Midlife African American women’s maintenance of life-style physical activity following the Women’s Lifestyle Physical Activity Program

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Sigma Theta Tau International
Dublin Ireland
July 2017
BACKGROUND

- Group behavioral interventions increase PA in African American women
- Little known about maintenance
- NIH Office of Behavioral and Social Sciences Research defined maintenance as continued behavior for a defined period of time after the active intervention. Distinguished between two types of maintenance studies:
  - Testing maintenance strategies following an active intervention
  - Long-term maintenance without a maintenance intervention
We examined 13 physical activity interventions with African American women

- Only 4 looked at maintenance after cessation of the intervention.
- All 4 showed improvements in physical activity at the end of the intervention, but only 1 maintained improvements.
- None looked at sustained maintenance following a maintenance intervention.
• To determine midlife African American women’s long-term maintenance of physical activity following the end of the 48-week Women’s Lifestyle Physical Activity program.

• To determine differences in long-term maintenance of physical activity by three treatment conditions.
Methods: Intervention

The Women’s Lifestyle Physical Activity Program (48-weeks)

24-week active phase
24-week maintenance intervention phase

Group meetings
• 5 during active phase and 1 during maintenance phase
• Guided by Social Cognitive Theory
  ◦ Individual component:
    ◦ Lifestyle physical activity prescription
  ◦ Group component:
    ◦ Role modeling
    ◦ Problem solving
**Methods: Intervention**

**Telephone contacts** (designed to keep connected between group meetings)

- **Personal calls (PC)**
  - Motivational interviewing
    - (9 active phase, 2 maintenance phase)

- **Automated telephone calls (AC)**
  - Barrier tips (9 active phase, 2 maintenance phase)

- **No telephone calls**
METHODS: RCT Design

- 3 intervention conditions
  - Group only
  - Group + Personal Calls
  - Group + Automated Calls

- 6 sites
  - 3 waves per site
  - A different treatment condition for each wave

- Order of intervention conditions within site randomly counterbalanced
Methods: Design supplementary analyses

- Assessment of long-term maintenance began 1 year after the final wave of first site completed 48-week assessment.
- Completed long term maintenance assessment 1 to 3 years after completing the intervention.
- 4 assessment times
  - Baseline (pre-intervention)
  - 24 weeks post-baseline (end of active intervention)
  - 48 weeks post-baseline (end of maintenance intervention)
  - 2 to 4 years post-baseline (long-term maintenance)
ANALYSIS: Timing of Assessments

Key: Black = Assessments  Grey = Intervention
METHODS: Sites

- 3 community health centers
- 3 community hospitals
METHODS: Subjects

Inclusion
- Female
- African American
- Sedentary
- Aged 40 to 65 years
- Without disabilities that would prevent regular participation in physical activity

Exclusion
- Major signs or symptoms suggestive of pulmonary or cardiovascular disease
- Blood pressure $\geq 160/100$ mmHg
- Self-reported history of myocardial infarction, stroke, HbA$_{1c}$ $\geq 9$
METHODS: Measures

Adherence to lifestyle physical activity

Community Healthy Activities Model Program (CHAMPS)

- Overall moderate leisure time and household activities (30 items)
- Retrospective past two weeks
- Duration and MET value
- Calculated minutes per week spent in:
  - Overall moderate-to-vigorous physical activity
  - Leisure time moderate-to-vigorous physical activity
  - Walking
METHODS: Protocol

- During the active and maintenance intervention phases, physical activity questionnaires were completed at the sites (baseline, 24 weeks, 48 weeks).
- During the long-term maintenance phase, follow-up questionnaires were mailed to women following Dillman.
RESULTS: Consort Sheet

- 288 Started the intervention
  - 95 Group meeting
    - Intervention 48-week assessment
      - 88 (92%) Completed
    - Maintenance assessment
      - 86 (91%) Completed
  - 97 Group meeting + AC
    - Intervention 48-week assessment
      - 86 (89%) Completed
    - Maintenance assessment
      - 86 (89%) Completed
  - 96 Group meeting + PC
    - Intervention 48-week assessment
      - 86 (90%) Completed
    - Maintenance assessment
      - 82 (85%) Completed
## RESULTS: Completion Of Long-term Follow-up

