INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

U·MI

University Microfilms International
A Bell & Howell Information Company
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
313-761-4700  800-521-0600

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
The occurrence of suicidal ideation over the course of HIV infection in gay men: A cross-sectional study

Hendricks, Michael Lawrence, Ph.D.

The American University, 1993
THE OCCURRENCE OF SUICIDAL IDEATION OVER THE COURSE OF HIV INFECTION IN GAY MEN: A CROSS-SECTIONAL STUDY

by

Michael Lawrence Hendricks

submitted to the

Faculty of the College of Arts and Sciences

of The American University

in Partial Fulfillment of

The Requirements for the Degree

of

Doctor of Philosophy

in

Clinical Psychology

Signatures of Committee:

Chair: 

Dean of the College

Date

1993

The American University

Washington, D.C. 20016
Dedicated to my mentor and role model, Patricia Julius, Ph.D., whose patient challenge to express my creative abilities sent me off into directions I had never even imagined.
THE OCCURRENCE OF SUICIDAL IDEATION OVER THE COURSE OF HIV INFECTION IN GAY MEN: A CROSS-SECTIONAL STUDY

BY

Michael Lawrence Hendricks

ABSTRACT

Previous research has demonstrated an elevation in emotional distress and suicidality in persons infected with HIV. However, no study had previously reported having systematically analyzed the modulation of suicidal ideation or the qualitative changes associated with ideation which likely occur with the progression of HIV illness. This study utilized a controlled, cross-sectional model and self-report questionnaire instruments to assess the level of suicidal ideation and factors related to ideation, as well as depression, hopelessness, social support, and disease-related health factors in gay men at different points of HIV illness progression.

As expected, the seropositive group evidenced significantly greater levels of suicidal ideation, depression, and hopelessness than the seronegative controls. Among the disease-related factors, only time since diagnosis of seropositivity predicted level of suicidal ideation: ideation increased linearly with the passage of time, suggesting that suicidality is mediated by psychological processes. A discriminant analysis revealed that time since diagnosis correctly distinguished ideators from nonideators only 61.2% of the time. This function lacks the accuracy necessary to be useful as a diagnostic tool, but suggests the importance of assessing this factor.
Seropositive ideators who had survived HIV for more than five years, compared to those who had been diagnosed within two years, reported a higher incidence of persons in their environment who would lend at least emotional support for committing suicide, and among reasons for not committing suicide rated fear of social disapproval and moral objections as less important. These two groups were not significantly different on other measures, suggesting that the long-term survivors had sought out support for their suicidal intentions and disposed of reasons which might prevent them from enacting them.

Finally, significant interactions were found between time since diagnosis and presence or absence of suicidal ideation on the factors of support network size, helpers for suicide, and fear of suicide and moral objections as suicide deterrents. These results suggest that long-term HIV survivors develop support networks that are more similar in size but different in composition than those newly diagnosed, and that they tend to dispose of reasons that would prevent them from acting on suicidal thoughts.
ACKNOWLEDGEMENTS

I would like to first thank Lanny Berman, Ph.D., who agreed to chair my dissertation committee at a somewhat chaotic point in time for him. I also wish to thank my other committee members--Tony Ahrens, Ph.D., Pim Brouwers, Ph.D., and David Jobes, Ph.D.--for their support and guidance. I would also like to thank Robert Yarchoan, M.D., of the National Cancer Institute's Medicine Branch and Clifford Lane, M.D., of the National Institute for Allergy and Infectious Diseases, who made this study possible by offering me access to their patient populations. And I am truly indebted to Laura Govoni, R.N., Laura Shay, R.N., Jill Lietzau, R.N., Kathy Wyvill, R.N., and Sergio Bauza, R.N., who helped tremendously in the recruitment of patients at the National Institutes of Health. Finally, I am grateful to Meg Willett, whose editing assistance proved invaluable.

This study was partially supported by grant number NCI-CM-17529 from the National Cancer Institute, National Institutes of Health, to the Medical Illness Counseling Center.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT</td>
<td>ii</td>
</tr>
<tr>
<td>ACKNOWLEDGEMENTS</td>
<td>iv</td>
</tr>
<tr>
<td>LIST OF TABLES</td>
<td>vi</td>
</tr>
<tr>
<td>LIST OF ILLUSTRATIONS</td>
<td>vii</td>
</tr>
<tr>
<td>CHAPTER</td>
<td></td>
</tr>
<tr>
<td>1. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>2. METHOD</td>
<td>19</td>
</tr>
<tr>
<td>3. RESULTS</td>
<td>43</td>
</tr>
<tr>
<td>4. DISCUSSION</td>
<td>66</td>
</tr>
<tr>
<td>APPENDIX 1</td>
<td>83</td>
</tr>
<tr>
<td>APPENDIX 2</td>
<td>84</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>85</td>
</tr>
</tbody>
</table>
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Comparison of HIV-positive Participants and HIV-negative controls: Demographics, Risk-taking Behaviors, and Prior Suicidality</td>
<td>23</td>
</tr>
<tr>
<td>2.</td>
<td>Ranges of Significant Intertest Correlations</td>
<td>37</td>
</tr>
<tr>
<td>3.</td>
<td>Comparison of HIV-positive Participants and HIV-negative Controls: Suicidal Ideation and Related Measures</td>
<td>44</td>
</tr>
<tr>
<td>4.</td>
<td>Comparison of Ideating and Nonideating HIV-positive Participants: Measures with Demonstrated Relationship to Suicidality</td>
<td>46</td>
</tr>
<tr>
<td>5.</td>
<td>Comparison of Nonideators and Ideators-2 Among the HIV-positive Participants: Measures with Demonstrated Relationship to Suicidality</td>
<td>47</td>
</tr>
<tr>
<td>6.</td>
<td>Regression of HIV-related Factors onto Level of Suicidal Ideation</td>
<td>49</td>
</tr>
<tr>
<td>7.</td>
<td>Predicting Presence of Suicidality from Time since Diagnosis of HIV Seropositivity: Diagnostic Utility of a Discriminant Analysis Function</td>
<td>52</td>
</tr>
<tr>
<td>8.</td>
<td>Presence of Suicidal Ideation: Comparison of Early-stage and Late-stage Seropositives</td>
<td>54</td>
</tr>
<tr>
<td>9.</td>
<td>Comparison of Early-stage and Late-stage Ideators</td>
<td>55</td>
</tr>
<tr>
<td>10.</td>
<td>RFL Scores: Comparison of Ideators and Nonideators</td>
<td>59</td>
</tr>
<tr>
<td>11.</td>
<td>RFL Scores: Comparison of Nonideators and Ideators-2</td>
<td>60</td>
</tr>
<tr>
<td>12.</td>
<td>RFL Scores: Comparison of Early-stage and Late-stage Ideators</td>
<td>61</td>
</tr>
</tbody>
</table>
## LIST OF ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Relationship Between Level of Suicidal Ideation and Time</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>Since Diagnosis of HIV Positivity</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Relationship Between Perceived T4 Count and Time Since</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Diagnosis of HIV Positivity</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Interaction on Size of Social Support Network</td>
<td>63</td>
</tr>
<tr>
<td>4.</td>
<td>Interaction on Presence of &quot; Helpers &quot; in Support Network</td>
<td>63</td>
</tr>
<tr>
<td>5.</td>
<td>Interaction on Fear of Suicide as a Reason not to Commit</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>Suicide</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Interaction on Moral Objections to Committing Suicide</td>
<td>65</td>
</tr>
</tbody>
</table>
CHAPTER 1. INTRODUCTION

Several investigators have reported a high incidence of suicidal ideation, suicide attempts, and completed suicides, relative to both the general population and various medical patient populations, among persons infected with the human immunodeficiency virus (Dilley, Ochitill, Perl, & Volberding, 1985; Faulstich, 1987; Holland & Tross, 1985; Nichols, 1983). To date, nearly all of the reports of increased suicidality associated with HIV have been anecdotal (Batchelor, 1987; Rundell, Wise, & Ursano, 1986). Frierson and Lippman (1988), for example, reported three cases of attempted suicides related to either HIV or AIDS (acquired immune deficiency syndrome). And Pierce (1987) reported on seven cases of completed suicide within a six-week period in the Miami area. In each of these seven cases, the individual had just tested positive for HIV antibodies.

