Do Anger Expressions, Coping Strategies and Interpersonal Support Dynamics Relate to CD4 Count in HIV-Positive Adults?

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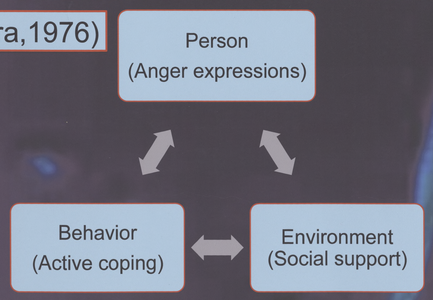
Introduction

The expression of anger is associated with positive health outcomes (Iyer, Korin, Hiffingbotham & Davidson, 2010). Healthy immune function is salient for people living with HIV (PLH) and has been studied vigorously over the past few decades (Weeks & Alcamo, 2010). The best predictor of immune function decline for this population is CD4 T-helper cell count (Kelly, 1992); as CD4 count decreases, disease symptoms increase. Social support, however, is related to decreased distress (Blaney, Goodkin, Feaster, Morgan, Millon, Szapocznik & Eisdorfer, 1997) and less self reported HIV-related health symptoms over time (Ashton et al., 2005). Active coping is a commonly accepted method to ameliorate negative consequences of anger (Lohr, Olatunji, Baumeister & Bushman, 2007) possibly via a tangible social support system. The aim of this investigation is to examine the relationships between anger expressions, active coping, social support and CD4 count within a sample of HIV-positive adults.

Theory: Social Cognitive Theory

(Bandura,1976)



Hypotheses

1) Anger expressions are positively associated with CD4 count.
2) Social support is positively associated with CD4 count.
3) Active coping is positively associated with CD4 count.
4) Anger expressions, tangible social support and active coping account for a significant proportion of variance in CD4 T-helper cell count.

Methods

Our study was institutional review board (IRB) approved. We recruited 63 PLH who were at least 18 years of age, partnered, and fluent in English from the Dallas / Fort Worth area. Participants provided informed consent and completed a computer-based questionnaire, which included psychological and medical information. Participants received a $25 incentive upon completion.

Measures

Anger: State-Trait Anger Expression Inventory (STAXI)
-Cronbach's α = .72-.89 (Buss & Perry, 1992; Harris, 1997)
-Construct validity: (Buss & Perry, 1992)
-57 likert-type items: 1(*strongly disagree*) - 4 (*strongly agree*)
-Higher scores denote more anger
-"When I get frustrated, I feel like hitting someone"

Coping: Brief Cope (Carver, 1997)
-Cronbach's α = .50-.90 (Carver, 1997)
-Construct validity (Carver, 1997)
-28 likert-type items: 1(*I haven't been doing this at all*) - 4(*I have been doing this a lot*)
-Higher scores denote use of coping mechanism
-"I've been taking action to try to make the situation better."

Social Support: Interpersonal Support Evaluation List (ISEL) (Cohen, Mermelstein, Kamarck, & Hoberman, 1985)
-Cronbach's α = .77-.86 (Cohen & Hoberman, 1983)
-Convergent validity with Inventory of Socially Supportive Behaviors (ISSB)
-14 likert-type items: 1(*definitely false*) - 4(*definitely true*)
-Higher scores denote more self-reported social support
-"When I need suggestions on how to deal with a personal problem, I know who to turn to."

CD4 Count: Self-reported from recent medical assessment

Demographics	n=63
Gender:	
Female	31 (49.2%)
Male	32 (50.8%)
Ethnicity:	
African American	43 (53.8%)
European American	16 (30.8%)
Other	4 (6.4%)
Sexual Orientation:	
Heterosexual	31 (49.2%)
Gay	24 (38.1%)
Bisexual	8 (12.7%)
Household Income < $10,000	38 (60.3%)
Mental Health Utilization	29 (46.0%)

	Mean (SD)	Range
Age (Years)	47 (9)	29-66
Education (Years)	12 (3)	3-18

Results

Univariate Analyses	M (SD)	Possible Range	Actual Range	α
Anger Expression	6.2 (2.0)	5-15	5-15	.86
Active Coping	6.8 (1.7)	2-8	2-8	.80
Social Support	10.3 (1.6)	4-16	4-16	.82
CD4 Count	572 (341)	0-2000	58-2000	*

• Not necessary to calculate α

Bivariate Analysis	1.	2.	3.	4.	5.
1. Age	1	-	-	-	-
2. Gender	.09	1	-	-	-
3. Anger Expressions	-.25**	.01	1	-	-
4. Active Coping	.01	-.12	-.18	1	-
5. Social Support	.04	.08	.09	.10	1
6. CD4 Count	.11	-.15	.20*	.34**	.20*

Note:*p<.05 **p<.01

- Dependent Variable: CD4 Count
- Block 1: Age, Gender & Time since CD4 assessment
- Block 2: Anger Expression, Active Coping and Social Support

Multivariate Analysis	β	t	p	TOL	VIF
Age	.39	3.6	.001	.88	1.13
Gender	-.27	-2.5	.017	.90	1.11
Time Since CD4 Last Assessment	.27	2.3	.023	.78	1.28
Anger Expression	.22	2.0	.046	.90	1.11
Active Coping	.42	3.9	.001	.95	1.06
Social Support	.30	2.6	.01	.85	1.18

Adjusted R^2 =.33, $F(6,57)$ = 6.18, p<.001

Discussion

Our findings support the hypothesis that anger expressions, active coping and social support are positively associated with CD4 count in PLH. Results from our study support the creation of a social support intervention intended to allow PLH to express anger actively in order to increase the production of CD4 cells and bolster healthy immune functioning. Hopefully, such a social support intervention may reduce negative health symptoms for PLH (Ashton et al., 2005). Through such social support interventions, active coping could ameliorate negative consequences of anger (Lohr, Olatunji, Baumeister & Bushman, 2007) by allowing PLH to express their anger actively and openly, which may increase physiological health. By working with clients on anger expressions and active coping, psychological health may be increased as well (Ashton et al., 2005).

Limitations: Our cross-sectional correlational design inhibited our ability to infer causal relationships. Self-report style measures, including CD4 cell count, used are vulnerable to participants giving socially desirable answers restricting validity. Our sample size was large enough for sufficient power (80%; G* power), however, a larger sample size may discern additional findings. Lastly, our convenience sample is not representative of the entire HIV-positive population; a random sample would be more inclusive

Future research: Medical assessments of CD4 count could be used to eliminate socially desirable responses. Future studies could include control and experimental groups to discern differences between groups for the variables of interest.

Acknowledgements:
•Center for Psychosocial Health Research
•Members & Faculty
•Dallas Resource Center
•Samaritan House in Fort Worth
•HIV Community
• McNair Scholars Program

*Please see handout for References