THE EFFECTIVENESS OF PSYCHOSOCIAL INTERVENTION FOR STROKE FAMILY CAREGIVERS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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               Prof. Janita Chau

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Background

• Stroke
  • Major causes of disability around the world (World Health Organization [WHO], 2010)
  • Its chronicity → challenges the healthcare systems

• Family Caregivers (important partner in the integrated healthcare team)
  • Unfulfilled Needs: information about stroke, caregiving skills, psychological support from peers and professionals (Huang et al., 2008; Mak et al., 2007)
  • Impacts of caregiving: negatively on their physical health, psychosocial wellbeing and quality of life (Qol) (Greenwood et al., 2008; Murray et al., 2003)

→ Important to support the need of family caregivers at the right time, right place and right format
Background (support to caregivers)

What do we know? (previous systematic reviews)

- **Information provision:** only a SMALL effect on knowledge (Forster et al., 2012)
- **Psychosocial interventions:** Mainly caregiver-focused outcomes with limited evidence; SCARCE evidence of the effects on stroke survivors (Brereton et al., 2007; Elred & Skyes, 2008; Visser-Meily et al., 2005)

**WHAT IS MISSING?**

- The effects on **PHYSICAL HEALTH** of caregivers
- The **OPTIMAL DOSE** of psychosocial interventions

(Dose is composed on amount, frequency and duration (Sidani & Braden, 1998); operational definition: minutes/session/week for the total duration of intervention)
Objectives

• To identify the best available evidence related to the effectiveness and dose of caregiver psychosocial interventions on caregivers and their stroke survivors

Questions to be answered:
What is the effectiveness of varying formats and types of psychosocial interventions on caregiver’s and stroke survivor’s

- **Psychosocial wellbeing** (anxiety, depression, burden and strain of caregiving, caregiver competence, mental health, social support)
- **Physical health** (physical functioning, somatic complaints and incidence of accidents or injuries?)
- **Quality of life** (Qol)
Inclusion criteria

**Population**
- Stroke survivors:
  - Aged ≥ 18 years
  - Clinical diagnosis of ischemic/hemorrhagic stroke
  - Community dwelling
- Family caregivers:
  - Aged ≥ 18 years
  - Living with stroke survivors
  - Primary caregiver

**Intervention**
- Psychosocial interventions:
  - Applied the cognitive, behavioral and/or social mechanisms of actions
  - Aim to improve the psychosocial wellbeing, physical health of caregivers and outcomes of stroke survivors

**Comparator group**:
- Usual care / without any active intervention

**Outcomes**
- Primary outcomes of interest:
  - Psychosocial wellbeing
  - Physical health
  - QoL of both caregivers and stroke survivors
- Secondary outcomes of interest:
  - Family function
  - Intervention satisfaction
  - No. of hospital readmission / institutionalization of stroke survivors

**Studies**
- Experimental studies:
  - RCT and quasi-RCT
- Prospective observational studies:
  - Concurrent control studies
  - Historical cohort studies
  - Pre- and post-test studies
Methods

Search Strategy

Study selection & appraisal

Data extraction

Data synthesis

From database inception to March 2012

Limited search of MEDLINE and CINAHL plus

Extensive search: Electronic English and Chinese bibliographic database

Hand searching:
- Grey literature
- Relevant journals
- Online databases search & website
- Reference lists and bibliographies of all relevant articles

Critical Appraisal Checklists from the JBI-MAStARI
- Disagreement → joint assessment and discussion with third reviewer

Piloting of data extraction form: 5 potential articles
- Apriori outcome selection plan
  1) Data of attention-control group or of the psychosocial intervention when > 2 intervention/control group
  2) Most commonly used measure for data synthesis
  3) SF-36 domain scores (physical functioning) vs. component scores (physical)

Categorization: TYPE & FORMAT
- Statistical meta-analysis: RevMan 5.1
- Summary of measure (data from RCTs):
  - Standardized mean difference (SMD) and 95% CI
  - Fixed effect model for $I^2 < 50\%$; Random effect model for $I^2 \geq 50\%$, $P < 0.1$
- Missing data: no imputation if attempts to retrieve the data from principal investigator failed
- Narrative summary
Eight ongoing clinical trials were identified, but the outcome data are not yet available.

Insufficient information: Intervention effects of the subgroup of stroke caregivers.

