Community-based Peer Support Approach for Individuals with Type 2 Diabetes Self-management in Anhui Province in China

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Objectives

- To test feasibility of peer support group approach for individuals with type 2 diabetes in community settings in Anhui province in China

- To examine effectiveness of peer support approach for individuals with type 2 diabetes self-management practices
- Total population 68.62 million (2010).
  Area: 139,600km²
- The province has 105 counties and 17 main cities,
- In 1995 the prevalence of diabetes (DM) was 2.24% and 4.45% for impaired glucose tolerance (IGT) (Ying 1997)
Three cities:
Hefei city: - He Yidi
  - Jin he
Tongling: - Yang guang
  - Ren dong
Bangbu: Da qing
# Basic information

<table>
<thead>
<tr>
<th>Items</th>
<th>Heyidi Community</th>
<th>Yangguangkan Rendong Community</th>
<th>Daqing Community</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total permanent residents (living in community &gt;= 6 months)</td>
<td>22793</td>
<td>20760</td>
<td>15600</td>
<td>61283</td>
</tr>
<tr>
<td>Residents &gt;=60 years old</td>
<td>2744</td>
<td>1949</td>
<td>2157</td>
<td>6850</td>
</tr>
<tr>
<td></td>
<td>(12.04%)</td>
<td>(11.23%)</td>
<td>(13.83%)</td>
<td>(11.58%)</td>
</tr>
<tr>
<td>Residents with type 2 diabetes</td>
<td>355</td>
<td>154</td>
<td>412</td>
<td>921</td>
</tr>
<tr>
<td></td>
<td>(1.6%)</td>
<td>(0.74%)</td>
<td>(2.6%)</td>
<td>(1.6%)</td>
</tr>
<tr>
<td>Residents with high blood pressure (HBP)</td>
<td>1150</td>
<td>836</td>
<td>1646</td>
<td>3632</td>
</tr>
<tr>
<td></td>
<td>(5.04%)</td>
<td>(4.02%)</td>
<td>(10.55%)</td>
<td>(6.1%)</td>
</tr>
<tr>
<td>Community health workers</td>
<td>26</td>
<td>14</td>
<td>24</td>
<td>64</td>
</tr>
<tr>
<td>Public health care workers</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>
Research Method

Research design

- A community randomized control trial design was used to evaluate the effectiveness of the community-based peer-led support program (PLSP) in improving self-management practices among individuals with diabetes.

- Both qualitative and quantitative data were collected before and after six months program implementation from both experimental group and comparison group.
Basic information

- Total population: 61283
- ≥60 years old: 6850, 11.58%
- The number of type 2 diabetes: 726
  (intervention group: 365, comparison group 361)
Research Framework

**Independent variable**

X: community-based peer-led support program (PLSP)

- **Step 1:** CHSC formulating supportive Policies and involving PLSP
- **Step 2:** Recruiting and Training peer supporters
- **Step 3:** Peer led group meetings and Ongoing follow up support

**Mediator variable**

Psychosocial factors

- M1: Knowledge about SM
- M2: Attitude about SM
- M3: Self-efficacy for SM
- M4: Perception of social support about SM

**Dependent variable**

Diabetes SM practices

- Y1: Glucose monitoring
- Y2: Adherence medication
- Y3: Healthy dietary
- Y4: Physical activities

Clinic Outcomes

- Bp
- BMI
- HbA1c

Health Outcomes

Reduction of complication and hospital admission

Controlling for age, gender, Education level, length of disease and co-morbidity by statistical analysis method
Preliminary study

