

Virtual multidisciplinary stroke care clinic for community-dwelling stroke survivors: a randomised controlled trial (abridged secondary publication)

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KEY MESSAGES

1. A virtual multidisciplinary stroke care clinic (VMSCC) service significantly improved participants' self-efficacy, depressive level, and social participation, while reducing emergency admissions and lengths of hospital stay during readmission.
2. Common challenges for stroke survivors accessing community rehabilitation services such as transportation limitations and scheduling conflicts were addressed by the flexible virtual delivery of the VMSCC service.
3. The VMSCC service can serve as a model for post-discharge community care that offers a high level of support and reliable information to aid stroke survivors by promoting their recovery and adjustment to their altered roles and functions.

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Introduction

Stroke self-management programmes can significantly improve self-efficacy and functional independence among stroke survivors,^{1,2} but timely support for stroke survivors is often delayed because of functional impairments, disruptions to social life, lack of transportation to rehabilitation centres, and inadequate scheduling. We aimed to evaluate the effectiveness and cost-effectiveness of a virtual multidisciplinary stroke care clinic (VMSCC) service for community-dwelling stroke survivors.

Methods

We developed an online platform to promote stroke recovery and offer support to survivors and caregivers. The platform contains a total of 89 videos developed by a multidisciplinary team of healthcare professionals.

Ten pairs of stroke survivors and caregivers were invited to engage in two rounds of face-to-face semi-structured interviews. The VMSCC service was developed based on their feedback, expectations, and perceived facilitators and barriers to using the service.

In total, 205 male and 130 female stroke survivors aged 24 to 88 (mean, 62) years from 10

public hospitals were randomly allocated at a 1:1 ratio to receive either VMSCC service or usual care. Stroke survivors' self-efficacy in self-management, satisfaction in performance, depression, social participation, emergency admission to hospital, and length of hospital stay were assessed at baseline (T0) as well as 3 months (T1) and 6 months (T2) after the study began. A generalised estimating equation model was used to compare differential changes in outcomes at T1 and T2 relative to T0 between the control and intervention groups.

Total costs incurred for both the VMSCC service and usual care were calculated, as were incremental cost-effectiveness ratios expressed as the incremental cost per one-time decrease in emergency admission to hospital and 1-day decrease in length of hospital stay during the 6-month study period.

Qualitative feedback regarding the service was elicited from a random sample of 12 participants in the intervention group. The interview data were transcribed verbatim and analysed thematically.

Results

Of the 335 stroke survivors enrolled, 274 (81.8%) completed the study. Most (n=288, 86.0%) were

recovering from the first-ever stroke, whereas 47 (14.0%) were recovering from a recurrent stroke. Most (n=286, 90.2%) strokes were ischaemic.

Compared with the control group, the intervention group had greater improvement at 6 months after study commencement in terms of self-efficacy (mean difference=4.61, 95% confidence interval [CI]=0.17-9.05, P=0.042), depression (mean difference= -2.34, 95% CI= -4.06 to -0.61, P<0.01), and social participation (mean difference=5.10, 95% CI=0.64-9.56, P=0.025). However, the two groups were comparable in terms of the change in the Stroke Self-Management Behaviours Performance Scale at T1 and T2.

The VMSCC service was more effective but more expensive than usual care in reducing the number of emergency admissions to hospital (65% probability) and the length of hospital stay (47% probability).

Twelve stroke survivors in the intervention group were interviewed. Two themes were identified: (1) acceptance of the VMSCC service as a means of accessing healthcare services, and (2) provision of remote stroke self-management support. Participants perceived that the VMSCC service is an alternative means of accessing healthcare services and is more convenient, less time-consuming, and safer. Additionally, they found that the online platform helped to increase their confidence in managing post-stroke challenges.

Discussion

Participants perceived that the VMSCC service enhanced participants' knowledge of stroke by providing access to comprehensive information about stroke and self-care through videos. The video content was considered more helpful than other resources in Hong Kong. By incorporating an online video chat and a Skype-based hotline, the VMSCC eliminated transportation challenges, enabled better use of time, and provided practical guidance on daily self-care for stroke survivors between medical follow-up appointments. Participants were satisfied with the VMSCC service. Regular online video calls could help to detect care-related problems, symptoms of recurrent stroke, and other healthcare issues. Survivors felt reassured that they were cared for, monitored, and followed up even after discharge from the hospital.

The VMSCC intervention was based on the self-efficacy theory, which identifies perceptions of one's own capabilities as a key variable affecting stroke outcomes.³ Self-efficacy is negatively correlated with depression.⁴ The VMSCC service had significant group-by-time interaction effects on self-

efficacy and depression, supporting the development of a self-management programme based on the self-efficacy construct.⁵ Moreover, the VMSCC service resulted in greater reductions in the number of emergency admissions to hospital and the length of hospital stay, compared with usual care, but its cost was slightly higher (US\$74).

One limitation of this study was the exclusion of stroke survivors with severe cognitive and communication impairments that could hinder Internet use and communication by phone.

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Disclosure

The results of this research have been previously published in:

1. Lo SHS, Chau JPC, Lau AYL, et al. A virtual multidisciplinary stroke care clinic for community-dwelling stroke survivors: a randomized controlled trial. *Stroke* 2023;54:2482-90.
2. Lam SKY, Chau JPC, Lo SHS, et al. User engagement in the development of a home-based virtual multidisciplinary stroke care clinic for stroke survivors and caregivers: a qualitative descriptive study. *Disabil Rehabil* 2022;44:5983-9.
3. Chau JPC, Lo SHS, Lee VWY, et al. Effectiveness and cost-effectiveness of a virtual multidisciplinary stroke care clinic for community-dwelling stroke survivors and caregivers: a randomised controlled trial protocol. *BMJ Open* 2019;9:e026500.

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