

# Realistic Acceptance as a Predictor of Decreased Survival Time in Gay Men With AIDS

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Although theoretical accounts of adaptation in the terminally ill suggest that realistic acceptance of one's disease is adaptive, some investigations suggest that such responses are associated with increased mortality. This prospective psychobiological investigation involved 74 gay men with AIDS. Six scores reflecting responses to disease were derived from a detailed psychosocial questionnaire. One pattern of response, Realistic Acceptance, was a significant predictor of decreased survival time. Median estimated survival time for participants with low Realistic Acceptance scores was 9 months greater than for participants with high Realistic Acceptance scores. This effect was not accounted for by time since diagnosis with AIDS, self-reported health status, number of CD4 T lymphocyte cells, psychological distress, age, education, initial diagnosing condition, use of AZT, smoking, or alcohol and drug use.

*Key words:* AIDS, survival, psychosocial factors, coping, acceptance

The question of whether psychosocial factors may influence disease progression and mortality has generated both contradictory findings and considerable debate. A number of studies have provided evidence of an association between various psychosocial variables and morbidity or mortality (e.g., Berkman & Syme, 1979; Peterson, Seligman, & Vaillant, 1988; Spiegel, Bloom, Kraemer, & Gottheil, 1989). On the other hand, a number of studies have found no such relationships (e.g., Cassileth, Lusk, Miller, Brown, & Miller, 1985; Jamison, Burish, & Wallston, 1987; Zonderman, Costa, & McCrae, 1989). As Greer (1991) pointed out, this issue has provoked considerable emotional response among researchers and in the community, with unscientific adherents to both viewpoints. Part of the problem lies in the fact that significant methodological weakness exists in this area of research (Fox, 1981). In particular, prospective studies that control for potential confounding biological and psychological variables are rare.

Among individuals infected with human immunodeficiency virus (HIV), attempts to determine whether certain psychological states, traits, or life events are associated with disease progression have also generated contradictory results. Although a number of investigations have found no evidence of such an association (e.g., Coates, McKusick, Kuno, & Stites, 1989; Kessler et al., 1991; Perry, Fishman, Jacobsberg, & Frances, 1992), other studies have found relationships between immunological parameters relevant to HIV progression and psychosocial factors such as depression and active coping (e.g., Antoni et al., 1991; Goodkin et al., 1992; Kemeny et al., 1994). Because of the variety of psychological and biological processes that have been studied and the mixed nature of the results, the relationship between psychological factors and immune markers of HIV progression remains possible but not established (see Kemeny, 1991, 1994, for reviews). In addition to the theoretical importance of this issue, additional light on this controversy may contribute to the development of helpful interventions. This is particularly important given that at this time medical science has no cure to offer individuals living with AIDS.

Among the constructs that have received attention in previous literature as potential predictors of mortality in individuals with life-threatening illness is *realistic acceptance* of one's deteriorating condition and eventual death. Views regarding the adaptiveness of such acceptance diverge widely. In her theory of adjustment to terminal illness, Kübler-Ross (1969) characterized acceptance as the final stage, immediately preceding death. More recently, Kübler-Ross (1987) has specifically extended these ideas to people with AIDS. She suggested that acceptance is characterized by a tired, peaceful, though not necessarily pleasant, psychological state and by resignation to the prospect of death. She argued that this response is psychologically adaptive—allowing people to come to terms with the inevitable, to make final preparations for their departure, and to use the time to say goodbye to family and friends. This perspective is consistent with other stage models of coping with loss, which generally assume that individuals achieve a final stage of adaptation (e.g., Bowlby, 1980; Klingler, 1975, 1977). Failure to achieve this

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## Behavioral Measures

At each MACS visit, participants are given detailed interviews including extensive sections on smoking, alcohol use, and recreational drug use within the past 6 months. Data from these sections of the interview were obtained for participants' most recent MACS study site visit before participation in the Living With AIDS Study, provided that this visit was within 12 months before the time that participants completed the Living With AIDS Study questionnaire. Data within this time frame were not available for 8 participants.

### Living With AIDS Study Questionnaire Measures

At entry into the Living With AIDS Study, participants completed a detailed psychosocial questionnaire, including the following measures.

