Computerized Stress Management Training for HIV+ Women: A Pilot Intervention Trial

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Acknowledgements

• Funded by the National Institute of Mental Health Grant #F31MH081751
  – Faculty Sponsor: Peter A. Vanable, Ph.D.
  – Faculty Co-Sponsor: Michael P. Carey, Ph.D.

• Additional support from Allport Research Grant, Department of Psychology, Syracuse University
Acknowledgements

• Peter A. Vanable, Ph.D.
• Michael P. Carey, Ph.D.
• Larry Elin
• Larry Hammonds
• Jessie Heath, M.S.
• Tanesha Cameron-Cole, MBA
• Tasha Brown, Sarah Johnson, Janan Wyatt
• Missy Albert, RN & Linda Bartlett, RN
• Donald Blair, M.D. & Judy Rees, N.P.
• Kelley Flood, LMSW
Background

- 39.5 million individuals diagnosed with HIV worldwide (UNAIDS/WHO, 2006)
- Over half a million people living with HIV in the United States (CDC, 2006)
- New HIV infections on the rise: 56,300 new infections in 2006 (Hall et al., 2008)
  - Increased prevalence among rural populations, especially African-Americans (Raychowdhury et al., 2009)
- Women disproportionately infected in recent years (esp. African-Americans; CDC, 2006)
Background

- Experience significant psychosocial stressors compounded by the demands of their medical care (Jenkins & Coons, 1996; Morrow, Costello, & Boland, 2001)
- HIV+ women face unique stressors (e.g., caretaking of children)
- Elevated distress and maladaptive coping associated with negative health outcomes
  - Poor medication adherence (Weaver et al., 2005)
  - Decline in health status markers (Ironson et al., 1994, 2005)
  - Increased sexual risk behavior (Kalichman, 1999)
  - Higher rates of substance use (Gore-Felton et al., 2002)
Review of Stress Management Interventions

• Narrative review of 21 cognitive behavioral stress management interventions (Brown & Vanable, 2008)

• Positive changes in psychological outcomes

Limitations of Existing Stress Management Interventions

• Majority of interventions with HIV+ MSM
  – Only one intervention with women (Lechner et al., 2003)
• Exclusion of individuals with elevated psychological distress
• Reliance on group intervention formats

Need for stress management interventions to promote coping among HIV+ individuals, particularly among women
Intervention Development
Computerized Interventions

- Advantages of computerized approaches:
  - Cost effective
  - Standardized administration
  - Administration flexibility

- Meta-analysis: Effective intervention format for variety of health behaviors (Portnoy et al., 2008)

- Technology delivered stress management approaches for HIV+ patients:
  - Video delivered stress management (Lechner et al., 2003)
Research Phases

- Qualitative focus groups conducted with HIV+ women
  - HIV+ Women \((n = 29)\)
  - Five focus groups with 6-7 participants each
  - Used to tailor intervention content to the unique needs of HIV+ women
- Developed intervention based on previous literature and focus group data
- Pilot tested intervention among HIV+ women
CSMT: Format

- Single session
- MediaLab software (Empirisoft, 2008)
- Interactive computerized approach
- Video clips featuring trained interventionist
- Video testimonials with HIV+ women
- Brief self-tests
- Tailored intervention exercises
CSMT: Content

- Key components of Coping Effectiveness Training (Chesney et al., 2003; Heckman et al., 2006)
- Overview of stress and associated symptoms
- Appraisal process for evaluating stressful situations
- Coping strategies and their application
- Relaxation training exercises
- Address unique concerns of HIV+ women
Supplemental Intervention Components

• Brief post-intervention session
• Behavioral skills workbook
  – Adapted from Chesney et al., 2003
• CD of relaxation exercises
Pilot Study: Experimental Design
Random Assignment ($N = 60$)

Immediate Intervention ($N = 30$)

- Pre-Intervention Assessment
- CSMT
- Post-Intervention Assessment

Delayed Intervention ($N = 30$)

- Pre-Intervention Assessment
- $2^{nd}$ Pre-Intervention Assessment
- CSMT
- Post-Intervention Assessment