Insufficient information: Types and components of intervention, Socio-demographical data of participants, Outcome measurements.
# Methodological quality

<table>
<thead>
<tr>
<th>Types of studies</th>
<th>PROS</th>
<th>RISKS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RCTs or quasi RCTs (n = 13)</strong></td>
<td>Clear description of the content of intervention</td>
<td>Risk of selection bias: incomplete details of random assignment</td>
</tr>
<tr>
<td></td>
<td>Waitlist control group (Draper et al., 2007; Marsden et al., 2010)</td>
<td>? Random sequence generation (n = 5)</td>
</tr>
<tr>
<td></td>
<td>✓ All participants received intervention</td>
<td>? Allocation concealment (n = 8)</td>
</tr>
<tr>
<td></td>
<td>✓ Investigate the effects of delayed treatment &amp; participant expectancy</td>
<td>Risk of performance bias:</td>
</tr>
<tr>
<td></td>
<td>Attention control group (Bakas et al., 2009; Grant et al., 2002)</td>
<td>? Infeasible of blinding to participants (n = 10)</td>
</tr>
<tr>
<td></td>
<td>✓ Similar attention were received by the participants of both groups</td>
<td>Risk of detection bias:</td>
</tr>
<tr>
<td></td>
<td>✓ Minimize the performance bias</td>
<td>? Blinding to assessor; subjective outcome measurement</td>
</tr>
<tr>
<td><strong>Non- RCTs (concurrent controlled n = 2; cohort n = 2; pre- and post-test n = 1)</strong></td>
<td>Inclusion criteria of the participants were clearly stated</td>
<td>Risk of attrition bias:</td>
</tr>
<tr>
<td></td>
<td>Matched historical control group for comparison e.g. age, gender, depression level → deal with confounding factors</td>
<td>? Reasons for drop-out of participants (n = 3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>? Power calculation for the sample size (n = 11)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>? Sample representative of the population</td>
</tr>
<tr>
<td></td>
<td></td>
<td>? Reasons of drop out of from the studies and methods in dealing with missing data</td>
</tr>
<tr>
<td></td>
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<td>? Power calculation for the sample size</td>
</tr>
</tbody>
</table>
Stroke survivors (n = 1,836; caregiver-only intervention: 1,026)
- Mean age: 61.1 years to 74.4 years
- Male (2/3 of participants)
- Most suffered from 1st stroke
- Time since onset of stroke: 17.57 days to >3 years

Family caregivers (n = 1,723)
- Mean age: 47.9 years to 71.3 years
- Majority: female, spouse of stroke survivors

Study period: 1988-2010
## Characteristics of interventions

<table>
<thead>
<tr>
<th></th>
<th><strong>Psychoeducation (n = 16)</strong></th>
<th><strong>Social support group (n = 2)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Components</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Information on stroke</td>
<td></td>
<td>- Information related to stroke and caregiving</td>
</tr>
<tr>
<td>- Stress coping and relaxation techniques</td>
<td></td>
<td>- Online discussion forums facilitated by nurses</td>
</tr>
<tr>
<td>- Problem-solving skill training</td>
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<tr>
<td>- Physical exercise training <em>(Johnston, et al., 2007; Marsden et al., 2010)</em></td>
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<td></td>
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<tr>
<td>- Hand-on skill training <em>(Shyu et al., 2008)</em></td>
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<tr>
<td>- with therapeutic weekend <em>(Gräsel et al., 2005)</em></td>
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<tr>
<td><strong>Conceptual framework</strong></td>
<td></td>
<td></td>
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<tr>
<td>- Stress Coping Theory</td>
<td></td>
<td>- Friedman’s Framework of Systematic Organization</td>
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<tr>
<td>- Cognitive Behavioural Theory</td>
<td></td>
<td>- Temporal Model of Family Caregiving</td>
</tr>
<tr>
<td>- Social Problem-Solving Theory</td>
<td></td>
<td></td>
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<tr>
<td><strong>Formats</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Face-to-face: individual/group</td>
<td></td>
<td>- Internet/ video phone</td>
</tr>
<tr>
<td>- Telephone: individual/group</td>
<td></td>
<td></td>
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<tr>
<td><strong>Providers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Multi-disciplines <em>(n = 7)</em></td>
<td></td>
<td>- Nurse</td>
</tr>
<tr>
<td>- Nurse <em>(n = 6)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- OT or PT <em>(n = 1)</em>; social worker <em>(n = 1)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- OT and social worker <em>(n = 1)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dose (mins/session/week)</strong></td>
<td><strong>Individual</strong></td>
<td><strong>Duration: 12 months</strong></td>
</tr>
<tr>
<td>- <strong>Face-to-face:</strong> 9 mins (5 months) – 180 mins (3 wks)</td>
<td><strong>Group:</strong></td>
<td>Dose could not be determined</td>
</tr>
<tr>
<td>- Telephone: 20 mins (6 wks) – 60 mins (8 wks)</td>
<td>- Face-to-face: 45 mins (7 months) – 150 mins (4 wks)</td>
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<tr>
<td>- Telephone: 60 mins (8 wks)</td>
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</tbody>
</table>