**Self-reported health status.** Three measures of self-reported health status were used. (a) The overall health rating consisted of a 7-point rating of general physical health. (b) The AIDS-related symptom list was a detailed list of 29 physical symptoms commonly associated with AIDS (e.g., fevers, lack of energy, difficulty breathing, and diarrhea), the severity of which participants were asked to rate on a 5-point scale. A composite score for symptoms was created by weighting each symptom according to its rating and summing these ratings. (c) Personal functioning consisted of three items regarding degree of impairment in activities of daily living, mobility, and physical activity that participants were asked to rate on a 5-point scale. These items were based on an assessment model for disease-related functional impairment developed by Bush (1983). Ratings were summed to create a score. On the basis of confirmatory factor analysis, a composite index of self-reported health status was created by summing standard scores on these three measures, with higher scores indicating better self-reported health status and daily functioning and fewer AIDS-related symptoms.

**Psychological adjustment (distress).** Measures of psychological adjustment included five standard measures of psychological distress that have shown good reliability and validity and have been previously used in research with medical populations and one measure developed for this investigation. (a) The Affects Balance Scale (Derogatis, 1975) is a 40-item scale of positive and negative emotions. Participants were asked to rate the degree to which they had experienced 20 positive and 20 negative emotions during the past week on a 5-point scale. In addition to generating total scores of negative affects, positive affects, and the balance (i.e., ratio) of positive to negative affects, the Affects Balance Scale contains four positive subscales—Affection, Contentment, Joy, and Vigor—and four negative subscales—Anger, Anxiety, Guilt, and Depression. (b) The Index of Well-Being (Campbell, Converse, & Rodgers, 1976) is a 10-item scale consisting of ratings anchored by two opposing adjectives describing present qualities of a participant's life (e.g., *boring—interesting* or *useless—worthwhile*). (c) The Index of Well-Being also contains a general rating of present satisfaction with one's life as a whole, which was used as a separate variable. (d) The Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974) consists of 20 true-false items measuring negative expectations about the future. (e) The Rosenberg Self-Esteem Scale (Rosenberg, 1965) consists of 10 true-false items assessing participants' attitudes toward themselves. (f) Satisfaction with life domains, a measure specifically created for this sample, consists of 7-point ratings of current satisfaction with employment, finances, physical health, medical care, and relationships with others. On the basis of confirmatory factor analysis, a composite index of global adjustment was created by summing standard scores for these six measures, with higher scores reflecting better adjustment (i.e., less psychological distress).

**Responses to HIV.** The questionnaire included the Responses to HIV Scale, a 47-item adaptation of Lazarus's Ways of Coping Scale (Folkman & Lazarus, 1980; Folkman, Lazarus, Gruen, & DeLongis, 1986), modified for persons living with HIV and AIDS. Several items considered irrelevant to HIV and AIDS were deleted from the original scale, several items were reworded to be more AIDS specific, and several items were added on the basis of the responses of pilot subjects. Participants were asked to rate on a 4-point scale the extent to which over the past month they had used 47 different

methods of responding "to deal with the effects of AIDS on your health and the life-threatening nature of this illness."

The Living With AIDS Study was conducted in conjunction with a larger psychosocial study ( $N = 798$ ) of HIV-seropositive and HIV-seronegative gay and bisexual men not diagnosed with AIDS recruited from the UCLA MACS cohort. The larger psychosocial study has been described in detail elsewhere (e.g., Aspinwall, Kemeny, Taylor, Schneider, & Dudley, 1991; Taylor et al., 1992). The same Responses to HIV Scale had been administered to this study sample. All men in the combined sample who knew that they were infected with HIV, including men diagnosed with AIDS, were seen as responding to different levels of the same stressor. Thus, responses to HIV data for all of these participants were analyzed together. This analysis included 327 HIV-infected men, including the 74 men diagnosed with AIDS, who exhibited a wide range of HIV-related symptomatology and immunological impairment.

We analyzed the Responses to HIV data by means of principal-components factor analysis with oblique rotation. This analysis yielded six factors with eigenvalues greater than 1, which demonstrated considerable convergence with factors found in studies of coping among other populations with life-threatening illness (e.g., Dunkel-Schetter, Feinstein, Taylor, & Falke, 1992; Felton, Revenson, & Hinrichson, 1984). No item loaded on more than one factor; the cutoff was .40. For each factor, items with factor loadings above this cutoff and corresponding Cronbach's alpha coefficients of interitem reliability are listed in Table 1. The six factors were (a) Community Involvement and Spiritual Growth, (b) Active Cognitive Coping, (c) Avoidance and Self-Blame, (d) Seeking Social Support, (e) Realistic Acceptance, and (f) Seeking Information. Scores for each participant were constructed for each of these six response scales by calculating the mean score for items with factor loadings greater than or equal to .40 on that factor (with reversed scoring for items with negative factor loadings less than or equal to  $-.40$ ).