T1
One Month

T2
One Month

T3
Participants

- N = 60; Recruited from SUNY Upstate (Syracuse, NY)
- 70% African American, 21% Caucasian
- M age = 44.7, SD = 8.8
- 30% Currently employed
- 38% Less than high school education
- Average monthly income = $724, SD = $484
- 47% Mental health treatment; 22% Substance use treatment
- 28% AIDS Diagnosis; 37% Prior HIV hospitalization
Intervention Goals

- Feasibility
- Acceptability
- Efficacy
Feasibility of Computer Administration

- 57% did not own computer
- 20% never used computer prior to study
- 60% did not have internet access
- Response to audio prompt questions
  - 75% gave responses to all prompts
  - Those not responding to all prompts:
    - Skipped 1-2 questions ($n = 10$)
    - Skipped 4-6 questions ($n = 3$)
    - Skipped 10+ questions ($n = 2$)
- Low use of supplemental materials
## Intervention Acceptability

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Rating (Range: 1-4)</th>
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</thead>
<tbody>
<tr>
<td>Interesting</td>
<td>$(M = 3.3, SD = .69)$</td>
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<tr>
<td>Enjoyable</td>
<td>$(M = 3.1, SD = .82)$</td>
</tr>
<tr>
<td>Information meets your needs</td>
<td>$(M = 3.0, SD = .69)$</td>
</tr>
<tr>
<td>Topics covered are important</td>
<td>$(M = 3.5, SD = .74)$</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>$(M = 3.3, SD = .62)$</td>
</tr>
<tr>
<td>Relaxation CD helpful to manage stress</td>
<td>$(M = 2.4, SD = 1.2)$</td>
</tr>
<tr>
<td>Workbook helpful to manage stress</td>
<td>$(M = 2.6, SD = 1.0)$</td>
</tr>
</tbody>
</table>
Random Assignment
\( (N = 60) \)

- Immediate Intervention
  \( (N = 30) \)
  - Pre-Intervention Assessment
  - CSMT
  - Post-Intervention Assessment
  - T-Test

- Delayed Intervention
  \( (N = 30) \)
  - Pre-Intervention Assessment
  - ANCOVA
  - 2nd Pre-Intervention Assessment
  - T-Test
  - CSMT
  - Post-Intervention Assessment
  - T-Test

T1
One Month
T2
One Month
T3
**Intervention Efficacy: Outcomes**

- Coping self-efficacy (Coping self-efficacy scale)
- Perceived stress
  - Overall perceived stress (PSS)
  - HIV-related stress (HIV Life Burden Questionnaire)
- Psychological distress
  - Positive affect (POMS)
  - Depressive symptoms (CES-D)
  - Overall psychological functioning (BSI)
- Stress management knowledge (New measure)
Efficacy

- No change in psychological distress outcomes
  - All $p$’s > .05
- No change in perceived stress or coping self-efficacy
  - All $p$’s > .05
- Improved knowledge of stress management skills
  - $F(1, 56) = 7.53, p < .01$, $t(54) = -4.06, p < .001$
  - Understood intervention material
  - Learned core coping skill concepts
Conclusions

• Developed a brief intervention using a computerized format
• Participants experiencing elevated levels of psychological distress
• Feasible and acceptable approach to stress management among HIV+ women
• While no change in psychological distress levels, improved knowledge of coping skills
Discussion

• Potential factors associated with null findings on psychological outcomes:
• Underpowered for statistical analyses (small effect sizes in previous studies)
• Heterogeneous sample
• Factors for whom intervention is most effective: More effective for higher functioning individuals?
• Brief, low compliance with supplemental intervention components
• Short follow-up assessment length
Applications & Directions for Future Research

• Computerized assessment and intervention formats can be used to address a number of clinical problems
• Provide psychoeducation
• Used to triage patient care
• May be particularly useful with low literacy populations
• Flexible administration
• Cost effective
• Increased privacy
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Support provided by NIMH Grant: 1F31MH081751