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Completed (n=254; 88.2%)</th>
<th>Not Completed (n=34; 11.8%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, years M(SD)**</td>
<td>53.5 (6.5)</td>
<td>49.8 (5.9)</td>
</tr>
<tr>
<td>Education, college graduate or higher (%)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>92.3</td>
<td>7.7</td>
</tr>
<tr>
<td>No</td>
<td>84.1</td>
<td>15.9</td>
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<tr>
<td>Income (%)</td>
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<td></td>
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<tr>
<td>&lt;$40,000</td>
<td>86.4</td>
<td>13.6</td>
</tr>
<tr>
<td>$40,000</td>
<td>89.4</td>
<td>10.6</td>
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<tr>
<td>Employed (%)</td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>89.2</td>
<td>10.8</td>
</tr>
<tr>
<td>No</td>
<td>85.1</td>
<td>14.9</td>
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<tr>
<td>Married/living with partner (%)</td>
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<td></td>
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<tr>
<td>Yes</td>
<td>89.1</td>
<td>10.9</td>
</tr>
<tr>
<td>No</td>
<td>87.6</td>
<td>12.4</td>
</tr>
<tr>
<td>Children under 18 in household (%)</td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>84.9</td>
<td>15.1</td>
</tr>
<tr>
<td>No</td>
<td>90.1</td>
<td>9.9</td>
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</table>

* *p* < .05  ** *p* < .01
### RESULTS: Completion Of Long-term Follow-up

<table>
<thead>
<tr>
<th>Design Factor</th>
<th>Completed (n=254; 88.2%)</th>
<th>Not Completed (n=34; 11.8%)</th>
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</thead>
<tbody>
<tr>
<td><strong>Condition (%)</strong></td>
<td>Group Only</td>
<td>90.5</td>
</tr>
<tr>
<td></td>
<td>Group+PC</td>
<td>85.4</td>
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<tr>
<td></td>
<td>Group+AC</td>
<td>88.7</td>
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<td><strong>Wave (%)</strong></td>
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<td>86.5</td>
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<td></td>
<td>3</td>
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<td><strong>Site (%)</strong></td>
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<tr>
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<td>80.7</td>
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<td></td>
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<td></td>
<td>6</td>
<td>82.0</td>
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<td><strong>Sessions Attended M(SD)</strong></td>
<td>4.8 (1.3)</td>
<td>3.3 (1.6)</td>
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</table>

**p<.01**
ANALYSIS: Discontinuous Growth

Outcome (e.g., MVPA) vs. Time (Weeks) centered at 48 Weeks after Start of First Group

- Intervention Phase
- Long-Term Maintenance Phase
RESULTS: Total Moderate-Vigorous Physical Activity

Centered at 48 Weeks after Start of First Group

Intervention Slope: 3.74, \( p < .001 \)
Maintenance Slope: \(-0.01, p = .967\)
No differences by condition
RESULTS: Leisure-time Moderate-Vigorous Physical Activity

Intervention Slope: 3.19, $p<.001$
Maintenance Slope: -1.71, $p=.087$
No differences by condition

Time (Weeks) Centered at 48 Weeks after Start of First Group

Leisure-time MVPA (Minutes per Week)
RESULTS: Walking

- Intervention Slope: 4.14, \( p < .001 \)
- Long-term Maintenance Slope: -0.80, \( p < .001 \)
- No differences by condition
DISCUSSION

• First study to look at the natural course of long-term maintenance following a maintenance intervention.
• Findings suggest long-term sustained effectiveness of the Women’s Life Style Physical Activity Program.
• Strength of intervention: strategies based on concepts from SCT associated with maintenance.
• Limitations
  • Reliance on self-report measures of physical activity.
  • Analyses limited by a follow-up design that included only a single assessment of women at varying times.
Funded by
National Institutes of Health
National Institute of Nursing Research (R01 NR04234)
## METHODS: Design

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<th>Wave</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>group meeting</td>
<td>group meeting</td>
<td>group meeting + PC</td>
<td>group meeting + PC</td>
<td>group meeting + AC</td>
<td>group meeting + AC</td>
</tr>
<tr>
<td>2</td>
<td>group meeting + AC</td>
<td>group meeting + PC</td>
<td>group meeting + AC</td>
<td>group meeting</td>
<td>group meeting</td>
<td>group meeting + PC</td>
</tr>
<tr>
<td>3</td>
<td>group meeting + PC</td>
<td>group meeting + AC</td>
<td>group meeting</td>
<td>group meeting</td>
<td>group meeting</td>
<td>group meeting</td>
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