Are rehabilitation and/or care co-ordination interventions delivered in the community effective in reducing depression, facilitating participation and improving quality of life after stroke?
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CRD summary
The authors concluded that there was limited to moderate evidence supporting some rehabilitation interventions in affecting depression, participation and HRQoL post stroke. Differences between studies made evidence synthesis difficult. The authors’ cautious conclusions reflect the evidence presented and are likely to be reliable. Potential for language and publication biases should be considered.

Authors' objectives
To explore the effectiveness of community-based rehabilitation interventions in reducing depression, facilitating participation and improving quality of life after stroke.

Searching
MEDLINE, PEDro, CINAHL and Cochrane Central Register of Controlled Trials (CENTRAL) were searched to September 2009 for relevant articles published in English. Search terms were reported. Only full published papers were included.

Study selection
Randomised controlled trials (RCTs) of interventions conducted in the community by nursing and allied health practitioners for patients with a primary diagnosis of cerebrovascular accident were eligible for inclusion. Interventions not routinely practised by nursing and allied health staff in a community setting were excluded (such as medical, surgical and pharmacotherapy, some therapies and early supported discharge compared with inpatient rehabilitation). Outcomes of interest were those that measured at least one of participation, mood disorder of depression and health-related quality of life (HRQoL) using common validated scales. Included studies had more than 70% of patients with the primary diagnosis. Studies of hospitalised patients were excluded, although recruitment could take place in a hospital setting.

Interventions included were comprehensive or single discipline rehabilitation, programmes of exercise or gait and balance, care co-ordination and interdisciplinary management, self management, information provision and leisure-based community interventions. More than half of the studies used usual care or placebo control as comparison groups; others compared two interventions. Interventions varied widely in terms of intensity of programmes and duration of interventions. Measurement of outcomes varied widely (details in the review). Mean age of participants ranged from 59 to 96 years. Time post stroke ranged from 23 days to five years, where reported.

Two reviewers independently selected studies for inclusion.

Assessment of study quality
Quality assessment was conducted using the PEDro rating system to assess appropriateness of eligibility criteria, random allocation and concealment, similarity of groups at baseline, blinding, whether key outcomes were achieved by more than 85% of participants, intention-to-treat analysis, reporting of outcomes and measures of variability. The maximum score obtainable was 10. Only studies judged to be high quality (4 points or more) were included in the review. Studies that had previously been rated and were on the official PEDro website were not re-rated.

The remaining studies were independently assessed by two reviewers. Disagreements were resolved through discussion.

Data extraction
Data were extracted to enable calculation of mean difference and corresponding 95% confidence intervals (CIs).

The authors did not state how many reviewers extracted data.
Methods of synthesis

Studies were grouped based on the type of intervention: RCTs that compared an intervention with usual care or a placebo control and RCTs that compared two interventions. Data were combined using an inverse variance fixed-effect model to calculate standardised mean difference (SMD) together with 95% CIs. Heterogeneity was assessed with $\chi^2$ and $I^2$. Where there was insufficient data to enable meta-analysis, studies were combined using best evidence synthesis using methods developed by van Tulder to determine the level of evidence for each category of intervention (from level 1 strong evidence to level 5 insufficient or no evidence).

Results of the review

Fifty-four studies (6,253 participants) were included in the review. Quality assessment scores ranged from 4 to 8 points.

**Exercise programmes (10 RCTs):** Exercise interventions significantly reduced depression immediately after the intervention compared with usual care (SMD -2.03, 95% CI -3.22 to -0.85, $I^2=21%$; two RCTs, 137 participants). There was insufficient evidence to support exercise interventions for increasing participation, HRQoL or for longer term outcomes in depression.

**Community interventions to enhance leisure pursuits (five RCTs):** There was moderate evidence of effect for improving participation and HRQoL and insufficient evidence for depressive symptoms.

**Single discipline community-based rehabilitation (10 RCTs):** Studies reported limited evidence of effect for increasing participation at the end of the intervention and insufficient evidence at follow-up assessments. Insufficient evidence of effect was found for reduction in depressive symptoms and HRQoL.

**Comprehensive rehabilitation (nine RCTs):** Studies reported strong evidence for improving HRQoL but only limited evidence of effect for a reduction in depressive symptoms and improvement in participation.

There was insufficient evidence to support the use of care-co-ordination, psychosocial and inter-disciplinary management (nine RCTs), gait and balance programmes (five RCTs), self-management programmes (three RCTs), information provision (two RCTs) and continence programme (one RCT).

Authors' conclusions

There was limited to moderate evidence to support some rehabilitation interventions in affecting depression, participation and HRQoL post stroke. Differences between studies made evidence synthesis difficult.

CRD commentary

The review question was clear with broadly defined inclusion criteria. Several relevant sources were searched, but the restriction to studies published in English risked language and publication biases. Quality was assessed using appropriate criteria but only the overall score per study was reported and this made it difficult to assess the biases in individual studies. Appropriate methods were used to reduce reviewer error and bias in study selection and quality assessment; whether similar methods were used for data extraction was unclear.

The methods of synthesis were appropriate given the variation between studies in terms of intervention content, duration and intensity and control groups and outcome measurement tools. The authors appropriately noted limitations in the review that included small sample sizes in the individual studies.

The authors’ cautious conclusions reflect the evidence presented and are likely to be reliable. Potential for language and publication biases should be considered.

Implications of the review for practice and research

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated a need for further rigorous research that should consider the type and timing of outcomes selected and the type of measurement tools used.

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