**Experimental groups (3C)**
3 sub-communities

**Baseline Data**
- participants (N=365)
  - Including Peer supporters 19

19 Peer support groups being recruited and trained

Peer-led Group meetings /activities follow-up six months

**Outcome evaluation participants (N=279)**

**Comparison groups (3C)**
3 sub-communities

**Baseline Data**
- participants (N=361)

Routine health services

**Outcome evaluation participants (N=254)**
Participants

- study subjects: 726 individuals with type 2 diabetes are study in three communities
- 365 intervention group, 361 comparison group
- means of age: $63.00 \pm 9.41$
- years with T2DM: $6.81 \pm 6.00$
- complications of DM: 34%
- occupation: 62.8% retired
- education level: 44.4% primary school or under
Preliminary results

- Baseline survey outcome:
  - BMI (kg/m²): $23.65 ± 3.82$
  - BP: SBP (mmHg) $134.62 ± 15.03$
  - WHR: $0.89 ± 0.38$, male: $0.92 ± 0.53$, female: $0.86 ± 0.10$
  - HbA1c: $7.68 ± 1.36$
  - FPG: (mmol/L) $7.92 ± 3.78$, 2h PG: (mmol/L) $11.61 ± 3.88$
  - mean score of knowledge: $5.48 ± 2.68$ (total score 12) 45.6%
  - mean score of practices of SM: $32.37 ± 1.82$ (total score 45) 49.7%

(47.7% subjects following health dietary; Only 6.0% of subjects were able to perform glucose monitoring regularly; 69.6% subjects exercise regularly; 80.3% adherence medication

- knowledge, attitude, self-efficacy and social support significant predict SM practice by Multivariate statistic analysis
<table>
<thead>
<tr>
<th>Variables</th>
<th>Percentage (%)</th>
<th>Influencing factors (Sig. P&lt; 0.01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge on SM</td>
<td>45.6</td>
<td>Education level length of suffering disease</td>
</tr>
<tr>
<td>Perform practices of SM</td>
<td>49.5</td>
<td>Income, knowledge, and self-efficacy</td>
</tr>
<tr>
<td>Healthy diet</td>
<td>47.7</td>
<td>No significant factors</td>
</tr>
<tr>
<td>Physical activities</td>
<td>69.6</td>
<td>Knowledge, attitude, self-efficacy, social support</td>
</tr>
<tr>
<td>Blood sugar monitoring</td>
<td>6.0</td>
<td>Social support</td>
</tr>
<tr>
<td>Medication adherence</td>
<td>80.3</td>
<td>Attitude</td>
</tr>
</tbody>
</table>
Project outline

- The program carried out in three different kinds of communities during July 2009 to Aug. 2010 in Anhui province, China
- 726 individuals with type 2 diabetes has been recruited
- 365 patients with 19 "Diabetes peer support group" (糖尿病同伴支持小组) has been developed
- 279 diabetes are participating "peer support group" (76.4%)
- 19 individuals with type 2 diabetes has been recruited as "Peer Supporter (group leader)"
- Intervention: "diabetes peer support group": meetings and activities
- Effectiveness evaluation from Aug. to Nov. 2010
**Intervention Process**

**Phase 1**
- **Prepare phase**
  - Policy advocacy
  - Building supportive community environment
  - Creating organization
  - Meeting
  - Workshop
  - Setting up work team

**Phase 2**
- **Preliminary Study**
  - Explore potential fac. related SM to help develop PLSP locally acceptable
  - Develop and pilot test training curriculum
  - Develop and pilot test evaluation instrument
  - Qualitative survey

**Phase 3**
- **Implementation**
  - Peer Supporters Recruitment
    - Health record from CHSC
    - Home visiting
  - Peer Supporter Training
    - Three sessions (3 days)
  - Group Meetings (6 months)
    - Twice per month
    - 12 times group meeting
  - Ongoing follow-up group member meetings or activities
Outcome measures

- **social-demographic indicators:**

- **clinic indicators:** BMI, BP, WHR, FPG, 2hr.PG, HbA1c

- **behaviour indicators:** practices on SM behaviors (diet, physical activities, blood sugar monitoring and adherence medication)

- **psychosocial indicators:** predictor variables (knowledge, attitude, self-efficacy, social support)
Selection criteria of peer group leaders

