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Promoting Adaptive Coping by Persons with HIV Disease: Evaluation of a Patient/Partner Intervention Model

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Abstract

This study evaluated an intervention to facilitate adaptive coping by persons living with HIV (PLWH), with the participation of their cohabiting partners as a dimension of the intervention. An experimental design with randomization was used, and 84 PLWH and their partners were recruited. The intervention was based on a psychosocial educational model that incorporated 4 two-hour sessions focused on communication, stress appraisal, adaptive coping strategies, and building social support. Both members of the dyad were included in each session. The comparison control included four supportive phone calls to the PLWH alone. Data were collected from both the PLWH and their partners in each of the two groups at baseline, immediately following the intervention, and 3 months and 6 months post-treatment. Data were analyzed using RM ANOVA, with change scores from the partner data being covariates. Findings indicated that the design was a feasible model, which demonstrated potential for the management of stress, and possibly problems such as adherence, in PLWH. A manual was developed as a part of this intervention and is currently available.

Keywords

Coping; Emotional Response; Social Support; Experimental Design; Dyad; HIV; AIDS

The advent of highly active antiretroviral therapies has offered important advances in extending the life of persons living with HIV (PLWH); nevertheless, it is widely recognized that these treatments have numerous unpleasant side effects and their effectiveness is not assured. The disease continues to be associated with chronic debilitation and social stigma that lead to degradation of the self, high levels of distress, and irrevocable life changes (Brown & Powell-Cope, 1992). Therefore, longitudinal research aimed toward management of the psychological

and social consequences of HIV is central to promoting an accurate understanding of the quality of life for PLWH.

Finding means to assist PLWH to cope with these numerous and diverse problems has become an increasing concern. This is a significant issue from several perspectives. First, there is a need to reduce psychosocial vulnerability that can result in debilitating behaviors such as drug and alcohol abuse and suicidal ideation. Second, there is evidence that debilitating psychosocial problems have a negative impact on maintaining adherence to complex treatment regimens, which is a threat to the individual's health as well as a serious public health problem (Catz, Kelly, Bogart, Benotsch, & McAuliffe, 2000; Chesney, 2003; Ickovics et al., 2002; Pratt et al., 2001; Tucker, Burnam, Sherbourne, Kung, & Gifford, 2003). Third, maladaptive coping is associated with high-risk sexual behavior that escalates the spread of HIV disease (Kelly et al., 1993). Fourth, there is mounting evidence that high levels of stress may influence disease progression by way of immunological impairment (Robinson, Matthews, & Witek-Janusek, 2000).

The impact of depression, social support, and coping strategies on the progression of HIV and quality of life have been examined by a number of investigators. Studies have found more rapid progression to AIDS associated with a greater number of cumulative stressful events, greater depressive symptomatology, and less social support (Ammassari et al., 2001; Leserman et al., 1999). The use of particular coping strategies was also found to affect the level of stress and adaptation differentially. Coping by means of denial was associated with a more rapid progression to AIDS and higher levels of depression (Leserman et al., 1997), while problem-focused coping was associated with a higher quality of life (Swindells, Mohr, Justis, Berman, & Wagener, 1999).

A number of intervention studies have been conducted with HIV-infected individuals with the goal of decreasing psychosocial morbidity and minimizing disease progression. The majority of these studies have used a group intervention approach. Participants have been at varied stages of the illness, and they have been primarily gay white males between 18 and 45 years of age. Many of these studies have utilized a psychoneuroimmunology framework (PNI) that focuses on the use of biofeedback techniques, relaxation, aerobic exercise, changes in health habits, assertiveness training, and instruction in stress management. Various combinations of these techniques have been applied. The studies demonstrated varying degrees of positive change in levels of depression and anxiety, a decrease in fatigue, and an increased CD4 cell count, as well as changes in several key endocrine factors. Although sample sizes have been relatively small, results were promising but indicated a need for further research (Cruess et al., 2000; McCain, Munjas, Munro, Elswick, & Robins, 2003).