Very few studies have demonstrated an increase in suicidal ideation and related signs of distress associated with HIV using a systematic method. In a large, longitudinal study of gay men, Kessler et al. (1988) found an increase in emotional impairment associated with seroconversion, while levels of distress remained constant over time for men whose HIV status was unchanged. Similarly, these authors found that the occurrence of symptoms impacted negatively on participants' emotional functioning. However, in a closer analysis of their data, they determined that it was the perception of symptoms, rather than the symptoms themselves, which effected emotional
distress. Hence, they concluded that the effects of HIV on levels of emotional distress "are mediated primarily by psychological appraisal processes rather than by biologic processes" (p. 577). In a study more directly germane to the question of suicidal ideation, Schneider, Taylor, Hammen, Kemeny, and Dudley (1991) found no significant difference in the incidence of suicidal ideation between HIV-positive and HIV-negative gay men. However, they found that ideation in the two groups was associated with different predictors, suggesting that "the central issues and concerns determining suicide intent differed between the two groups" (p. 784). For both groups, past depression and isolation predicted suicidal intent; additionally for the seropositive group, currently perceived AIDS-related stressors played a role, though actual biological factors did not predict ideation. It is noteworthy that the two groups did not differ on levels of past depression or isolation.

Further support for the impact of psychological mediation came from the findings of Perry, Jacobsberg, and Fishman (1990) in a study of patients who presented for HIV testing. They found that rates of suicidal ideation in these patients were high at the time of antibody testing for both seronegative and seropositive patients. The rate for seronegatives decreased significantly by one week after testing and remained low at two months after testing; the rate for seropositives was not significantly changed at one week after testing and fell by two months after the testing date. McKegney and O'Dowd (1992) found that, in a psychiatric population, individuals who were seropositive but asymptomatic evidenced significantly more suicidal ideation than either individuals who had been diagnosed with AIDS or those who were seronegative. In fact, they found that the level of suicidal ideation among individuals diagnosed with AIDS was comparable to the level among those

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
who were seronegative. The findings of these studies not only emphasize the importance of psychological mediation between HIV illness and suicidal ideation, but also seem to suggest that suicidal ideation decreases after HIV testing.

Kizer, Green, Perkins, Doebbert, and Hughes (1988) reported that persons with AIDS in California were 17 times more at risk for suicide than persons in the general population. In a study of completed suicides that occurred in New York City during 1985, Marzuk et al. (1988) found that the rate of suicide for men between the ages of 20 and 59 who were diagnosed with AIDS was 36.3 times the suicide rate for men in the same age group in the general population. One third of the men with AIDS who committed suicide had a history of a prior suicide attempt; half of those had never attempted before having been diagnosed with AIDS. All of the suicides studied occurred within nine months of an AIDS diagnosis; most occurred within six months. These data suggest that the increased suicide rate was largely attributable to an AIDS diagnosis.

The rate of completed suicides appears to be markedly higher in persons with HIV infection than it is with other life-threatening illnesses as well. In a study of patients with Huntington's disease, Farrer (1986) found a suicide rate of nearly four times that in the general population. The suicide mortality rate (SMR) among terminal cancer patients has been found to range from 1.9 to 2.6 overall (Allebeck, Bolund, & Ringback, 1989; Levi, Bulliard, & LaVecchia, 1991; Marshall, Burnett, & Brasure, 1983). A closer analysis of these data has found that suicide rates are higher shortly after diagnosis--an SMR as high as 16 (Allebeck, et al., 1989)--and dropped off significantly after the first year or two. In studying patients with chronic renal failure who receive
routine dialysis, Haenel, Brunner, and Battegay (1980) found a suicide rate 10 times that in the general population. These data seem to indicate that persons with HIV infection are more at risk for suicide than even patients with other serious illnesses.

In a comparison of seronegative and asymptomatic and symptomatic seropositive individuals, Kurdek and Siesky (1990) found that individuals in the asymptomatic group had significantly greater psychological distress than individuals in either of the other two groups. Similarly, Rajs and Fugelstad (1992) found that 71% of HIV-related suicides in Sweden occurred among asymptomatics. Marzuk et al. (1988) reported that all of the suicides among men with AIDS in their study occurred within nine months of having been diagnosed with AIDS, and most occurred within six months of diagnosis. The higher incidence of suicide shortly following diagnosis is consistent with clinical reports of psychological reactions to diagnosis that involve depression and organic mental syndrome, and that often include suicidal ideation (Detmer & Lu, 1986; Dilley, et al., 1985; and Perry & Tross, 1984). Different reasons for such a reactive suicidality have been proposed.

At one end of the spectrum is a biological explanation. This argument points out that there is some evidence that HIV may affect the functioning of the central nervous system (CNS) soon after infection in some individuals, compromising their mood, memory, and control of impulses (Grant, et al., 1987). This compromise of cognitive functioning may predispose such individuals to more impulsive and even suicidal reactions (Mackenzie & Popkin, 1990). Perry and Jacobsen (1986) have even argued that psychiatric symptoms such as depression and suicidality may be caused directly by the
action of HIV in the CNS and may therefore precede cognitive impairment or neurological abnormalities.

At the other end of the spectrum is the argument that it is the psychological stress of learning that one is infected with a highly lethal virus and the social stigma associated with HIV that contributes to the increased incidence of suicidality in this population (Mackenzie & Popkin, 1990). The psychological impact of HIV is in some ways similar to that of other life-threatening diseases such as cancer. However, that impact is compounded by the specific psychosocial effects on persons with HIV, such as the stigma associated with drug abuse and homosexuality, and the panic that society has expressed over the issue of contagion (Maj, 1990). Individuals diagnosed with HIV at once face not only the poor prognosis for survival of a disease that currently has no cure or effective treatment, but also the dilemmas of revealing their diagnosis and possibly their homosexuality or drug abuse to family and friends, coping with public hysteria and the fears of those who are emotionally close, avoiding infecting anyone else, and managing their own health so as to minimize the possibility of acquiring any opportunistic infections (Christ, Siegel, & Moynihan, 1988).

The question of which mitigating factors portend suicidality has been addressed in only a few studies that considered a broad range of factors. In one study in which HIV seropositive individuals were followed over an average of 10.8 months (Rundell, Thomason, Zajac, & Beatty, 1988), suicide attempts were found to be related to such psychological factors as stress, perceived isolation, a primary or sole reliance on denial, perception of oneself as a victim, and prior psychiatric illness. On the other hand, the same study demonstrated that attempts were also related to disease progression, and
abnormal CSF. Similarly, Schneider, Taylor, Hammen, et al. (1991) found that HIV-positive participants who were considering suicide were lonelier and in greater psychological distress. They also had reported more AIDS-related events and had lower CD4 counts. Schneider, Taylor, Kemeny, and Hammen (1991) found that AIDS-related events accounted for only 1.2% of the variance in suicidal ideation between ideators and nonideators, and 8.7% of the variance between ideators with high and low suicidal intent. As these studies seem to indicate, the likely reality is that both biological and psychological forces impact the individual infected with HIV.

A similar elevation in suicidality has been proposed (e.g., Mackenzie & Popkin, 1990) to occur near the end stage of HIV infection. The drop in CD4 cells that is characteristic of progressed HIV infection leaves individuals ill-equipped to fight off infections that they are normally able to combat. As these opportunistic infections beset the individual, health deteriorates. Additionally, nearly all seropositive individuals eventually develop CNS changes that are related to subacute encephalitis (Gabuzda & Hirsch, 1987). These complications, along with the social stigma associated with being diagnosed with AIDS, presumably contribute to increased suicidality.