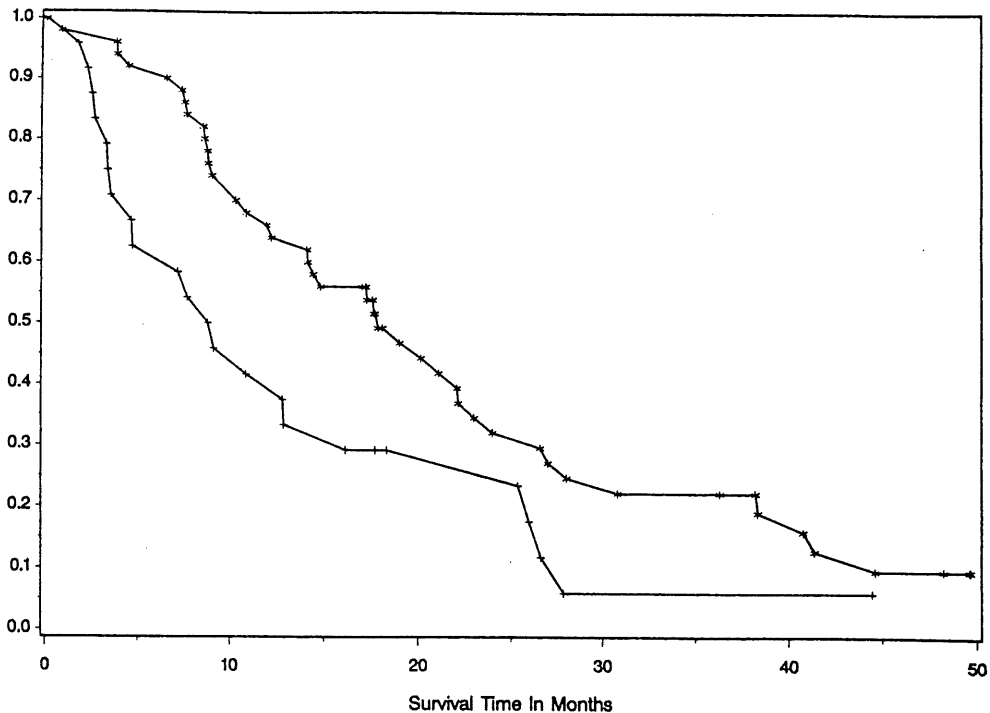
In keeping with our expectations, one of these factors appeared to correspond to a response pattern characterized as acceptance in previous literature (Greer, 1991; Greer et al., 1979, 1990; Pettingale et al., 1985). We expected such a factor to emerge from our revision of the Ways of Coping Scale, because in the context of a life-threatening illness, acceptance may be viewed as a coping strategy—particularly given our instructions, which had been designed to orient participants to the threat of debilitation and mortality related to AIDS.

**Optimism.** The Living With AIDS Study questionnaire also included a measure of dispositional optimism: the Life Orientation Test (Scheier & Carver, 1985), consisting of eight 5-point ratings reflecting general outlook on life, and four filler items, which are not scored.

### Statistical Analysis

The central concern of the present investigation was the relationship between Realistic Acceptance and survival time. Initially, the relationships of Realistic Acceptance to other self-reported variables and survival time were investigated by means of correlation analysis. To further assess the association of Realistic Acceptance with survival time, survival analysis was used. Survival analysis is an established method for assessing differences between groups in terms of variables that have incompletely penetrated the groups being compared (Lee, 1980), most commonly used in epidemiological research to assess differences between groups in mortality and specific types of morbidity. The survival analysis model retains observations for individuals for whom the event in question has not occurred (in this case, surviving participants) and takes the effects of such observations into account mathematically. The product-limit (Kaplan-Meier) method of survival analysis used in this investigation is a nonparametric method of estimating survival probability functions on the basis of individual survival times (see Lee, 1980).