*CU Medicine* [Image]
Effects of intervention (family caregivers)

• Results of meta-analysis (short-term effects)
  • Caregiver burden (SMD: 0.18, 95%CI: -0.13 to 0.48, p = 0.25)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Psychoeducation</th>
<th>Control</th>
<th>Std. Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Total</td>
</tr>
<tr>
<td>Græsel et al., 2005</td>
<td>74.4</td>
<td>8.8</td>
<td>33</td>
</tr>
<tr>
<td>Hartke &amp; King, 2003</td>
<td>31.04</td>
<td>15.39</td>
<td>43</td>
</tr>
<tr>
<td>Marsden et al., 2010</td>
<td>5</td>
<td>3.7</td>
<td>9</td>
</tr>
</tbody>
</table>

Total (95% CI) 85 vs 82 100.0% 0.18 [-0.13, 0.48]

Heterogeneity: $\chi^2 = 1.02$, df = 2 (p = 0.60), I² = 0%
Test for overall effect: $Z = 1.16$ (p = 0.25)

• Caregiving Competence (SMD: -0.05, 95%CI: -0.29 to 0.19, p = 0.68)

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<th>Control</th>
<th>Std. Mean Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Total</td>
</tr>
<tr>
<td>Harke &amp; King, 2003</td>
<td>14.07</td>
<td>2.16</td>
<td>43</td>
</tr>
<tr>
<td>Johnston et al., 2007</td>
<td>34.24</td>
<td>4.51</td>
<td>82</td>
</tr>
</tbody>
</table>

Total (95% CI) 125 vs 135 100.0% -0.05 [-0.29, 0.19]

Heterogeneity: $\chi^2 = 2.42$, df = 1 (p = 0.12), I² = 59%
Test for overall effect: $Z = 0.41$ (p = 0.66)

• Depression (SMD: 0.09, 95%CI: -0.15 to 0.33, p = 0.47)
Effects on family caregivers

- Family functioning

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Means</th>
<th>SD</th>
<th>Total</th>
<th>Control</th>
<th>Mean</th>
<th>SD</th>
<th>Total</th>
<th>Weight</th>
<th>IV, Fixed, 95% CI</th>
<th>Mean Difference</th>
<th>IV, Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark et al., 2003</td>
<td>1.8</td>
<td>0.25</td>
<td>32</td>
<td>1.89</td>
<td>0.39</td>
<td>30</td>
<td>44.9%</td>
<td>-0.09</td>
<td>-0.23 to -0.01</td>
<td>-0.12 [-0.25, 0.07]</td>
<td></td>
</tr>
<tr>
<td>Evan et al., 1998</td>
<td>2.06</td>
<td>0.44</td>
<td>61</td>
<td>2.21</td>
<td>0.4</td>
<td>63</td>
<td>55.1%</td>
<td>-0.15</td>
<td>-0.30 to -0.00</td>
<td>-0.12 [-0.23, -0.01]</td>
<td></td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td></td>
<td></td>
<td>93</td>
<td></td>
<td>93</td>
<td></td>
<td>100.0%</td>
<td>-0.12</td>
<td>-1 to 0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: Chi² = 0.28, df = 1 (P = 0.59); I² = 0%
Test for overall effect: Z = 2.19 (P = 0.03)