It has been argued and generally accepted that the relationships among the various components that make up "suicidality" fall in a hierarchical continuum. Several authors (e.g., Beck, Kovacs, & Weissman, 1979; Berman, 1975; Bonner & Rich, 1987) have proposed at least three common components of this continuum: suicidal ideation, suicidal attempts, and completed suicides. The hierarchical nature of this continuum rests on two types of research. The first indicates that the percentage of the population that has experienced each of these behaviors decreases along the progression
from suicidal ideation to completed suicide (Berman, 1975; Hughes & Neimeyer, 1990; Landau & Rahav, 1989). The second type of research demonstrates that a relatively small set of ideators attempts suicide and a small set of attempters completes suicide (Hughes & Neimeyer, 1990). However, Fawcett et al. (1987) found that 32 percent of completed suicides had no history of prior attempt. Therefore, the progression from ideation to completed suicide is not a simple and completely predictable one. Indeed, Kreitman and his colleagues (1977) have argued that suicides and parasuicides comprise two distinct populations.

Linehan (1986) examined the question of whether there are different populations of people who engage in suicide-related thoughts and behaviors or all such thoughts and behaviors represent a single continuum. She pointed out that a resolution of this controversy has dramatic implications for both research and treatment: which argument one accepts determines both what behaviors are included and excluded for study and how they are analyzed; and how such behaviors as suicidal threats, gestures, and attempts are treated in patients who have presented for clinical care. Linehan concluded from a compendium of data in the literature that parasuicides are a diverse group, some of whom fit into the model of a single continuum and some of whom fall outside of that population. Therefore, she proposed a compromise model which takes this split in the parasuicide group into account. However, in all three of the models Linehan discussed, completed suicides fall largely within the much larger population of suicide ideators, reflecting the fairly consistently found relationship between these two behaviors.

It has also been proposed that suicidal ideation, at least among individuals suffering from chronic, debilitating physical illnesses, serves to
restore in the ideator a sense of control over his or her life that may have been lost as a function of illness (e.g., Goldblum, 1986). In a review of the literature, Taylor (1983) examined the various coping mechanisms employed by cancer patients to regain a sense of control over a disease which renders them largely powerless. The strategies employed included finding meaning in their illness, believing the illusion that they had control over certain circumscribed aspects of the illness, and denial of the threat of cancer. In a study comparing HIV seronegative and seropositive individuals, Schneider, Taylor, Hammen, et al. (1991) found that HIV-related concerns (e.g., diagnosis of seropositivity AIDS-related complex, number of close friends with AIDS, deaths of close friends or of a long-term partner) significantly predicted suicidal ideation in seropositives, but did not predict current levels of distress, suggesting that ideation may have occurred as some sort of coping mechanism. These authors surmised that suicidal thoughts may have served to provide a sense of mastery over HIV in ideators, which would help the individual to feel in control and thereby function more effectively. Similarly, Miller (1990) proposed that the absence of a cure for AIDS leaves patients unable to make long-range (and sometimes short-range) plans and leads to feelings of entrapment and frustration. This frustration may then be expressed through anger, impulsivity, and suicide plans—all as a way of regaining personal control. This idea has received little attention in the literature, possibly because of the complexity of distinguishing between ideation that serves as a coping function and ideation that is an expression of distress.
Depression and Hopelessness

The relationship between suicidality and depression has been explored in depth. Sainsbury (1986) reviewed the literature and concluded that evidence for this relationship comes primarily from three sources. The first is the body of research that has followed up on patients who have manic-depressive illness or endogenous depression. These studies have fairly consistently found that about 15 percent of these patients eventually die by suicide. The second source is research that has involved conducting psychological autopsies on completed suicides, using diagnostic interviews with family members. This research has found that a large number (rates range from 30 to 77 percent) of individuals who completed suicides suffered from a diagnosable depression. In a study that used the Beck Depression Inventory (BDI) as the measure of depression, Silver, Bohnert, Beck, and Marcus (1971) found that the incidence of depression among suicide attempters was 80 percent. The final source consists of research on suicide attempts. In these studies, individuals who make more serious attempts have been found to suffer from severe depression.

Further investigation has implicated hopelessness as a reliable predictor of suicidality as well. Much of the research (Beck, Kovacs, & Weissman, 1975; Beck, Steer, Kovacs, & Garrison, 1985; Petrie, Chamberlain, & Clarke, 1988; and Rudd, 1990) has suggested that hopelessness acts as a mediating variable between depression and suicidality. At least one theoretical model has proposed a subset of depression that is characterized by hopelessness (Abramson, Metalsky, & Alloy, 1989; Hunsley, 1989; and Metalsky, Halberstadt, & Abramson, 1987). Greene (1989) found a correlation of $r = .69$ between the BDI and the Hopelessness Scale (HS), and concluded
that depression is the broader construct of the two and encompasses the phenomenon of hopelessness.

However, not all results have reflected a progression from depression to hopelessness to suicidality. In a prospective study, Beck and Steer (1989) found that scores on neither the BDI nor the HS predicted suicidal risk. In studying both inpatient and outpatient populations, Ranieri et al. (1987) found that the BDI and HS were comparable predictors of suicidal ideation. And Prezant and Neimeyer (1988) found that only a combination of depression and hopelessness was able to predict suicidal ideation in an outpatient population. It appears, therefore, that while both depression and hopelessness have an impact on various aspects of suicidality, the relative role each of these constructs plays varies from population to population and may be dependent on other variables.

The high incidence of depression among individuals infected with HIV has been well documented (Holland & Tross, 1985; Nichols, 1983; and Perry & Jacobsen, 1986). In fact, one study (Dilley, et al., 1985) reported that depression was the most common psychiatric diagnosis among patients with AIDS. In a review of the literature, Fernandez and Levy (1990) noted the clinical significance of depression in HIV, especially when it accompanies HIV primary dementia. However, it is unclear whether level of depression changes over the course of HIV illness. Joseph, et al. (1990) documented no change in depression levels in a large cohort of gay men at risk for AIDS. But these authors did not separate the data of seropositive from those of seronegative participants, leaving questions about the utility of the results. The incidence of hopelessness in this population has not been as well studied. Because of the high incidence of depression in HIV-positive populations and because of the
close, albeit imperfect, relationship that depression and hopelessness have to suicidality, it was deemed important to include measures of these two constructs in this study to help explain any suicidal ideation that was found.

**Social Support**

Much has been written on the contribution that a social support network makes toward preventing suicide and suicidal ideation. For example, Bronisch and Hecht (1987) found that depressed suicide attempters were significantly more likely to live alone and be isolated than depressed non-attempters. Slater and Depue (1981) found that depressed persons who had experienced a recent loss of at least one member of their support networks were more likely to attempt suicide. Likewise, Hart and Williams (1987) found that suicide attempters reported lower scores on all measures of extent of interpersonal network, and these individuals were aware of the deficit of social support in their lives. And in another study, Hart, Williams, and Davidson (1988) found that suicide attempters obtained lower scores on all measures of social support, and that there was no difference on these measures between attempters with and without a psychiatric diagnosis. A study of suicide risk (Plutchik, van Praag, & Conte, 1989) found that the size of an individual's social network correlated negatively with a measure of risk. Veiel, Brill, Hafner, and Welz (1988) found social support network size to be the primary difference between suicide attempters and controls. But the literature is not entirely consistent here. For example, de Man (1988) found that social support did not predict suicidal ideation.

Measures of social support have been found to be generally negatively correlated with psychological and physical health variables in HIV
infected populations (e.g., Kurdek & Siesky, 1990; Namir, Alumbaugh, Fawzy, & Wolcott, 1989; Wolcott, Namir, Fawzy, Gottlieb, & Mitsuyasu, 1986). One theoretical model, proposed by Bonner and Rich (1987), posits loneliness and social support in a hierarchical progression that includes depression and hopelessness, and eventually results in attempted and completed suicides. A study by Zich and Temoshok (1987) has lent support to this relationship. These investigators found that among individuals infected with HIV--both with and without a diagnosis of AIDS--perceived social support was negatively correlated with measures of hopelessness and depression. Because of its potential explanatory power, especially in conjunction with depression and hopelessness, a measure of social support was included in this study.