- with type 2 diabetes for at least one year duration (1年以上)
- voluntary basis (自愿)
- generally adherence to CHSC (配合社区卫生服务中心工作)
- commitment to undergo the PLSP required
- commitment to protect patient confidentiality. (保护小组成员的隐私)
- had good relationship with community residents. (与社区居民相处很好)
- be socialble, positive personality. (好交往，性格乐观)
Retention of Peer group leaders

- Commit to the project schedule (遵守项目方案)
- Agree to the responsibilities/peer support policy of the project (有责任心)
- Commit to attend three days training (承诺参加三天的培训)
- Contact with group members actively (承诺主动与小组成员联系)
The features of peer supporters

- all of them are retired people (average age 64.2 years old)
- most of them are males (with 3 females and 16 males)
- have high educational level relatively (all of them have middle or high educational level)
- have long duration of suffering diabetes (9.3 years)
- be good at communication skills (1/3 of them used to be teachers/administration staff/health worker/salesman)
- compliance to community health professionals and workers
- have leadership capacity (36.8% of them used to be leader before retired)
- have positive personality and be social
- to be volunteer, no pay
# Peer group leaders training

<table>
<thead>
<tr>
<th>Session 1 (day1)</th>
<th>Session 2 (day 2)</th>
<th>Session 3 (day 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction to the peer-led support program (PLSP)</td>
<td>Basic skills</td>
<td>Self-management knowledge and practice skills</td>
</tr>
<tr>
<td>- Role of the peer supporter</td>
<td>- Goal setting skills</td>
<td>- How to manage blood sugar</td>
</tr>
<tr>
<td>- Basics of type 2 diabetes</td>
<td>- Teaching skills</td>
<td>- How to manage medication</td>
</tr>
<tr>
<td>- Complications of type 2 diabetes</td>
<td>- Counseling skills</td>
<td>- How to manage diet</td>
</tr>
<tr>
<td></td>
<td>- Developing action plan skills</td>
<td>- How to manage physical exercise</td>
</tr>
<tr>
<td></td>
<td>- Problem solving skills</td>
<td>- How to manage stress and depression</td>
</tr>
<tr>
<td></td>
<td>- Communication skills</td>
<td>- How to manage complication situation</td>
</tr>
<tr>
<td></td>
<td>- Working with groups skills</td>
<td></td>
</tr>
</tbody>
</table>
Peer group members recruitment

- Peer group members recruitment by CHSC
- based on "community chronic disease management health recorder"
- setting up peer support groups based on nearby buildings
- 19 peer support groups were organized
- one group with 10-15 diabetes patients
Peer-led group meeting contents

- 12 sessions for group meeting contents:
  - Example
  - Session 1: Becoming a membership
    -- introduction to each other
    -- what is peer support?
    -- ground rules
    -- discussion about group meeting convenient place and schedule
    -- contact details for the group members
Peer group meetings/activities

- one month two times (meeting/activiting)
- led by "peer group leaders"
- CHSCs provide meeting room, counseling, provide booklet, health education materials, etc.
- group meetings/activities
- sub-group activities (Taji group, Fishing, shopping, jogging)
- sharing information, good model, psychology support, learning how to get information and primary care, building closed relationship with CHC
Role of five levels intervention

- **government (3L-BOH)**
- **organization (3L-CDC)**
- **community (CHSC)**
- **group (DPSG)**
- **individual (T2DM)**

**Resources support**
- policy making
- funding support

**Technical support**
- advocacy
- community assessment
- training (CHW, peer supporters)
- developing HE materials
- providing advice
- supervising
- baseline survey
- evaluation

**Implementation**
- community mobilization
- PS recruitment
- developing PSG
- counseling for PS and peers
- helping organize PSG meeting and activities
- recording documents
- providing health care services

