Forgiveness and Immune Functioning in People Living with HIV-AIDS

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Psychosocial

Forgiveness

Spiritual
Psychosocial Factors & HIV

- Depression
- Stress
- Hopelessness
- Passive coping (avoidant, denial)
- Active coping (problem-solving)
- Optimism
- Conscientiousness
- Social support (mixed)

(Chida & Vedhara, 2009; Gore-Felton & Koopman, 2008; Ironson et al., 2005; Ironson & Hayward, 2008)
Spiritual Factors & HIV

• Spiritual well-being
• Spiritual transformation after HIV diagnosis
• Religious behavior
  – Prayer, worship attendance, reading religious material, spiritual discussions
• View of God
  – Benevolent & forgiving vs. judgmental & punishing

(Dalmida, Holstad, Dilorio, & Laderman, 2009; Ironson et al., 2011; Ironson & Kremer, 2009; Ironson, Stuetzle, & Fletcher, 2006; Woods, Antoni, Ironson, & Kling)
Forgiveness & Health

• General health
  – Lower medication use, fatigue, alcohol use, number of common symptoms & major diagnoses

• Cardiovascular
  – Lower blood pressure & heart rate, fewer heart disease symptoms & myocardial perfusion defects

• Immune
  – T-helper to T-cytotoxic cell ratios (self-forgiveness)
  – Lower salivary cortisol levels (forgiveness from God)

(Lawler et al., 2003; Lawler-Row, Karremans, Scott, Edlis-Matityahou, & Edwards, 2008; Sarinopoulos, 2000; Seybold, Hill, Neumann, & Chi, 2001; Toussaint & Williams, 2003; Waltman, Russell, Coyle, Enright, Holter, & Swoboda, 2009)
Forgiveness & HIV

• Coping with stigma, rejection, relationships
• Forgive
  – greater adherence to healthcare recommendations
• Not forgive
  – continued transmission risk behaviors, substance use, disengaged from healthcare
• Forgiveness correlated with
  – lower depression & stress
  – greater health satisfaction & quality of life

(Temoshok & Chandra, 2000; Temoshok & Wald, 2005; Wald & Temoshok, 2004)
Forgiveness Misconceptions

Forgiveness is not:

• Condoning, excusing, minimizing, denying
• Anesthesia, amnesia
• More than becoming neutral, moving on
• Reconciliation

(Enright & Fitzgibbons, 2000)
Forgiveness Defined

Forgiveness is freely made choice to move away from negative cognitive, emotional, and behavioral responses toward a person who caused a hurt, and work toward developing positive cognitive, emotional, and behavioral responses toward that person.

(Enright & Fitzgibbons, 2000)
Current Study

• Explores the relationship of forgiveness and immune markers in PLWHA

• Hypothesis:
  – Higher levels of forgiveness will be associated with higher CD4 cell percentages
  – Controlling for sociodemographics, behavioral variables, and viral load
<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>65% male, 35% female</td>
</tr>
<tr>
<td>Race</td>
<td>81% Non-White, 19% White</td>
</tr>
<tr>
<td>Education</td>
<td>29% high school or less</td>
</tr>
<tr>
<td></td>
<td>44% 2-year degree / some college</td>
</tr>
<tr>
<td></td>
<td>27% 4-year degree or more</td>
</tr>
<tr>
<td>Age</td>
<td>$M = 44.68$, $SD = 9.97$, range: 20-65</td>
</tr>
<tr>
<td>Years HIV+</td>
<td>$M = 10.97$, $SD = 6.25$, range: 1-25</td>
</tr>
<tr>
<td>Religion</td>
<td>81% Christian</td>
</tr>
</tbody>
</table>
Participants

- CD4 cell percentages
  - $M = 26.28$  $SD = 11.91$

- CD4 cell count
  - $M = 590.02$  $SD = 427.81$
  - $17\% < 250$, $48\% < 500$

- Viral load
  - $M = 11,008.53$  $SD = 51,181.97$
  - $67\%$ undetectable
Measures

• Forgiveness of another person
  – Enright Forgiveness Inventory

• Immune markers
  – CD4 cell percentages
Measures

- Sociodemographic
  - Gender, race, education, age, years HIV+
- Behavioral
  - Medication adherence: adapted ACTG
  - Substance use: Substance Use Scale
- Viral load
Analyses

- Pearson’s Correlation
  - n = 64

- Hierarchical Linear Regression
  - n = 57
  - Sociodemographic variables
    (education, race, gender, age, years HIV+)
  - Potential confounders
    (medication adherence, substance use, viral load)
  - Forgiveness score
Results

Bivariate Correlations:

Greater forgiveness was significantly associated with higher CD4 cell percentages

\((r = .256, p = .042)\)
Bivariate Relationship of Forgiveness and CD4 Cell Percentages
Results

Linear Regression:

Forgiveness remained significantly associated with CD4 cell percentages

($\beta = .263, p = .034$)

controlling for sociodemographics, medication adherence, substance use, & viral load
# Linear Regression of Forgiveness and CD4 Cell Percentages

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>(SE)</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>15.267</td>
<td>(11.48)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>-.019</td>
<td>(.727)</td>
<td>-.003</td>
</tr>
<tr>
<td>Race (Non-White)</td>
<td>-4.263</td>
<td>(3.839)</td>
<td>-.146</td>
</tr>
<tr>
<td>Age</td>
<td>.064</td>
<td>(.195)</td>
<td>.050</td>
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<tr>
<td>Gender (Female)</td>
<td>3.037</td>
<td>(3.030)</td>
<td>.123</td>
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<tr>
<td>Years with HIV</td>
<td>-.390</td>
<td>(.269)</td>
<td>-.208</td>
</tr>
<tr>
<td>Medication Adherence</td>
<td>-6.465</td>
<td>(9.113)</td>
<td>-.140</td>
</tr>
<tr>
<td>Subs tance Use</td>
<td>1.132</td>
<td>(.619)</td>
<td>.259</td>
</tr>
<tr>
<td>Viral Load (log)</td>
<td>-2.880</td>
<td>(1.501)</td>
<td>-.367</td>
</tr>
<tr>
<td>Forgiveness</td>
<td>.042*</td>
<td>(.019)</td>
<td>.263</td>
</tr>
</tbody>
</table>

* p < .05, ** p < .01, *** p < .001
Discussion

• Findings indicate that forgiving others may be beneficial for health among PLWHA

• Reflects previous findings relating psychosocial and spiritual factors with immune markers in PLWHA

• Supports the inclusion of forgiveness in interventions for PLWHA
Future Research

• Replication
• Clinical samples struggling with being hurt
• Longitudinal design
• Other forms of forgiveness
  – Self-forgiveness, perceived forgiveness from God
• Mechanisms
  – Decreased stress, negative affect, rumination
  – Increased social support, healthy behaviors


Toussaint, L., & Williams, D. R. (October, 2003). *Physiological correlates of forgiveness: Findings from a racially and socioeconomically diverse sample of community residents*. Presented at A Campaign for Forgiveness Research Conference, Atlanta, GA.


Thank you!

- Scott Pollard & Allison Sanders
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- Dr. Nathan Thielman
- Study participants