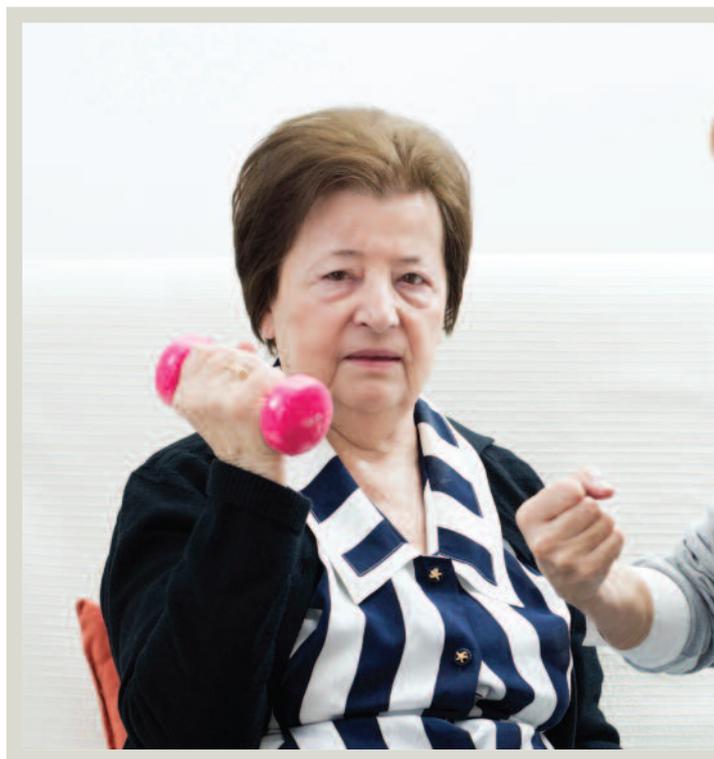
Back in the Far East, with a Japanese population, Ikeda et al. (2008) did not find a significant relation between social support and stroke in women. However, in men they found that the risk of mortality following stroke was lower for those with higher levels of social support. The assumption has long been that lack of social support is simply associated with the general social conditions related to disease and mortality; that the relationship between social support and disease recovery is one of correlation not causation. However, Ikeda et al. (2008) offered an explanation for their male-only

results by citing a study by Okamoto and Tanaka (2004), who believed that males tend to participate in more activity-orientated relationships, which are known to reduce stress, whereas women tend to prefer more emotionally intimate relationships involving reciprocity exchanges where the stress-relieving effects are lesser. Okamoto and Tanaka did warn that the link between social support and health should be explored further.

However, not every study has observed male-only effects, suggesting that there is something about social interaction itself (both among men and women) that boosts physical health. A study by Venna and McCulloch (2011) draws on existing research involving socially isolated cohorts of rodents. They cite an article by Karelina et al. where two groups of male mice were housed in standard cages: one group alone, the other with another mouse. After one week they measured higher oxytocin levels in the paired mice. This is important as oxytocin is a hormone that has been linked with the enhancement of antioxidants in the brain and the decrease of inflammatory response to injury, both of which are forms of neuroprotection. This effect is thought to be present in humans too: Social interaction is a trigger that releases oxytocin, which in turn protects the brain.

### The effects on carers

It is important to consider the role and well-being of the stroke patient's carer.



Berg et al. (2005) reported that 30–33 per cent of caregivers were depressed during follow up, and Chow et al. (2007) highlighted the relative susceptibility of stroke patients' carers to anxiety and depression compared with those caring for patients having neurological diseases. If social support is of huge importance to stroke patients, it would follow that the appropriate care should be given to carers in order that they are able to continue to provide support in the long term. The emotional state of the carer will in turn affect that of the stroke patient (Suh et al., 2004).

Learning to provide the support a stroke survivor needs is complex and challenging, and 40 per cent of the family caregivers in a study by Sit and colleagues (2004) reported somatic symptoms. They highlighted the need for more tangible and informational support. Professional advice was thought to be lacking, suggesting that stroke rehabilitation needs to address both the needs of the caregiver as well as the

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patient. Cameron and Gignac (2008) have also highlighted the changing support needs of caregivers and consider the importance of timing in carers' education, training and support, given a carers' experience and corresponding support needs change continuously.

### Relevance to clinical practice

This body of evidence has huge implications for clinical practice. Many developed countries have ageing populations and the need for support and rehabilitation strategies for older people is increasing (Ikeda et al., 2008). This research comes at a time when health services, such as those in the UK, are under considerable financial pressure, and cheap non-surgical methods of stroke prevention and recovery are likely to be welcome.

Stroke patients would benefit both mentally and physically from the inclusion of strategies to increase social support.

Social support should be monitored and should impact patient/carer education. Referral to support groups may also prove beneficial. However, interventions to actively maximise social support need to be formulated carefully, with research about their benefit somewhat mixed. Friedland and McColl (1992) found no benefit of a training package that had been designed to help enhance stroke survivors' use of social support. This study did have a number of caveats though, including small sample size, and the late delivery of the training package to one year after depression, arguably too late to exert any influence. Saltera et al. (2010) reviewed the effectiveness of social support interventions on post-stroke mood and concluded that those that were successful were initiated early, had a high intensity of frequently arranged, worker-initiated contact, and incorporated a continual assessment, screening for depression, and counselling where necessary.

Caregivers should also be considered for interventions to increase social support. Peer support for stroke caregivers, principally through groups, has recently been included in the 10-point service improvement plan of the National Stroke Strategy for England (Department of Health, 2007), as well as in the four quality markers. This is despite evidence for the benefit of peer support on mood being, once more, inconclusive. Stewart et al. (1998) found that home visits from professionals enhanced carers' ability to cope, but this study lacked a control group. A more rigorous study by Hartke

and King (2003) compared a treatment group (who received one-hour structured telephone conferences in which the caregiver received support from both caregiver peers and professional facilitators) with a control group. While a reduction of stress was recorded in the treatment group, this was not significantly different from the control group; and self-ratings of depression, burden, loneliness or competence remained unaffected. The control group did, however, exhibit increasing burden and decreased competence between the initial and final assessments.

### Conclusion

This article has discussed the body of literature highlighting the importance of social support for both functional and psychological outcome following a stroke. The need for social support extends to the patients' carers, whose psychological well-being can be greatly affected due to the pressures of this role. The mechanisms by which social support exerts its influence were discussed and the considerable relevance this research has to clinical practice was emphasised. We would like to see more research on the direct effect of social support on functional outcome, and propose that future research might compare the effects of social support on the recovery of elderly stroke patients with the effects on younger stroke patients. Strokes are no longer deemed 'rare' in young adults and therefore research should seek to highlight whether the principles identified in a chiefly elderly population also apply to a younger cohort.



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