**Participating**
- PS-led group meetings
- group activities
- sharing experience and knowledge
- emotional support
- learn from good model
- encourage changing unhealthy life-style

**Improvement**
- Knowledge
- Attitude
- self-efficacy
- social support
- SM practices
- BP, BMI, WHR
- metabolic control
- QOL
## Results

<table>
<thead>
<tr>
<th>Variables</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Practices on diabetes SM</td>
<td>* sig. (p&lt;0.05)</td>
</tr>
<tr>
<td></td>
<td># No. Sig. (p&gt;0.05)</td>
</tr>
<tr>
<td>2.1 Dietary behaviors</td>
<td>*</td>
</tr>
<tr>
<td>2.2 Physical activity</td>
<td>*</td>
</tr>
<tr>
<td>2.3 Blood glucose monitoring</td>
<td>#</td>
</tr>
<tr>
<td></td>
<td>Exp. (+3%)</td>
</tr>
<tr>
<td></td>
<td>Comp. (-1.4%)</td>
</tr>
<tr>
<td>2.4 Medication adherence</td>
<td>#</td>
</tr>
<tr>
<td></td>
<td>Exp. (+0.6%)</td>
</tr>
<tr>
<td></td>
<td>Comp. (-1.6%)</td>
</tr>
<tr>
<td>Variables</td>
<td>Results</td>
</tr>
<tr>
<td>---------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>3. Psychosocial factors</td>
<td>* sig. (p&lt;0.05)</td>
</tr>
<tr>
<td></td>
<td># No. Sig. (p&gt;0.05)</td>
</tr>
<tr>
<td>3.1 Knowledge</td>
<td>*</td>
</tr>
<tr>
<td>3.2 Attitude</td>
<td>#</td>
</tr>
<tr>
<td>3.3 Self-efficacy</td>
<td>*</td>
</tr>
<tr>
<td>3.4 Social support</td>
<td>*</td>
</tr>
</tbody>
</table>
### Results (cont.)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4. Clinical outcomes</strong></td>
<td>* sig. (p&lt;0.05)</td>
</tr>
<tr>
<td></td>
<td># No. Sig. (p&gt;0.05)</td>
</tr>
<tr>
<td>4.1 BMI</td>
<td>#</td>
</tr>
<tr>
<td>4.2 Blood pressure (Bp)</td>
<td>#</td>
</tr>
<tr>
<td>4.3 Waist Hip Ratio (WHR)</td>
<td>#</td>
</tr>
<tr>
<td><strong>4.4 Fasting Plasma Glucose (FPG)</strong></td>
<td>*</td>
</tr>
<tr>
<td><strong>4.5 2hrPPG</strong></td>
<td>*</td>
</tr>
</tbody>
</table>
Results

- significantly improve diabetes diet, physical activities, fasting plasma glucose (FPG), two-hour postprandial plasma glucose (2hrPPG) by increasing the level of knowledge about SM, self-efficacy on SM, and perceived social support.

- it had no significant effect on attitude towards SM, blood sugar monitoring and medication adherence practices, as well as BMI, BP, and WPR.
Conclusion

- The results demonstrated that, when adapted, PLSP is **culturally acceptable to Chinese people** and that it is feasible in China when delivered according to a community-based model and integrated into the routine of community government organizations and community health services.
Program dissemination

- "Peer support" strategy integrates "community-based intervention program to prevent cardiovascular diseases " (cooperation program with Dutch) / high risk groups (salt, overweight, smoking)

- "Peer support" method integrated provincial training program for county CDC staff and CHC professionals (4 period / 80+ / 5 days, 347 participants)

- "Peer support" strategy setting as routine chronic disease management works in CHC provincially
Challenges

- CHC capacity building
  - to develop curriculum to training both community health workers and peer leaders
  - to adapt evaluation instrument
  - how to build PFP network in China nationally.
  - how to integrate into the routine of health organizations (such as CDC) and community primary health services.
Thank You