Survival analysis is limited by its inability to treat the grouping factor as a continuous variable or to account for potentially relevant covariate or confounding variables. Cox proportional hazards regression analysis is a nonparametric regression method appropriate for the analysis of survival data, on the basis of the observed survival distribution (Lee, 1980). This method is used to assess the contribution of several risk factors to a particular



\* Low "Realistic Acceptance" Group  $n=50$   
 + High "Realistic Acceptance" Group  $n=24$

Figure 1. Product-limit estimator survival probability curves for high and low Realistic Acceptance groups. Vertical axis represents value of survival estimator function. Curves are significantly different from one another; Wilcoxon  $\chi^2_{74, .975} = 7.43, p < .01$ . Median estimated survival time: low acceptance group = 18 months; high acceptance group = 9 months.

after diagnosis were highly correlated,  $r = .81, p < .0001$ ). Realistic Acceptance was significantly and negatively correlated with survival time, both from the time of questionnaire administration ( $r = -.28, p < .05$ ) and from the time of initial diagnosis ( $r = -.31, p < .01$ ). Survival time was not significantly correlated with any of the other Responses to HIV scores, with the global adjustment index or any of its component scales, or with dispositional optimism.

To conduct survival analyses that were based on Realistic Acceptance, participants were divided into high and low acceptance groups, based on a median split. Realistic Acceptance for 18 participants fell at the median of the distribution. The goal of these initial survival analyses was to compare participants with relatively high scores on Realistic Acceptance to participants with relatively low scores. Items constituting the Realistic Acceptance score had been rated by participants on a 4-point scale, ranging from 0 to 3. The median corresponded to a mean score of 1.75 on these items. Because the median score fell within the lower half of the rating scale—that is, was relatively low in absolute terms, participants with Realistic Acceptance scores at the median were included in the low acceptance group ( $n = 50$ ). Participants included in the high acceptance group ( $n = 24$ ) had a minimum mean score of 2 on the Realistic Acceptance items—the lower limit of the upper half of the rating scale.

Product-limit estimator functions were calculated for high and low acceptance groups predicting survival time from the time of questionnaire administration. Survival probability functions for the two groups are shown in Figure 1 and were significantly different

from one another (Wilcoxon  $\chi^2_{75, .975} = 7.43, p < .01$ ). The median estimated survival time for the high acceptance group was 9 months—9 months less than the median estimated survival time for the low acceptance group of 18 months.<sup>1</sup>

#### Potential Explanatory Variables

To examine the effects of Realistic Acceptance as a continuous variable and the contributions of other potentially relevant variables, we conducted a series of Cox proportional hazards regression analyses.

<sup>1</sup> Additional survival analyses were conducted to examine whether specific methodological characteristics of this analysis accounted for the relationships observed. To examine the contribution of the relatively large group of participants with Realistic Acceptance scores falling at the median ( $n = 18$ ), the same survival analysis was conducted excluding these participants. Second, a separate analysis was conducted using survival time after initial diagnosis with AIDS, rather than survival time from administration of the psychosocial questionnaire, as the dependent variable. Third, an analysis was conducted using data for deceased participants only ( $n = 61$ ). In all of these analyses, survival curves for the high and low acceptance groups were significantly different from one another ( $p < .05$ ), and all yielded a similar difference in median estimated survival time between the two groups as had been observed in the original analysis.

in survival time ( $\beta = 1.821$ , partial  $R = .13$ ,  $p < .05$ ), accounting for the effects of all other variables listed above.

*Potential behavioral mediators.* The third Cox proportional hazards regression analysis focused on the possibility that the relationship between Realistic Acceptance and survival was mediated by specific behaviors—including smoking, alcohol use, and recreational drug use. In this analysis, nonsmokers were compared with smokers. Participants who reported smoking less than one cigarette per day were counted as nonsmokers. Participants who reported abstaining from alcohol within the previous 6 months were compared with participants who reported using alcohol. Use of four recreational drugs was included in the model, with participants who reported using that drug within the previous 6 months compared with participants who reported not having used that drug. Participants reported using no other recreational drug with sufficient frequency to justify its inclusion in this analysis, and no participants reported using drugs by injection. Realistic Acceptance was not significantly related to any of these behavioral variables.

The following variables were included in the model: (a) months since diagnosis at the time participants completed the questionnaire, (b) smoking, (c) alcohol use, (d) use of marijuana or hashish, (e) use of nitrate inhalants or "poppers," (f) use of amphetamines, (g) use of cocaine, and (h) Realistic Acceptance. Of the variables included in this model, only Realistic Acceptance predicted significant variance in survival time ( $\beta = 1.864$ , partial  $R = .14$ ,  $p < .05$ ), accounting for the effects of all other variables indicated above.