- At immediate post-intervention (SMD: -0.12, 95% CI: -0.23 to -0.01, p = 0.03)
- Format: Individual counseling via face-to-face or telephone contact
- Conceptual Framework: Family System Theory or Cognitive Behavioral Theory
- Components: Information related to stroke and its caregiving
  Problem-solving strategies
  Ongoing support via home visit or phone contact
- Duration of intervention: 3 sessions in 5 months (Clark et al., 2003) to 9 sessions over 3 months (Evan et al., 1998)
## Effects on Family Caregivers

### Types of Intervention

<table>
<thead>
<tr>
<th>Approaches</th>
<th>Psychoeducation</th>
<th>Social Support Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Individual</td>
<td>Group</td>
</tr>
<tr>
<td></td>
<td>Face-to-face</td>
<td>Telephone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Face-to-face</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web-based</td>
</tr>
</tbody>
</table>

### Psychosocial Outcomes

#### Anxiety
- Johnston et al., 2007
- √ King et al., 2007
- √ Wilz et al., 2007

#### Burden
- Shyu et al., 2008
- √ Perrin et al., 2010
- Grant et al., 2002, Bakas et al., 2009, King et al., 2007
- Draper et al., 2007
- Wilz et al., 2007
- √ Torp et al., 2008
- Björkdahl et al., 2007

#### Caregiver Competency
- Shyu et al., 2007
- √ Grant et al., 2002
- √ van den Heuvel et al., 2000

#### Depression
- Johnston et al., 2007
- √ Grant et al., 2002
- √ King et al., 2007
- Bakas et al., 2009, Perrin et al., 2010
- √ Wilz et al., 2007
- Pierce et al., 2009
- Forster & Young, 1996

#### Social Support
- √ van den Heuvel et al., 2000
- √ Torp et al., 2008
- Pierce et al., 2009

### Physical Outcomes

#### Perceived Health Status
- van den Heuvel et al., 2000
- Grant et al., 2002, Bakas et al., 2009
- van den Heuvel et al., 2000
- Steiner et al., 2008

#### Somatic Complaints
- Shyu et al., 2010
- Grant et al., 2002
- Gräsel et al., 2005

### QOL

#### Physical Domain
- Shyu et al., 2010, Clark et al., 2003
- Grant et al., 2002
- Marsden et al., 2010
- √ Wilz et al., 2007

#### Psychological Domain
- Grant et al., 2002
- Wilz et al., 2007, Marsden et al., 2010

#### Social Domain
- Shyu et al., 2010, Clark et al., 2003
- Wilz et al., 2007, Marsden et al., 2010
Effects on family caregivers

• Intervention satisfaction (3 studies of psychoeducation)
  • Caregivers receiving psychoeducation conducted via telephone were more satisfied than those in attention-control group (Bakas et al., 2009; Grant et al., 2002)
  • Group and individual format of face-to-face psychoeducation (Schure et al., 2006)
    • Helpful: 8.4 out of 10 for group format; 7.9 out of 10 for individual format;
    • Group: more helpful in emotional support ($p < 0.005$) and informational support ($p < 0.005$)

• Long-term effects (3 studies of psychoeducation)
  • Group psychoeducation
    • Significant improvement of QoL (psychological and social domain) at 6-month post-intervention (Wilz et al., 2007)
    • Significant improvement on seeking and satisfaction of social support at 7-month post-intervention
Effect of intervention (stroke survivors)

• Results of meta-analysis

• Physical functioning (SMD: 0.15, 95%CI: -0.06 to 0.358, p = 0.18)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Psychoeducation Mean</th>
<th>SD</th>
<th>Total Mean</th>
<th>SD</th>
<th>Total</th>
<th>Weight</th>
<th>IV, Fixed, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark et al., 2003</td>
<td>18.7</td>
<td>2</td>
<td>32</td>
<td>17.4</td>
<td>3.9</td>
<td>30</td>
<td>16.7%</td>
</tr>
<tr>
<td>Forstner &amp; Young, 1998</td>
<td>15.94</td>
<td>4.67</td>
<td>120</td>
<td>15.57</td>
<td>4.06</td>
<td>120</td>
<td>85.9%</td>
</tr>
<tr>
<td>Graedel et al., 2005</td>
<td>77.4</td>
<td>17.9</td>
<td>33</td>
<td>74</td>
<td>23.5</td>
<td>29</td>
<td>17.0%</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>185</td>
<td></td>
<td>179</td>
<td>100.0%</td>
<td>0.15 [-0.06, 0.35]</td>
<td></td>
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</tr>
</tbody>
</table>