Little research has focused on the impact that partners and the significant-other relationship have on the well-being of the PLWH; however, there are important rationale for incorporating partners in interventions designed to enhance quality of life and minimize secondary psychosocial morbidity. First, the infected individual is not the sole person to suffer the consequences of HIV; given systems theory, a burden on one person within a dyad affects the other individual as well (Minuchin & Minuchin, 1987). Second, significant others assume heavy responsibility for care of the PLWH, and they are fundamental to society's response to the needs of these individuals (Brown & Powell-Cope 1992). Third, behavior and responses of a partner have a significant impact on the behavior and responses of the PLWH. Interdependence within a partnership implies that each individual's emotions and cognition affect the emotions and cognition of the other (Kelley, Holmes, Kerr, Rusbult, & Van Langw, 2003; Robins, Caspi, & Moffitt, 2000). Therefore, given the mutual impact that members of a dyad have on each others' lives, an intervention that includes both individuals is more likely

to be effective in changing coping behaviors than an intervention administered to the PLWH alone.

The purpose of this research was to evaluate the feasibility and effectiveness of a PLWH and co-habiting partner intervention model to increase the effectiveness of PLWH coping with HIV, with the partner being a dimension of the intervention design. This intervention focused on the interactive elements of the dyadic relationship and their impact on coping. It was brief, relatively easy to administer, and the goal was to develop an effective, replicable intervention that could be used by personnel who routinely provide care in many HIV clinics, for example, the nurse or social worker. A manual detailing the specifics of the intervention was developed, refined, and evaluated as a part of this research; it is available upon request from the first author.

Effective coping requires conscious, purposeful behavior, and it determines the individual's ability to live successfully with the continuous and chronic assault of HIV. A premise of this study was that persons do not cope with serious illness in isolation. Instead, the coping process is influenced to a substantial degree by factors within the social context, for example, the nature of close relationships and one's personal goals and intentions (Lazarus, 1991). Therefore, the primary aim of the experimental intervention was to enable individuals with HIV, with the support of a significant other, to cope effectively, by learning to assess and build upon their individual and collective strengths, as well as on the collective strengths of the relationship. Specific aims were to promote: (1) communication and effective resolution of conflict, (2) appraisals that differentiate changeable from unchangeable aspects of specific problems, (3) use of the most effective coping strategies and redefining personal goals to be congruent with existing limitations imposed by the illness, and (4) maximizing support within the relationship as well as within each individual's social network. Based on these goals we hypothesized that PLWH in the experimental intervention would: (1) engage in more adaptive coping, (2) experience less emotional distress, and (3) experience greater social support than those in the comparison control group.

Methods

Design

A randomized clinical-trial design included an experimental group that received the psychosocial education intervention with partner participation and a comparison group that received a non-directive supportive telephone intervention with the PLWH alone. We felt ethically obliged to provide some form of intervention for all participants from this highly stressed population, thus we did not include a no-treatment control. Group assignment was done by randomization.

Participants

Participants in this study were recruited by physician and nurse practitioner referrals and by self-referral, with collaboration between the investigators and clinicians being crucial. See Table 1 for demographic characteristics of participants. Eighty-four dyads comprised of a PLWH and a cohabiting partner consented to participate and completed the baseline data.

The partner participants were spouses, lovers, and caregivers who shared a residence with the PLWH. We estimate that approximately 25% of the partners were also infected with HIV, but we do not have an accurate count as several partners did not reveal their HIV status. Both members of the dyad were required to be at least 18 years of age, fluent in written and spoken English, and able to attend scheduled intervention sessions together. Exclusion criteria included evidence of neurocognitive deficits as recorded in the medical record, advanced AIDS that would prevent participation in the intervention, or not having a co-habiting partner who was

willing to participate. No exclusion criteria were defined to restrict eligibility based upon clinical symptomatology, time since diagnosis, or partner HIV status.

Procedures

Potential participants were recruited during routine clinic visits and given informed consent forms that described the purpose of the research and the study procedure. Follow-up telephone calls were made by a member of the research team to discuss the study and answer questions for both the PLWH and the partner.

All participants were given identical PLWH or partner assessment measures at four time points: baseline/pre-intervention, T1; at completion of the experimental intervention or supportive phone calls, T2; and at 3 months and 6 months following completion of either the experimental or control interventions, T3 and T4. Both PLWH and partner intervention participants were paid \$40 for attending each of the four psychosocial education sessions, and \$20 each for completion of each questionnaire. Both PLWH and partner participants in the comparison group were paid \$20 for completion of each of the four questionnaires. Questionnaires, identified only by a code number, were distributed in the clinic or mailed to the participants' homes, along with a stamped, addressed envelope to be completed at their convenience.

The Experimental Intervention – A Psychosocial Education Model

The primary focus of the experimental intervention was to facilitate coping effectiveness of the PLWH with the supportive participation of the cohabiting partner. Each dyad attended four bi-weekly sessions that were two hours in duration and were conducted individually for each dyad. The four topics described below were selected based on the needs of persons with HIV found in the literature, on the fact that partners were to be included, and on the coping model of Lazarus and Folkman (1984).