## Discussion

In this investigation, we were able to characterize a pattern of response to disease among gay men with AIDS that appeared to reflect realistic acceptance of their risk for future debilitation and mortality. This pattern was associated with decreased survival time in this sample, even when the effects of other variables known to be important contributors to survival time were accounted for in the statistical models. Our analyses suggest that this relationship is not accounted for by self-reported health status, by psychological distress or depression, by coping patterns other than Realistic Acceptance, by dispositional optimism, or by several health-damaging behaviors.

Realistic Acceptance emerged from an assessment of coping patterns among gay men infected with HIV. In the context of a life-threatening illness such as AIDS, realistic acceptance may be one way to cope with the potential for increasing debilitation and death. If one perceives that negative outcomes cannot be changed, accepting and preparing for those outcomes may appear to be the best alternative (e.g., see, Rothbaum, Weisz, & Snyder, 1982). This does not mean that realistic acceptance reflects a general abandonment of other coping efforts; realistic acceptance was significantly and positively correlated with other active coping patterns. It has been suggested that coping patterns may be the mediator between various psychological processes and health outcomes (e.g., Scheier & Carver, 1985). In this investigation, none of the coping patterns from the Responses to HIV Scale other than Realistic Acceptance (see Table 1) were significantly related to survival time. Furthermore, Realistic Acceptance was unrelated to several measures of various psychological states and traits. Thus, these results suggest that it is important to understand more clearly the particular response to disease captured by Realistic Acceptance.

As it emerges from these data, Realistic Acceptance appears to represent a fundamentally cognitive phenomenon and to be a function of negative disease-specific expectancies in the context of AIDS. Such outcomes are likely to include the probability of increasing debilitation and eventual death (e.g., "Prepare myself for the worst"). Realistic Acceptance appears to overlap considerably with the response pattern labeled *stoic acceptance* in previous studies of cancer patients (Greer, 1991; Greer et al., 1979, 1990; Pettingale et al., 1985). However, it is not completely clear that Realistic Acceptance is the most accurate possible characterization for this pattern of response. Our future work and that of others will add to and refine our understanding of this construct and its underlying mechanisms.

Several preliminary questions raised by these data appear to merit further study. First, much of our previous work has focused on positive illusions, especially unrealistic optimism (e.g., Taylor & Brown, 1988; Taylor et al., 1992). The relationship of realistic acceptance to positive illusions in individuals living with HIV merits further investigation, in particular to clarify whether it is optimistic perspectives that are protective or more "realistic" ones that are harmful. Second, it is important to clarify the degree to which the relevant dimension of realistic acceptance is a ruminative focus on, and even rehearsal of, negative outcomes related to AIDS, rather than simply the negative nature of the expectations themselves.

There are a number of potential mechanisms through which realistic acceptance may be associated with decreased survival time. First, men who report more accepting responses may differ from their less accepting counterparts in terms of behaviors relevant to health outcomes that potentially contribute to diminished survival time. Several aspects of these data are inconsistent with this possibility (e.g., the findings for smoking and alcohol and drug use). A second, related possibility is that realistic acceptance may contribute to diminished monitoring of relevant symptoms, failure to seek prompt and thorough medical attention, and decreased compliance with medical treatment. Again, aspects of these data are inconsistent with this explanation (e.g., men who were taking AZT had significantly higher Realistic Acceptance scores than men not taking AZT). However, it is possible that health-relevant behaviors not assessed may mediate the observed relationship between Realistic Acceptance and survival time. Third, it is possible that realistic acceptance is the product of a more aggressive disease state. Although Realistic Acceptance was not correlated with any of three measures of self-reported health status used in this investigation, it is possible that changes in health status that are too subtle to be captured by these measures account for both Realistic Acceptance and for increased mortality. Finally, realistic acceptance may have an impact on immune or viral processes affecting health status in individuals diagnosed with AIDS. An important area for future research will be to determine whether the relationship between realistic acceptance and survival time is immunologically mediated.

The most important limitation of the present investigation is its relatively small sample size, particularly for an investigation of predictors of survival time. It will be very important to replicate these results in other samples and to investigate the effects of realistic acceptance at other phases of HIV-related disease. Another important point in interpreting these data is that this relationship between Realistic Acceptance and survival time was found in a sample consisting largely of White, affluent, and well-educated gay men, most of whom had good access to high-quality medical care and

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