Heterogeneity: Chi² = 1.41, df = 2 (p = 0.49), I² = 0%
Test for overall effect: Z = 1.42 (p = 0.16)

• Social functioning (SMD: 1.20, 95%CI: -0.12 to 2.51, p = 0.08)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
<th>Psychoeducation Mean</th>
<th>SD</th>
<th>Total Mean</th>
<th>SD</th>
<th>Total</th>
<th>Weight</th>
<th>IV, Random, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clark et al., 2003</td>
<td>50.4</td>
<td>8.2</td>
<td>32</td>
<td>38.9</td>
<td>7.9</td>
<td>30</td>
<td>32.5%</td>
</tr>
<tr>
<td>Evert et al., 1998</td>
<td>48.9</td>
<td>7.7</td>
<td>60</td>
<td>37.6</td>
<td>5.1</td>
<td>63</td>
<td>33.3%</td>
</tr>
<tr>
<td>Forstner &amp; Young, 1998</td>
<td>13.37</td>
<td>7.03</td>
<td>120</td>
<td>12.19</td>
<td>5.39</td>
<td>120</td>
<td>34.4%</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>213</td>
<td></td>
<td>213</td>
<td>100.0%</td>
<td>1.20 [-0.12, 2.51]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Heterogeneity: Tau² = 1.30, Chi² = 0.34, df = 2 (p = 0.89), I² = 97%
Test for overall effect: Z = 1.78 (p = 0.08)

• QoL

  Physical domain (SMD: -0.10, 95%CI: -0.52 to 0.32, p = 0.64)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
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<th>Total Mean</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Graedel et al., 2005</td>
<td>50.7</td>
<td>12.4</td>
<td>33</td>
<td>43.3</td>
<td>14.7</td>
<td>29</td>
<td>71.0%</td>
</tr>
<tr>
<td>Marsden et al., 2010</td>
<td>84.9</td>
<td>13.2</td>
<td>12</td>
<td>84.4</td>
<td>23</td>
<td>13</td>
<td>26.8%</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>45</td>
<td></td>
<td>45</td>
<td>100.0%</td>
<td>-0.10 [-0.52, 0.32]</td>
<td></td>
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</tr>
</tbody>
</table>

Heterogeneity: Chi² = 0.14, df = 1 (p = 0.71), I² = 0%
Test for overall effect: Z = 0.46 (p = 0.64)

  Psychological domain (SMD: 0.23, 95%CI: -0.19 to 0.65, p = 0.28)

<table>
<thead>
<tr>
<th>Study or Subgroup</th>
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<th>Total Mean</th>
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<th>Total</th>
<th>Weight</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Graedel et al., 2005</td>
<td>47.2</td>
<td>12.4</td>
<td>33</td>
<td>43.3</td>
<td>14.7</td>
<td>29</td>
<td>71.0%</td>
</tr>
<tr>
<td>Marsden et al., 2010</td>
<td>94</td>
<td>14.2</td>
<td>12</td>
<td>82.5</td>
<td>14.4</td>
<td>13</td>
<td>29.0%</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>45</td>
<td></td>
<td>45</td>
<td>100.0%</td>
<td>0.23 [-0.19, 0.65]</td>
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</tr>
</tbody>
</table>

Heterogeneity: Chi² = 0.15, df = 1 (p = 0.72), I² = 0%
Test for overall effect: Z = 1.07 (p = 0.28)
## Effects on stroke survivors

### Types of intervention

<table>
<thead>
<tr>
<th>Approaches</th>
<th>Psychoeducation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Individual</td>
<td>Group</td>
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<tr>
<td>Face-to-face</td>
<td></td>
<td>Face-to-face</td>
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<tr>
<td>Telephone</td>
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</tbody>
</table>

### Psychosocial outcomes

<table>
<thead>
<tr>
<th>Distress</th>
<th>Clark et al., 2003</th>
<th>Johnston et al., 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery</td>
<td>Clark et al., 2003</td>
<td>Johnston et al., 2007</td>
</tr>
</tbody>
</table>