It is worth noting that the theoretically based research in this area has not yet reached consensus on just what is meant by the construct of social support, resulting in some confusion when results from different studies are compared. In a review of the literature, Brownell and Shumaker (1984) extracted six aspects of social support that had been operationalized by various authors: "quantity of connections (number of friends), quality (having people one can trust), utilization (actually spending time with people), meaning (the importance of friends), availability (the likelihood of having someone there when needed), and satisfaction with one's support" (p. 5). Various social support instruments actually measure different aspects of this rather broad construct, and few of these instruments measure an aspect of social support that has been theoretically derived (Brownell & Shumaker, 1984).

In an attempt to develop a definition of social support that synthesizes the major empirical findings, Lin (1986) divided this broad construct into two
parts. The social component may be approached from at least three levels; community, social networks, and confidantes. Each of these layers successively represents a step closer to the individual's self, and requires increasingly more ego investment, which therefore has an increasingly greater affect on the person's health and well-being. The other component, support, Lin split into two dimensions. Instrumental support "involves the use of the relationship as a means to achieve a goal" (p. 20), while expressive support involves the relationship as an end in itself. Expressive support may also be thought of as emotional support, and likely has a more direct effect on the individual's mental status. In a review of the literature examining the relationship between social isolation and suicidality, Trout (1980) reported that the social support factor most consistently correlated with suicide is size of the individual's network. In this study, an instrument was chosen that measures the quantity of connections, particularly network and confidante supports, and level of satisfaction with that support. In this way it was hoped to get at the levels of the social system closest to the self and the dimension of support that would impact most directly on a decision to commit suicide.

**Recklessness**

Various factors associated with personality variables have been proposed to predict suicidality, but, in a review of the literature, Balon (1987) concluded that none of the standard tests and measures studied were able to adequately predict suicide risk. However, one factor has been proposed that may offer some promise in this area. Variously referred to as indirect self-destructive behavior (Farberow, 1980), life-threatening behavior (Worden, 1976), and recklessness (Clark, Sommerfeldt, Schwarz, Hedeker, & Watel,
1990), this factor has been implicated in suicidality both on a rational basis and empirically.

Farberow (1980) and Litman (1980) both argued that such behavior is an unconscious expression of a wish to commit suicide. Menninger (1938) used the term "chronic suicide" to describe individuals who exhibit long-term self-destructive behaviors, such as alcoholism. In a study of suicide attempters of various levels of lethality, Worden (1976) found a clear relationship between life-threatening behavior and level of lethality. In this study, life-threatening behavior was associated with low levels of suicide attempt lethality, and Worden concluded that it is therefore a "non-suicidal entity" (p. 155). In an examination of a more clearly defined construct, Clark et al. (1990) studied the relationship between recklessness and suicidal ideation in adolescents. They found that at least one factor that emerged in their measure of recklessness correlated positively with a measure of suicidal ideation, and that another recklessness factor predicted suicidal behavior. While no research in this area has been done with HIV populations, there is clear reason to examine the possible role of recklessness here. This measure would be particularly instrumental in determining whether any differences exist on this construct between the HIV group and the control group.

Hypotheses

It has been well documented that the incidence of suicidality--suicidal ideation, suicide attempts, and completed suicides--is elevated among persons infected with HIV. As well, certain psychological factors often associated with suicidality, such as depression and lack of social support, have also been demonstrated to be high in this population. There is anecdotal
evidence that suggests that the quality of suicidality changes over the course of HIV disease. To date, however, no systematic study of this possible change has appeared in the literature. Nor is it known whether this progression is associated with differences in depression, hopelessness, and the availability and perceived quality of social support, all of which have been repeatedly demonstrated to be significant predictors of suicidality. This study explored three main questions.

First Hypothesis. It was expected that the elevation in suicidal ideation associated with HIV seropositivity noted in other research would be found in the current study as well. This elevation was expected to be unrelated to such demographic factors as ethnicity, age, level of education, and socioeconomic status (SES). What has not been examined between seronegative and seropositive groups in previous research is whether these two groups might have differed on prior risk-taking behavior, which might indicate personality differences between the groups that could have accounted for the difference in suicidal ideation, and prior suicidal ideation and behavior. It was predicted in this study that the levels of prior risk-taking behaviors and prior suicidality would not be significantly different between the two groups, suggesting that any difference in suicidal ideation was more likely due to serostatus.

Second Hypothesis. It was thought that a distinct change in suicidality would occur with the progression of HIV illness. Specifically, suicidal ideation was expected to modulate in a curvilinear fashion over the course of illness in such a way that ideation would be more prevalent shortly after diagnosis and near the end-stage of the illness as the individual began to confront death. This relationship was presupposed to be a result of an adjustment process that occurs over time. After the initial adjustment period, which would need to be
defined empirically, ideation was expected to subside; it may well disappear for years as individuals return to the tasks of carrying on their lives. Then, as symptoms became more frequent and health deteriorated, ideation was expected to reappear as the reality of death became unavoidable.

While regressing suicidal ideation on the time since diagnosis was expected to demonstrate the initial mode and subsequent decline in this curve, it was presumed unlikely to clearly show the second increase in ideation. The reason for this is that there is a wide range of survival times associated with HIV. While some individuals may live less than one year, others live 10 years or more. What determines end-stage illness is not time since diagnosis, but rather a combination of health indicators--primarily CD4 counts and opportunistic infections. For this reason, it was anticipated that the modulation of suicidal ideation over time would ultimately need to be examined in an ANCOVA-type fashion.

**Third Hypothesis.** It was proposed that there may be qualitative differences between suicidal ideation that occurs shortly following diagnosis and ideation that occurs as an individual's health begins to deteriorate. Specifically, clinical observation seems to suggest that the ideation that follows diagnosis appears to be more typical of impulsive or depressed suicidality, while the ideation nearer the end-stage of illness is more akin to what has been referred to as "rational suicide."

Operationalizing such differences is a somewhat difficult task that has not yet been adequately achieved. An attempt was made to focus on three components of this difference that could more obviously be defined. It was anticipated that "early" ideation would center on a more violent means of death, the ideation would be more impulsive or urgent, and persons in the
individual's environment would likely serve to interfere with an attempt and would offer little support for such an action. The means of death ideated at this time was expected to be more likely akin to jumping or gunshot, both of which are violent. The urge to commit suicide seemed to be a consequence of wanting to do so sooner rather than later, resulting in the greater likelihood of attempt in the near future. And it seemed that there would likely be persons in the individual's life who would try to stop a suicide attempt and few who would offer either emotional or instrumental support for such an action. In contrast, the ideation that occurs late in the illness was expected to be less impulsive, the act ideated less violent, and with less likelihood of resistance. Individuals whose health is deteriorating were expected to be more likely to have made careful plans for suicide, which often involve pharmacological methods to cause death. And rather than trying to stop them, there would often be individuals who are emotionally, if not instrumentally, supportive.

One inherent confound in examining this third hypothesis is that there were undoubtedly individuals whose suicidal ideation was violent shortly after diagnosis who did commit suicide. These individuals, therefore, were unavailable for participation in the current study. While there was no way to accurately estimate the effect this had on any analysis of this hypothesis, it was possible to ask participants what methods they had used for any previous suicide attempts. In this way, it could be established whether any violent attempters had survived and were able to participate in this study.

**Exploratory Analyses.** Also explored in this study was whether changes in other psychological factors, such as depression, hopelessness, social support, and feelings of control might help to explain any differences between suicidal ideation at different stages in the illness progression.
Because of a lack of research in this area, no hypotheses were made about the relationships among these factors. However, because of their importance in understanding the phenomenology of suicidal ideation in HIV illness, these factors were measured in this study. Also worthy of examination was whether the reasons individuals give for not committing suicide are different for those with and without suicidal ideation and at different stages of the illness.

Because this study explored new territory, the design involved the use of a control group. This made it necessary to focus the study demographically in order to maintain the feasibility of completing the study. For this reason, this study focused on gay men, since this group still accounts for the largest single demographic within the HIV population.
CHAPTER 2. METHOD

Participants

While suicidal feelings and thoughts, parasuicide, and completed suicides have been observed to be elevated among persons with HIV infection, numerous studies have also demonstrated that suicidality is associated with the stigma society places on individuals who identify themselves as homosexual. Since the majority of individuals receiving treatment for HIV disease are still gay men, any study of suicidality in an HIV infected population presents the serious possibility of a confound of the results. Therefore, it was deemed important to control this factor in this study. The possible confound was controlled by including only gay men for participation. Both an HIV infected sample and a control group of gay men who believed themselves to be seronegative were recruited.