In the first session, the dyad identified strengths and weaknesses in their *communication patterns*, and they received training to promote fundamental skills essential to successful exchange in stressful situations. A number of problems these dyads had to cope with were highly emotional issues fraught with conflict, and this content provided a particularly important foundation for the remaining three sessions. We used communication exercises that participants could practice at home, and we asked that they jointly select three stressors each of them felt would be most helpful to discuss in the second session on stress appraisal.

The second session provided training in stress assessment and appraisal, differentiating global, seemingly insurmountable stressors from those that were more specific and easily managed, and distinguishing those that were changeable from those that were unchangeable. We based much of the content for the second and third sessions on the work of Lazarus and Folkman (1984).

The third session centered on identifying coping strategies currently utilized by the dyad, coping-skills training to introduce new strategies, and applying coping strategies to the stressors identified in session two. We started with assessment of their existing strengths and suggested new strategies that included the use of positive refocusing and thought changing, problem-focused strategies, active coping, and emotion-focused coping. The goal of this session was to facilitate each dyad in the development of their stress management program.

The fourth session involved assessment of current and potential sources of social support and focused on social-support-building skills and the value of social support in facilitating coping efforts. Expansion of social support networks outside of the dyad was emphasized as an important strategy to lessen demands on the partner relationship. Because this was a psychoeducational intervention, PLWH and partner participants were each given training

materials and homework assignments throughout the intervention that were then developed into a standardized manual at the completion of the study.

To assure adherence to the intervention protocol by facilitators, sessions were audio taped and selected randomly for review by a clinician with expertise in stress management and illness. The intervention facilitator tailored the approach of the intervention sessions to the specific goals, expectations, and problems of each dyad, while adhering to the particular focus for each session as specified above. Replicability of the intervention was assured by the specification of the content for each session, by the use of a developing manual, and by the reviews of audio-taped sessions.

Comparison Control Group Intervention

This intervention consisted of four telephone calls to the PLWH on a bi-weekly basis that coincided with the timing of the experimental intervention sessions. No contact was made with partner participants in this group following recruitment into the study. The telephone calls were intended to provide emotional support and referrals, if needed, for medical and/or psychosocial problems. These calls were non-directive as well as supportive, and PLWH were asked about their current quality of life and any problems they were experiencing.

Measures

Emotional response was a primary outcome variable because it is frequently used to indicate adaptation. It was assessed using the PANAS-X, which has been widely accepted for a broad range of research, and it has demonstrated strong reliability with Cronbach alpha coefficients, ranging from .83 to .90 (Watson & Clark, 1996). The scale includes 60 items that represent both positive and negative emotions. There is a total of seven subscales: fear, sadness, hostility, guilt, joviality, self-assurance, and attentiveness. In addition, there is a total positive emotion sub-scale and a total negative subscale. We directed participants to respond based on their emotions during the previous two weeks.

Meaning of the illness—Conceptually, meaning captures the personal experience of illness in terms of how the illness event influences individuals' perceptions of the world and their place in that world. The meaning of illness was measured using the Constructed Meaning Scale that includes 11 items on a 4-point Likert scale (Fife, 1995). Partners completed a modified version of this scale that includes wording changes to reflect the partner's role as caretaker without altering the intent. The scale has been used in studies involving persons diagnosed with various types of cancer, and it has also been used in a comparison study evaluating differences in the meaning of illness attributed by persons diagnosed with cancer as compared with HIV (Fife, 2005). Cronbach's alpha coefficients of reliability have ranged from .73 to .90.

Personal control was assessed using the Mastery Scale, which was developed for stress research (Pearlin & Schooler, 1978). The Mastery Scale includes eight items that provide an indication of the extent to which individuals perceive having control over their lives. The validity and reliability of this widely used scale is well documented (Schieman & Turner, 1998; Turner & Wood, 1985). Cronbach's alpha based on these data was 0.63.

Coping—The effectiveness with which individuals cope with stress was evaluated using the Ways of Coping Checklist (Dunkel-Schetter, Feinstein, Taylor, & Falke, 1992; Lazarus & Folkman, 1984) that was modified to be pertinent to individuals coping with serious illness. As drug and alcohol abuse are common among PLWH, four items concerning substance use were added to this measure. The scale then included 57 items that indicated the frequency with which each coping strategy was used. We evaluated three subscales of this modified version,

including cognitive coping/positive refocusing, avoidance coping, and active coping. Cronbach's alpha coefficients for these subscales were 0.82, 0.64, and 0.85, respectively, based on these data. The alpha for the overall scale was 0.91.