### Physical outcomes

<table>
<thead>
<tr>
<th>Physical functioning</th>
<th>Barthel Index: King et al., 2007, Johnston et al., 2007, Forster et al., 1996, Observer Assessed Disability: Johnston et al., 2007</th>
<th>Timed Up and Go: Marsden et al., 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recovery</td>
<td>√ Johnston et al., 2007</td>
<td>Marsden et al., 2010</td>
</tr>
<tr>
<td>QOL (Social domain)</td>
<td>Shyu et al., 2010</td>
<td>Marsden et al., 2010</td>
</tr>
</tbody>
</table>

√ with significant effects
Effects on stroke survivors

- **Use of social resources:** (psychoeducation: 2; social support group: 1)
  - **Hospital readmission**
    - At immediate post-intervention:
      - Social support group: 66% fewer (p = 0.0005) (Piecre et al., 2009).
      - Individual psychoeducation: psychoeducation group (n=9) vs. control group (n=8) (Gräsel et al., 2006)
    - At one-year post-intervention of individual psychoeducation: No significant difference (Shyu et al., 2010)

- **Nursing home placement or institutionalization:**
  - At immediate to 3-months post-intervention:
    - Social support group (Piecre et al., 2009) & individual psychoeducation (Gräsel et al., 2006): Similar number of stroke survivors being institutionalised
  - At 11-months post-intervention of individual psychoeducation: Significant lower institutionalisation rate of stroke survivors (p = 0.03) (Shyu et al., 2010)
Limitations

- Only studies published in English & Chinese
- Only small amount of studies (2 – 3 studies) were included in meta-analysis → no subgroup analysis on the intervention’s dose, providers and use of conceptual framework

Implications

- To practice
  - **Component:** Core skill of problem-solving and stress coping,
    Information related to stroke and its caring
    Caregiving skill training
  - **Duration:** 2-3 months
  - **Format:** Use of telephone/internet to provide ongoing support

- To research
  - More precise definition of family caregivers and caregiving condition
  - Caregiver outcomes: positive aspects of caregiving; clinical outcomes
  - Following the CONSORT statement of RCTs
Question & Answer

THANK YOU
Data sources for the review

Searching terms used:

(stroke* OR ((cerebrovascular OR cerebro vascular OR cerebral vascular OR brain vascular) AND (accident* OR event* OR stroke* OR disorder* OR disease* OR infarct OR apoplexy*)) OR CVA OR apoplexy*)
AND (Caregiver* OR care giver* OR carer* OR ((family OR informal OR primary OR spous*) AND (caregiver* OR carer* OR care giver*))
AND (Psychotherap* OR counsel* OR cognitive therapy OR behavio?ral therapy OR ((psychosocial OR cognit* OR behavio?r* OR cognitive behavior?ral OR peer OR problem solving) AND (intervention* OR therap* OR support* OR partnership*)))
AND (health OR quality of life OR depression* OR anxiety* ((physical OR psychosocial OR psychological OR care* OR social) AND (wellbeing* OR health* OR stress* OR strain* OR burden OR Burthen OR support OR condition* OR network* OR competenc*))


Databases searched for English publication:
- Academic Search Alumni Edition
- Academic Search Premise
- British Nursing Index and Archive
- CINAHL Plus
- ERIC
- Controlled Clinical Trials Database
- Cochrane Library
- EMBASE
- Global Health
- Stroke Trials Registry (www.strokecenter.org)
- Ovid MEDLINE®
- PsycINFO
- SCOPUS
- Stroke Registry in Cochrane Stroke Group
- Web of Science—with conference proceedings

Databases searched for Chinese publication:
- China Journal Net
- Chinese Biomedical Literature Database
- Chinese Medical Current Content
- HyRead
- Taiwan Electronic Periodical Services
- WanFang Data
- 中國生物醫學文獻數據庫
- 中國醫學學術會議論文數據庫

Databases searched for grey literature or unpublished studies:
- Agency for Healthcare Research and Quality,
- Academic Archive On-line
- Chinese Electronic in Thesis and Dissertation Service
- Digital Dissertation Consortium
- Grey Literature Report (via New York Academy of Medicine)
- Index to Thesis
- Lancashire Care Library and Information Service
- MEDNAR
- National Library of Medicine Gateway
- Netting the Evidence
- ProQuest Dissertation and Thesis
- The Networked Digital Library of Theses and Dissertations
- WanFang Data: Chinese Dissertation Database
- 中國優秀碩士學位論文全文數據庫
- 中國博士學位論文全文數據庫