Inclusion Criteria. Gay men with HIV infection were recruited for participation from various HIV protocols at two institutes at the National Institutes of Health (NIH) in Bethesda, Maryland: the National Cancer Institute (NCI) and the National Institute of Allergy and Infectious Diseases (NIAID). Participants need not have been at any particular point in their primary research protocol (if any) in order to enroll. An attempt was made to recruit study participants whose time since diagnosis and health status constituted as wide a range as possible.

On the whole, protocol participants at NIAID have tended to be those
who are healthier and are more recently diagnosed as HIV-positive, since many of the NIAID protocols have excluded individuals who have very low CD4 counts or have suffered an opportunistic infection. By contrast, participants in the NCI protocols have tended to have been HIV-positive for a more extended period of time and to have some health complications, because the protocol inclusion criteria at NCI have often required lower CD4 counts and/or an opportunistic infection. Both institutes use a combination of physician referrals and advertisement in local and community newspapers to recruit participants for the various protocols. Because the recruiting methods used in both institutes are similar, all NIH participants were treated as a single group.

Patients in both institutes who met the eligibility criteria were asked whether they would be willing to participate in the current study. A tally of men who refused to participate upon being asked was initiated after the first 15 participants had consented. After this point, only five men refused participation. While an exact number was not kept, no more than four men refused participation before tallying was begun. These numbers represent a refusal rate of no more than 10 percent.

Since recruitment among already-enrolled NIH participants failed to provide a sufficient number of seropositive participants who were newly diagnosed (within 12 months of learning of their seropositivity), a request for participants who met specifically this criterion was placed in the local gay newspaper and fliers were distributed to local gay and HIV groups. An additional eight participants were enrolled for participation and admitted to the study under the auspices of NCI.
A total of 90 HIV seropositive men consented to participation in this study, from which 80 men completed participation by returning the questionnaire packet, resulting in an 89% return rate. Those who completed participation represented an age range from 23.0 to 56.5 years, education spanned 9 to 20 years, and SES spanned the full range of one to seven on the Hollingshead scale. Participants ranged from three months to 94 months in time since diagnosis of HIV seropositivity, their absolute CD4 counts ranged from zero to 1,000, with anywhere from zero to 12 opportunistic infections, and they spanned the entire range of HIV diagnostic groupings. The demographic statistics for this group approximate those for the Multicenter AIDS Cohort Study (Kaslow, et al., 1987).

It was assumed that participation in this study, regardless of the recruitment method, involved a self-selection factor: All participants elected to enroll. This may have been particularly true for the HIV-positive participants who were previously enrolled in other research protocols at NIH, since it could be argued that they were disposed toward study participation in general. However, the same argument could be made for any other individual who elected to participate. This may mean that participants in this study represented a somewhat select group (those inclined to volunteer for research).

**Exclusion Criteria.** The preliminary data from two drugs which were then under study in the HIV protocols suggested that these drugs may produce significant emotional effects: Interferon appears to have caused patients to experience depressed affect and 3TC seems to have resulted in individuals reporting euphoria and energy bursts. Because these effects could seriously bias the results of this study, individuals on protocols involving these two drugs
were excluded from participation. In order to avoid uncontrollable influences in scores due to hospitalization, inpatients were excluded from the study at least until they were discharged. Patients with neurocognitive deficits associated with HIV, as demonstrated by neuropsychological evaluation performed for other protocols, were excluded from participation only if their reading comprehension had fallen below that comparable to the level of an average 15-year-old.

**Control Group.** After questionnaires had been gathered from the HIV sample and the demographic information from those questionnaires had been compiled, a control group of gay men who believed they were seronegative were sought out. Control group participants were recruited from various gay social and community groups in the Washington, D.C., area. Participation in this group required that an individual had been tested for HIV antibodies within 18 months prior to participation, that his most recent test was negative, and that he had no other reason to believe that he had since contracted HIV. This group was selected so that, as a group, these participants approximately matched the HIV group on demographic factors of age and ethnicity. It was not feasible to select participants on the factors of level of education and SES. A minimum number of 25 men was sought out for this study to provide a statistically adequate control group; at the point when 25 men had completed participation, recruitment efforts were terminated. Since four additional men were at that point scheduled for participation, they were also included, bringing the total group size to 29. The control group ranged in age from 22.4 years to 54.8 years, their education spanned 13 to 20 years, and SES ranged from one to five.
To ensure that the HIV and control groups were indeed similar on demographic factors, one-way ANOVAs were conducted on the variables of age, level of education, and SES between the two groups. Results appear in Table 1. The two groups were not significantly different on age: Welch $E(1, 39) = 0.02$, ns. Differences did appear on the factors of education (Welch $E[1, \ldots]$.

### Table 1

**COMPARISON OF HIV-POSITIVE PARTICIPANTS TO HIV-NEGATIVE CONTROLS: DEMOGRAPHICS, RISK-TAKING BEHAVIORS, AND PRIOR SUICIDALITY**

<table>
<thead>
<tr>
<th>Variable</th>
<th>HIV+</th>
<th>HIV-</th>
<th>Statistic</th>
<th>$p$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Means</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>37.46</td>
<td>37.24</td>
<td>$E(1, 39) = 0.02$†</td>
<td>ns</td>
</tr>
<tr>
<td>SD = 7.14</td>
<td>SD = 9.76</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>17.5% non-white</td>
<td>27.6% non-white</td>
<td>Chi Sq = 1.344</td>
<td>ns</td>
</tr>
<tr>
<td>Education</td>
<td>15.31</td>
<td>16.66</td>
<td>$E(1, 71) = 11.29$†</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>SD = 2.33</td>
<td>SD = 1.63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SES</td>
<td>3.01</td>
<td>2.35</td>
<td>$E = 5.64$</td>
<td>&lt; .02</td>
</tr>
<tr>
<td>SD = 1.40</td>
<td>SD = 0.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk-taking behavior*</td>
<td>7.24</td>
<td>6.76</td>
<td>$E(1, 69) = 0.62$†</td>
<td>ns</td>
</tr>
<tr>
<td>SD = 3.51</td>
<td>SD = 1.52</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of suicidality**</td>
<td>2.23</td>
<td>1.79</td>
<td>$E = 1.36$</td>
<td>ns</td>
</tr>
<tr>
<td>SD = 1.79</td>
<td>SD = 1.45</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 109 on all tests, except SES (N = 107).
† Welch approximation, df noted.
* As measured by the Sommerfeldt-Clark Adolescent Recklessness Scale.
** As measured by the lifetime suicidality question on the Suicidal Behaviors Questionnaire.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
However, level of education did not correlate significantly with level of current suicidal ideation in the entire combined sample ($r = -.09$, $N = 109$) or in either the HIV group alone ($r = .002$, $n = 80$) or the control group alone ($r = -.02$, $n = 29$); and the difference between the means of the two groups was only about one year, with both groups averaging at about a bachelor's level of education (HIV group $M = 15.31$, control group $M = 16.66$). Similarly, SES did not correlate significantly with level of current suicidal ideation in the entire sample ($r = .18$, $N = 107$), in the HIV group ($r = .11$, $n = 78$), or in the control group ($r = .17$, $n = 29$). Here, the difference between the means of the two groups was less than one point (HIV group $M = 3.01$, control group $M = 2.35$).

In order to measure differences in ethnicity, all non-caucasian participants were first collapsed into a single group, and then a Chi-square analysis was performed to determine whether the HIV and control groups contained different proportions of ethnic minorities. Of 80 HIV participants, 14 were ethnic minorities; of 29 control participants, 8 were ethnic minorities. These figures indicate a minority representation of 17.5% in the HIV group, 27.6% in the control group, and 20.2% in the entire sample. The Chi-square value was 1.344, which was non-significant ($p = .246$). Therefore, the difference in representation of minorities between the groups was not significant.