The Coping Effectiveness Scale was developed specifically for this research. It reflects the use of adaptive versus maladaptive coping behaviors through the assessment of dyadic and individual responses to current circumstances affected by the illness. For example: "My significant other and I work together to help each other reach important goals," and "I feel that I have a number of personal strengths that help me get through difficult situations." A factor analysis of this 14-item scale revealed two primary dimensions: communication and support within the dyadic relationship and individual emotional and cognitive responses to current life circumstances. Loadings on these factors were all $\geq .419$, with more than half of the items loading at $\geq .616$. They explained 68% of the variance. Cronbach's alpha equaled 0.67.

Social support—We assessed the degree of social support the respondent received from family and friends using a modified version of the Inventory of Socially Supportive Behavior (Barrera, Sandler, & Ramsey, 1981). Respondents completed 16 items on a 5-point Likert scale to indicate how often they received social support in the previous four weeks. In a test-retest reliability study conducted by Barrera, Sandler, & Ramsey (1981), consecutive test administrations of the Inventory of Socially Supportive Behavior resulted in a test-retest reliability of 0.88 over a two-day retest period, with Cronbach's alphas ranging from 0.92 to 0.99. The internal reliability calculated from the data for this study had an alpha of 0.96.

Symptomatology—The severity and number of HIV-related symptoms experienced by patients were assessed with the HIV Symptom Checklist that was developed by the authors of this study. It included a total of 30 items, with the respondent indicating both how frequently the symptoms were experienced and the extent to which they interfered with everyday life on a 4-point scale, ranging from "not at all" to "all of the time." The reliability coefficient alpha was 0.86.

Data Analyses

The primary question addressed by these data analyses was whether a structured psychoeducational model directed toward the individual with HIV along with the supportive participation of a cohabiting partner is more effective in promoting adaptive coping than a general support model that is directed toward the PLWH alone. Repeated measures analysis of variance (RM ANOVA) was used to assess the effect of the intervention with time designated as the repeated measure and treatment as the grouping factor. The interaction between time and treatment indicated if the change over time was significantly different for the two groups at $p \leq .10$, which was selected due to the sample size. In other words, was the outcome different at each time point for each of the two groups dependent upon the type of intervention they received?

We analyzed the data for differences in changes between the two groups from T1 to T2 to obtain the immediate effects of the intervention, and we also analyzed the data for changes from T1 to T3 for sustained effects. Findings are reported in Table 2. Retention of participants was challenging, as discussed above, and we concluded the study with 49 dyads that finished the intervention with complete data through T2 and 41 dyads with complete data through T3. For five of the latter dyads where T3 data were missing, we imputed data from T4 for T3 when they were available; that is, we utilized the values for each variable in the analysis at T4 (or 6 months post intervention) for the values at T3 (3 months post intervention). This was a highly conservative approach to handling the missing data as it would be expected that the effect of the intervention would decrease over time. We substantiated this approach by comparing T3

and T4 data using a t-test for the difference of means and Pearson correlation coefficients; no significant differences were found between the two time points and the correlations were high, ranging from 0.49 to 0.77 ($p < 0.001$). In addition, we used ANCOVA, with change scores from the partner data serving as covariates, to assess whether change in patient outcomes could be explained by changes in the partners. This approach was based on the premise that partners served as a dimension of the intervention, and a change in partner behavior or emotional response would be likely to influence patient behavior/response.

Results

The findings we present are based on values from the patient data. Hypothesis 1, that individuals who participated in the experimental intervention would develop more adaptive and effective coping behaviors than participants in the comparison control group, was the primary focus of this study. It was evaluated by interaction terms that indicated whether the change over time in coping behaviors was significantly different at $p \leq .10$ for the experimental and comparison intervention groups. Changes from T1 to T2 and from T1 to T3 were examined; however, T4 data were not evaluated for sustained effects because the sample size at that data point was inadequate.