The two groups also did not differ significantly on the factors of either risk-taking (Welch $F[1, 69] = 0.62$, ns) or history of suicidality ($F[1, 107] = 1.36$, ns) prior to HIV diagnosis. This helps to rule out the possibility that individuals in the two groups differed in a psychological set unrelated to HIV but which could explain other differences between the groups (see Table 1). Among the
HIV-positive participants, 12 reported having previously attempted suicide by pharmacological methods, three by cutting, two by drowning, one by hanging, and one by deliberately having unprotected sex. While it cannot be known whether this accurately represents the suicide methods used in this population, it does indicate that at least some of the participants in this study survived a suicide attempt—a few by violent means.

**Instruments**

*Scale for Suicidal Ideation (SSI).* Overall suicidal ideation was measured using the self-report version of the SSI (Beck, Steer, & Ranieri, 1988). The SSI is a 19-item questionnaire on which higher scores indicate greater amounts of suicidal ideation. Possible responses on each item range from a score of zero to a score of two, yielding a total range of zero to 38. The original SSI (Beck, Kovacs, & Weissman, 1979) was designed as a clinician-rated scale to be used following a semi-structured interview. Research on the original SSI produced a coefficient alpha of .89 and results suggesting satisfactory convergent and discriminant validity. Ranieri et al. (1987) found that, in an outpatient population, the SSI correlated significantly with both the BDI and the HS ($\tau = .76$ and $.62$, respectively; $p < .001$).

Research on the self-report version of the SSI (Beck et al., 1988) yielded a coefficient alpha of .93, indicating that it has very good internal consistency. The Pearson product-moment correlation between the clinician-rated SSI and the self-report version was .90, and a test of differences between the means of the two versions was nonsignificant ($t = 1.36$). These figures indicate that the self-report version of the SSI is a suitable substitute for the original form.
The SSI was used in this study primarily as a unitary measure of current level of suicidal ideation. In the clinical interview method of administration, the first five items are used as a screening instrument to determine whether it is appropriate to administer the remainder of the scale (Beck, et al., 1979). This is important because several of the later items involve wording that presumes at least a minimum level of ideation. In fact, it is possible that an individual who is clearly not suicidal may obtain a non-zero score on later items when forced to choose among options that are not applicable to that person's thinking, such as having to choose among sets of "reasons for wanting to commit suicide." For this reason, the total SSI score was used as a measure of current suicidal ideation only for participants who either obtained a non-zero score on the first five items of this instrument or who obtained a non-zero score on the current suicidal ideation cluster of the Suicidal Behaviors Questionnaire (see below). For participants who obtained scores of zero on both of these screening measures, an SSI score of zero was entered. Presence of suicidal ideation was defined by a resulting non-zero SSI score.

**Suicidal Behaviors Questionnaire (SBQ).** Much of the SBQ (Linehan, 1981) was used to measure several aspects of suicidal thoughts, feelings, and behaviors. The SBQ consists of several questions designed to assess individuals' prior suicidal thoughts and attempts, chances of future attempts, and the risk of such attempts. Many of the questions are arranged in sets in which responses are graduated by time or intensity. On such items, for example, respondents are asked to rate the item first as it applies to their entire lives, then as it applies to the past year, and so on, up to as it applies to today only. More recent thoughts and behaviors are then rated with higher scores.
than are more distant thoughts and behaviors. Addis and Linehan (1989) reported an alpha coefficient of .82, indicating that the SBQ has good internal consistency. In a discriminant analysis, the SBQ correctly classified 95.7% of individuals as belonging either to a group with a history of suicidality or to a normal control group. In addition, SBQ scores differed significantly between these groups after levels of depression and hopelessness were controlled. These results suggest the the SBQ has good discriminant validity.

One study found significant correlations between SBQ items and other measures used in this study. Cole (1988) found that correlations between the individual sets of historical items of the SBQ and the BDI ranged from .39 to .60. Similarly, correlations between these same SBQ items and the HS ranged from .33 to .56. No intercorrelations have been reported by Addis and Linehan.

Sets of questions on the SBQ which are particularly germane to this study relate to impulsiveness, type of method which would be used in a suicide attempt, and whether anyone in an individual's environment might try to prevent a suicide attempt. The latter two were modified to refine the items to address the questions raised in the hypotheses of this study. Method of attempt was asked in an open question format on an item relating to current suicidal plan. This question was added to the item relating to prior attempts as well. Methods reported were then assigned to categories of "violent" (e.g., gunshot, jumping, auto accident) and "nonviolent" (e.g., overdose, carbon monoxide, stopping medication). The SBQ item relating to preventers was expanded so that participants were asked to estimate the number of individuals who might try to prevent their suicide attempt. That same item, in its new format, was duplicated in a second item asking about supporters.
participants may have. A final modification was made to the items which seek to obtain a history of suicidal ideation and attempts. In addition to rating these questions on the usual time graduation, HIV-positive participants were also asked to respond for the time period before diagnosis.

For the sake of brevity and clarity, several items and sets of items were dropped from the SBQ for its use in this study. Some of these items were virtual duplications of items on the SSI. Since the SSI, rather than the SBQ, was used to obtain composite scores for current suicidal ideation, such duplicative items on the SBQ were dropped. One question which asks participants whether they can even imagine committing suicide and one which asks whether they would consult a psychotherapist for suicidal thinking were deleted because they do not directly address issues being examined here. And finally, three questions which address quality of life were dropped, since this study focused on individuals with an illness that directly affects their quality of life.

Reasons for Living Inventory (RFL). The RFL (Linehan, Goodstein, Nielsen, & Chiles, 1983) was used as a measure of hindrance to suicidal behavior. This instrument consists of 47 items; respondents rate each for its importance as a reason in their not committing suicide on a Likert-type scale with scores ranging from one to six. The items are arranged in six scales: Survival and Coping Beliefs (S&C), Responsibility to Family (RF), Child-Related Concerns (CC), Fear of Suicide (FS), Fear of Social Disapproval (FSD), and Moral Objections (MO). The score on each scale is derived by taking the mean of the scores of the items on that scale. Therefore each scale score is directly proportional to the amount of importance individuals place on that particular hindrance to committing suicide. Because the participants in
this study were all gay men, most of whom would likely have not had children, the items from the Child-Related Concerns scale were deleted from this instrument, leaving a total of 44 items.

Linehan et al. (1983) reported Cronbach alphas for the six scales ranging from .72 to .89, indicating moderately high internal consistency. In a comparison of scores on the RFL to scores on the SBQ and other questions administered to a sample of recently admitted inpatients, all but the FS and FSD scales correlated significantly (r = -.27 to -.67, p < .01) with the measure of likelihood of future suicide on the SBQ and all but the CC and FS scales correlated significantly (r = -.36 to .58, p < .01) with whether participants had made a suicide threat in the previous year. Furthermore, all of the scales correlated significantly (r = -.22, p < .05 on FSD; r = -.31 to -.68, p < .01 on all other scales) with whether participants believed suicide would be a solution to their problems. Comparisons of the RFL scales to the 10 clinical scales of the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1951) resulted in only three significant correlations: r = -.41 (p < .001) between the S&C scale and the MMPI Depression scale, r = -.20 (p < .05) between the S&C scale and the MMPI Social Introversion scale, and r = -.20 (p < .05) between the RF scale and the MMPI Depression scale. Linehan pointed out, however, that only the correlation between the S&C scale and the MMPI Depression score remained significant when the number of correlations was taken into account. The S&C and RF scales correlated only mildly (r = .29 and .27 respectively, p < .01) with the Edward's Social Desirability Scale, while no other scales correlated with social desirability. These results indicate that both the convergent and discriminant validity of the RFL are satisfactory.
Beck Depression Inventory (BDI). Levels of depression were measured by the long form of the BDI (Beck, 1967; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). By far the most frequently cited self-report measure of depression (Shaver & Brennan, 1991), the BDI has become the instrument to which other depression measures are compared. The BDI consists of 21 groups of statements in a forced choice format. Response options on each item range from zero to three, yielding a total score range of zero to 63. Higher scores on the scale indicate greater amounts of depression. Beck (1967) reported that the internal consistency of the BDI is high, with an odd-even split-half reliability coefficient of .86 (.93 with the Spearman-Brown correction). To prevent a correlation bias, the suicide item on the BDI was deleted from the scale as it was used in this study.