Changes from T1 to T2 indicated an immediate effect of the intervention, while changes from T1 to T3 indicated a sustained effect. Interaction terms indicated any differences in coping behaviors between the two treatment groups over time, with the results being reported in Table 2. The most immediate effect of the experimental intervention was significantly positive for all variables pertaining to coping behavior with the exception of avoidance. In the case of coping effectiveness and active coping, the difference between the intervention and control groups was at least partially explained by a positive change in the partner's behavior (data not shown). Importantly, in both instances the effect of a partner's behavior was supported. The changes that remained significant from T1 to T3 were the number of coping strategies used and the use of positive refocusing. This time period represented a sustained effect up to 3 months following completion of the intervention. Notably, no significant interactions or main effects were found for symptomatology, substantiating that intervention effects on coping and emotional response cannot be attributed to differences in illness severity between the two groups.

Hypothesis 2, that participants in the experimental intervention group will experience less emotional distress and greater positive emotions than those in the comparison control group was supported. The most immediate impact, T1 to T2, was significant at $p \leq .05$ for hostility and guilt and these effects were sustained across time. We also found significant changes from T1 to T3 in overall negative emotional response at $p = .007$ and for joviality $p = .02$. In addition, we found an effect on overall positive affect at $p = .06$.

Hypothesis 3 stating that PLWH in the experimental group will experience greater social support than those in the comparison control group was not supported. However, PLWH in the experimental group did experience a positive change in the meaning they constructed regarding their illnesses that increased across both time points, significant at $p < .01$. This finding pertained to how PLWH perceived the illness affected their lives in terms of both their personal identity and roles they assumed as well as possibilities the future held for them. The significance of the meaning illness holds for adaptation in the HIV population is supported by findings in the literature (Farber, Mirsalimi, Williams, & McDaniel, 2003; Fife, 2005; Moskowitz & Wrubel, 2005).

In addition to the analysis of variance, we utilized multiple regression to determine the effect any independent variables may have had on the changes that occurred in specific coping

behaviors (results not shown). The dependent variables were the changes from T1 to T2 that took place for the coping variables of active coping, positive refocusing, and coping effectiveness.

The primary factor explaining the variance in the change of each coping variable was group assignment, with the experimental intervention significantly and consistently affecting each of these dependent variables. Initial exploratory regressions controlled for the independent variables of emotional response, cognitive response as measured by constructed meaning, social support, personal control, and symptomatology. The intervention alone was associated with positive changes in active coping and positive refocusing at $p \leq .02$, and it resulted in R^2 of .14 and .12 respectively. In addition to the intervention, personal control was significant at $p < .01$ for the positive changes that occurred in coping effectiveness. Together these independent variables resulted in an R^2 of .30, indicating that promoting the individual's sense of personal control would be an important dimension of an intervention designed to promote adaptive coping.

Discussion

The strongest effects of this intervention were changes in coping behaviors, which was the fundamental aim of this psychoeducational model. This is indicated both directly and indirectly by the findings, as presented in the discussion of the results above and in Table 2 as they pertain to the hypotheses. However, the strongest evidence supporting the effectiveness of the intervention in promoting adaptive coping was the decrease in negative emotions and the increase in positive feelings as well as the construction of positive meaning related to the illness.

An important tool in this experimental intervention was the use of a developing intervention manual, with each participant being given an individual copy as a personal resource. Materials were added to these manuals at each session that included supplementary written information, references for additional reading, interactive as well as individual exercises, vignettes, and worksheets – some of which were used as assignments between sessions. These materials also provided participants with an on-going resource when the sessions were completed.

Dropouts and missing data were a problem in this study. Twenty-eight dyads from the experimental group completed the intervention and the T2 questionnaire, while 26 dyads from the comparison control group completed the T2 questionnaire. Retention fell from 64% to 49% at the 3 month post-treatment data point, reflecting the difficulty associated with maintaining participation during follow-up periods when contact with the research team was less intensive. Four primary factors appeared to contribute to the dropout rate: (1) a loss to follow-up with subsequent failure to complete the intervention and/or the questionnaire despite the fact that a clinical social worker went into the community to locate these individuals, (2) simultaneous dropout from a clinical trial and this study, (3) a split in the dyadic relationship, and (4) serious symptomatology and advanced disease that included two PLWH deaths during the time they were participating in the study. A further challenge to data collection with dyads across time occurred when either the PLWH or the partner did not complete a questionnaire, as we required data from both members of the dyad for analysis. The retention rate over the course of the study was 62% through the first two data points and the completion of the intervention when contact was intensive; this fits within the range of 45% to 65% commonly found in longitudinal intervention research with the HIV population (Leonard et al., 2003).

We suggest progressively increasing the payment for completion of questionnaires for long-term follow-up as a potential approach to the drop-out problem. Including follow-up brief intervention sessions in the case of the experimental group and supportive phone calls for the treatment control group 2 months and 4 months subsequent to the intensive intervention would

probably also facilitate securing data for later points in the research trajectory as well as promote carryover effects from the intervention.

In conclusion, the results of this research provide supporting evidence that the experimental intervention involving partners was more effective in facilitating adaptive coping for PLWH than a comparison treatment that involved supportive telephone calls to the PLWH alone. Results also support the fundamental premise of interdependence, and therefore, the rationale for including a partner in such interventions. This design would be important to systematically evaluate further as a means of increasing the effectiveness of interventions for the problems this troubled population experiences, for example, adherence to drug therapy, depression, and anxiety. Further investigations using a dyadic model are also needed to determine the level of intervention necessary to provide the optimal cost-benefit ratio in terms of both quality of life and financial considerations.

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Table 1
Patient Demographic Characteristics

	Total (%) (N = 80)	Intervention (%) (n = 43)	Comparison (%) (n = 37)
Gender			
Female	30.0	20.9	40.5
Male	70.0	79.1	59.5
Race			
African American	22.5	23.3	32.6
Bi-racial	1.3	0.0	2.7
Hispanic	1.3	2.3	0.0
White	66.3	62.8	70.3
Not reported	8.8	11.6	5.4
Age			
20–29 years	23.8	25.6	21.6
30–39 years	50.0	53.5	46.0
40–49 years	21.2	13.9	29.7
50–59 years	3.8	4.7	2.7
< 59 years	1.2	2.3	0.0
Education			
Thru 8 th grade	3.8	4.7	2.7
High school diploma	35.0	27.9	43.2
Some college	38.8	37.2	40.5
Vocational/technical school	7.5	7.0	8.1
Four-year college degree	6.3	11.6	0.0
Graduate degree	2.5	2.3	2.7
Not reported	6.3	9.3	2.7
Employment			
Full-time	25.0	18.6	32.4
Part-time	13.8	14.0	13.5
Unemployed	21.3	27.9	13.5
Disabled	33.8	30.2	37.8
Not reported	6.3	9.3	2.7
Family Income			
\$9,999 or less	43.8	37.2	51.4
\$10,000–\$19,999	22.5	23.3	21.6
\$20,000–\$29,999	8.8	9.3	8.1
\$30,000–\$39,999	7.5	11.6	2.7
More than \$40,000	10.0	11.6	8.1
Not reported	7.5	7.0	8.1
Sexual Orientation			
Bisexual	3.8	2.3	5.4
Gay/Lesbian	41.3	48.8	32.4
Heterosexual	48.8	39.5	59.5
Not reported	6.3	9.3	2.7

Total (%) (N = 80)	Intervention (%) (n = 43)	Comparison (%) (n = 37)

Table 2
RM ANOVA Results – Interaction Effects of Treatment Group and Time

	T1–T2		T1–T3	
	$n_I = 18-23$ $n_C = 20-26$		$n_I = 16-20$ $n_C = 18-21$	
	F	p	F	p
PANAS Subscale Scores				
Negative affect	2.9	0.094 [†]	8.2	0.007 ^{**}
Fear	0.2	0.672	1.8	0.193
Hostility	9.1	0.004 ^{**}	7.5	0.009 ^{**}
Guilt	4.8	0.034 [*]	9.1	0.005 ^{**}
Sadness	0.2	0.674	1.7	0.203
Positive affect	0.6	0.449	3.7	0.062 [†]
Joviality	1.9	0.180	5.9	0.020 [*]
Self-Assurance	0.4	0.548	1.3	0.260
Attentiveness	0.1	0.940	2.9	0.097 [†]
Constructed Meaning	6.8	0.013 [*]	9.3	0.004 ^{**}
Socially Supportive Behavior	0.1	0.961	0.1	0.891
Coping Effectiveness	3.9	0.055 [†]	0.8	0.381
Number of coping strategies	9.2	0.004 ^{**}	3.9	0.055 [†]
Total coping strategies	4.1	0.050 [*]	0.5	0.478
Avoidance coping	0.3	0.571	0.1	0.882
Active coping	6.1	0.019 [*]	0.1	0.802
Positive refocusing	3.2	0.084 [†]	3.5	0.071 [†]

Note. All scales were recoded so that higher scores indicate more positive or adaptive attitudes

n_I = Number of intervention subjects and n_C = number of control subjects

[†]
 $p < .10$

^{*}
 $p < .05$

^{**}
 $p < .01$