In a review of the literature on the BDI, Shaver and Brennan (1991) reported that scores on the BDI correlate with clinical ratings of depression on the order of a range from .60 to .90, indicating that it possesses a satisfactory degree of convergent validity. While the BDI has also been shown to correlate fairly highly with measures of anxiety (e.g., Cassileth, Lusk, Hutter, Strouse, & Brown, 1984), Beck (1967) reported that the measure correlated more highly with clinical ratings of depression ($r = .59$) than with clinical ratings of anxiety ($r = .14$). More recently, Steer, Beck, Riskind, and Brown (1986) tested the ability of the BDI to discriminate between patients with a clinical diagnosis of depression and those with a clinical diagnosis of anxiety. They found that the depressed patients scored significantly higher (more depressed) on the BDI than did the anxious patients. Shaver and Brennan (1991) also reported a modestly negative relationship between the BDI and social desirability.
**Hopelessness Scale (HS).** The HS (Beck, Weissman, Lester, & Trexler, 1974) is a 20-item, true-false questionnaire that was designed to assess the extent to which an individual's thinking is characterized by expectations of negative future events. The items are counter-balanced, to reduce the likelihood of a response bias. Higher scores indicate greater degrees of hopelessness. This scale has been used as a measure of hopelessness in much of the research exploring the relationship between hopelessness and suicidality (e.g., Beck et al., 1975; Beck & Steer, 1989; and Bonner & Rich, 1987). The contribution that scores on the HS make toward predicting suicidality has been well-established (e.g., Beck et al., 1975).

Beck et al. (1974) reported a coefficient alpha for the HS of .93, indicating good internal consistency. Convergent validity was tested by comparing HS scores to clinical ratings of hopelessness in both a general outpatient medical sample and an attempted suicide sample. Correlations for the two samples were .74 and .62 respectively, suggesting satisfactory validity of the scale. Kovacs, Beck, and Weissman (1975) found a correlation of .70 ($p < .001$) between the HS and the BDI in a depressed sample. Similarly, Greene (1989) found a correlation of .69 ($p < .001$) between these two measures, also in a depressed sample.

**Social Support Questionnaire.** A brief version of the Social Support Questionnaire, the SSQ6 (Sarason, Sarason, Shearin, & Pierce, 1987) provided a reliable measure of amount of support and satisfaction with perceived support. The SSQ6 was developed in order to produce a valid and reliable measure of social support in less time than is necessary to administer the longer 27-item Social Support Questionnaire (SSQ; Sarason, Levine, Basham, & Sarason, 1983). With only six items, the SSQ6 yields the same
subscales of Number of available others and Satisfaction with perceived support. Each item poses a question of whom the respondent could rely on for support in a stated situation, allows the respondent to name up to nine persons, and asks for a Likert rating of the respondent's level of satisfaction with support received in that situation. Scoring on both scales is such that higher scores indicate a larger support network and greater satisfaction with the support available, respectively. The Number scores consist of the total number of individuals named, summed over all six items; the Satisfaction score consists of the sum of Likert ratings, which range from one to six. Therefore, Number scores range from zero to 54 and Satisfaction scores range from six to 36.

Psychometric studies on the original SSQ yielded coefficient alphas for internal reliability of .97 for the Number score and .94 for the Satisfaction score, indicating high internal consistency. The correlation between the Number and Satisfaction scores was .34, suggesting that social support is not a unitary concept. In another study (Sarason, Shearin, Pierce, & Sarason, 1987), the SSQ correlated significantly with other measures of social support, suggesting satisfactory convergent validity. For example, both the Number and Satisfaction scores correlated on the order of .35 ($p < .001$) with the total score on the Inventory of Socially Supportive Behaviors (Berrera, Sandler, & Ramsey, 1981). And the Number score of the SSQ correlated on the order of .43 ($p < .001$) with the Size score of the Social Network List (Stokes, 1983) while the Satisfaction scores of both instruments correlated on the order of .65 ($p < .001$). Both the Number and Satisfaction scores on the SSQ6 correlated significantly with the Depression score on the Multiple Affect Adjective Check List (MAACL) for male participants ($r = -.24$ and -.22 respectively, $p < .05$) and
for female participants ($r = -.31$ and $-.43$, $p < .001$), but neither the Number score nor the Satisfaction score correlated significantly with the Marlowe-Crowne scale of social desirability (Sarason, et al., 1983).

In a comparison of the SSQ6 to the original SSQ, Sarason, Sarason, et al. (1987) found correlations between .95 and .97 on the Number score and between .95 and .96 on the Satisfaction score (all significant at $p < .001$) in three populations. These high correlations suggest that the SSQ6, like the longer scale, is a valid measure of social support. The coefficient alphas for the SSQ6 ranged from .90 to .93 for both the Number and the Satisfaction scores, indicating satisfactory internal consistency. The authors also reported correlations between the Number and Satisfaction scores on the SSQ6 and BDI scores in two samples. SSQ6 Number correlated $-.19$ ($p < .05$) and $-.29$ ($p < .001$); SSQ6 Satisfaction correlated $-.19$ ($p < .05$) and $-.47$ ($p < .001$).

Sommerfeldt-Clark Adolescent Recklessness Scale (SCARS). An abbreviated version of the SCARS (Clark, et al., 1990) was used to measure participants' prior inclination toward risk-taking behavior. The SCARS consists of items which load onto one of three different factors. Clark et al. (1990) described the first factor as a "foolhardiness" dimension. The second factor comprised items dealing with substance abuse and dangerous driving. The third factor was more eclectic and appeared to contain the elements of a "bad kid." Clark et al. found moderate but significant intercorrelations between the three factors ($r = .36$ between 1 and 2, $r = .45$ between 1 and 3, and $r = .46$ between 2 and 3; $p < .0001$). There were small but significant correlations between the first and third factors of the SCARS and the BDI and a self-report measure of suicidal ideation. For the first factor, the correlations with depression and suicidal ideation were .14 and .19 respectively ($p < .0001$).
For the third SCARS factor, the correlations were .34 and .32 respectively (p < .0001). No significant correlations were found for factor 2.

SCARS items consist of questions regarding risk-taking behaviors to which the examinee responds by circling "yes" or "no." Scoring consists of simply tallying the number of "yes" responses. It must be noted that the SCARS had never been used with an adult population. Therefore, these psychometric data must be interpreted as very tentative in their application to the current study.

For the sake of brevity, participants in this study were administered a modified version of the SCARS, which consisted of the six items which loaded highest on each factor. Additionally, only a composite score of the total number of "yes" responses was used, since it was unknown whether the factor structure found in adolescent populations would replicate in an adult sample. HIV participants were given the abbreviated SCARS with an additional instruction: They were asked to preface each question with the phrase, "Before being diagnosed with HIV...," and some of the items were rephrased to reflect a past tense. It was hoped that this would give an indication of premorbid levels of recklessness in these individuals. Participants in the control group were given the abbreviated SCARS without the modification in the instructions and wording of the items. In this way, it was possible to compare the two groups on level of recklessness, presumably unaffected by an HIV diagnosis.

Semantic Differential. A semantic differential measure was designed specifically for this study, in order to attempt to measure the degree to which participants felt in control as a result of suicidal ideation (see Appendix 1). The semantic differential method was introduced by Osgood, Suci, and
Tannenbaum (1957) as a research tool. Using this method, participants were asked to rate their feelings on two separate sets of six continua. The first set asked how thinking about intentionally attempting, but not completing, suicide affected the participant. The second set asked how thinking about actually committing (i.e., completing) suicide affected the individual. Each continuum addressed an aspect of control by presenting semantically converse descriptors at opposing ends of a seven-point rating scale on which participants were asked to place an "x" in one of the seven spaces on the continuum. The six scales in each set are presented in counter-balanced fashion to avoid response set bias.

The critical score on this measure was the item in each set which asked participants to rate the degree to which the scenario made them feel in control. Scores ranged from one ("out of control") to seven ("in control"). These two items correlated beyond the .001 level in both the HIV-positive group ($r = .58, n = 64, p < .01$) and the control group ($r = .61, n = 29, p < .01$), as well as in the entire sample ($r = .62, N = 93, p < .01$). The Cronbach alpha for these two items was computed at .77 for the entire sample, which indicates a fair level of internal consistency.

**Demographic and Health Data.** In addition to the above psychological measurement instruments, data were collected which included each participant's date of birth, level of education, ethnic origin, and occupation. This information was used to 1) assess the distribution of scores for the psychological measures across these variables in this sample and 2) to find a comparably matched control group. Also asked were the date each participant completed the questionnaire packet so that delay times could be determined. Health-related information requested of the HIV sample included the date
each participant learned that he was HIV seropositive, his last CD4 count, the number of incidents of various opportunistic infections (OIs), and the drugs and medications each participant was currently taking (with dosages when known). A page in which the demographic and health data were requested appeared as the last page in the questionnaire packet (see Appendix 2), so as to minimize the possible affects answering these questions might have had on responses on the psychological measures.

From the difference between the date of questionnaire completion and the date of diagnosis as HIV-positive, the amount of time each individual had known of his HIV seropositivity (time since diagnosis) was calculated and rounded to the nearest whole month. The accuracy of participants' self-reports of their most recent CD4 count were checked by randomly selecting 40 of the 80 participants for verification. (An additional two cases were added to this list because they expressed some uncertainty about the accuracy of this figure.) In each case, the CD4 count the individual reported on the questionnaire was compared to the last count reported in his medical chart. Using this method, no discrepancies were found. The CD4 counts for the remaining 38 HIV-positive participants were then assumed to be accurate. While an attempt was made to exclude from participation individuals who were on drug regimens which included the taking of either interferon or 3TC, the drugs which participants reported taking were reviewed to determine whether any such individuals had indeed participated. No questionnaires reported either of these drugs in the current regimen.

Most of the instruments used in this study have been correlated with at least some of the other measures in previous research. A summary of the ranges of significant correlations between these measures appears in Table 2.
TABLE 2
RANGES OF SIGNIFICANT INTERTEST CORRELATIONS*

<table>
<thead>
<tr>
<th></th>
<th>RFL</th>
<th>BDI</th>
<th>HS</th>
<th>SCARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI</td>
<td>.76</td>
<td>.62</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SBQ</td>
<td>-.21 to -.67</td>
<td>.39 to .60</td>
<td>.33 to .56</td>
<td></td>
</tr>
<tr>
<td>BDI</td>
<td></td>
<td>.69 to .70</td>
<td>.14 to .34</td>
<td></td>
</tr>
<tr>
<td>SSQ6</td>
<td></td>
<td>-.19 to - .47</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Levels of significance and citations in text.

Procedure
The psychological measurement instruments were arranged in a questionnaire packet in the following order: SSI, SCARS, SBQ, SSQ6, BDI, HS, semantic differential, and RFL. This order represents an attempt to alternate scales which are more emotionally taxing with those with a somewhat lesser emphasis on dysphoric affect. The order also placed instruments most important to this study nearer the beginning of the packet, so that there would be less of a fatigue effect on these scales and so that these instruments would be more likely to be completed in the case of an uncompleted packet. Each packet contained a cover letter briefly describing the overall instructions (to be kept by the participant) and a last page of demographic and health information.

Among the 80 participants in the HIV group who returned a questionnaire packet, 16 (20%) failed to complete all of the scales. Of these, two completed only the first three scales in the packet (SSI, SCARS, and
SBQ), and indicated that they no longer wished to continue participation. Two additional participants stated that they did not understand what was being asked of them on the RFL and 14 indicated that they did not understand the instructions on the semantic differential scale. Therefore, a total of four participants did not complete the RFL and a total of 16 participants did not complete the semantic differential scale. In the control group, all participants completed all of the scales. This difference between the two groups is likely due to the availability of the examiner to answer questions throughout control group members' completion of the scales, while HIV-positive participants were allowed to take the packet home to complete it.

**HIV Group.** Potential participants at NCI and NIAID were informed of the study through procedures already established by the institute in which they are enrolled, or by advertisement in the local gay community newspaper or community groups. Those who were interested were screened to ensure that they met the eligibility criteria and to inform them that the purpose of the study was to measure thoughts, feelings, and behaviors that are associated with HIV infection, particularly relating to suicidality. At that point, participants were also informed by the investigator of the potential for experiencing dysphoric affect. An attempt was made to answer any questions that these individuals had about the study.

Informed consent was obtained from those who agreed to participate, and they were given a questionnaire packet and an envelope. Participants were instructed to complete the entire questionnaire packet in one sitting, which required that they did so at a time and place that would insure against interruption (participants at NIH were given the option of possibly completing the packet at home or some other place which would afford them privacy).
Participants were requested to then either insert the completed packet into the envelope, to seal it, and to bring it back to clinic on their next visit (NIH patients), or to simply return it to the investigator after completion (Control group participants).

**Adverse Experiences.** It was not anticipated that participation in this study would introduce any concerns that individuals had not previously considered. It was possible, however, that they would become more aware of dysphoric feelings they may already have had. Participants were informed of this by the investigator, as well as on the consent form, on the cover letter, and on the bottom of the demographic sheet at the end of the packet. They were also encouraged to contact a member of the treatment team (NIH patients) or the investigator if these feelings concerned them.

It was anticipated that some of the patients who participated in this study would demonstrate significant suicide risk on the questionnaires. Because of this, each participant's questionnaire packet was scored as soon as possible after it was received. Those participants whose scores indicated significant risk were brought to the attention of a responsible member of the treatment team with which they were enrolled for study (NIH patients) or referred to a licensed clinician or mental health clinic. Follow-up was also conducted with these patients to ensure that they received appropriate attention. This procedure has been used routinely for study participants who receive neuropsychological evaluation on protocols within NCI.

Identification of participants was limited to the consent forms which participants needed to sign. No names appeared on the questionnaire packet or any other materials. Because the consent forms were secured and were
available only to the investigators directly involved in this study, it was very unlikely that a breach of confidentiality would occur.

**Statistical Procedures**

Because no previous research had been reported in this area, this study had to be considered exploratory in its general nature. Sample size requirements were calculated for 80 percent power with a one standard deviation difference between group means at a p value less than .05. It was estimated that about 50 percent of the patients recruited would have some level of suicidal ideation. Therefore it was assumed that approximately 80 patients would need to be recruited to meet all criteria for analysis. Statistical analyses were performed using the 1990 revision of the BMDP statistical software package (Dixon, Brown, Engelman, & Jennrich, 1990).

It was necessary to first ensure that the control group was not significantly different from the HIV group on the demographic variables of age, ethnicity, education, and SES. In addition, the control group's responses on items assessing history of suicide attempts and ideation and recklessness were compared to the HIV group's responses to premorbid levels on these measures (see Table 1). To examine whether the scores on the measures of suicidal ideation for the seropositive group of participants were significantly more elevated than those for the control group, one-way ANOVAs were performed. These analyses compared the two groups on a number of variables of suicidality and related constructs.

To examine the nature of the relationship between HIV-related illness factors and level of suicidal ideation, illness factors (e.g., time since diagnosis, CD4 counts, opportunistic infections) were regressed onto the SSI score. A
forward stepwise regression was used, in which the significance level for both entry and remaining in the regression equation was set at .05. The resultant regression equation was then subjected to a discriminant analysis to determine its ability to predict the presence or incidence of suicidal ideation as a means of measuring the diagnostic utility of the equation. Again, the significance level for factors entering and staying in the discriminant function was set at .05.

Participants were then divided into three groups of roughly equal size, based on illness factors, in order to compare early-stage and late-stage participants and to maximize the differences between individuals in these two groups. To test the assumption that suicidal ideation that occurs shortly following diagnosis and ideation that occurs at the end-stage of HIV illness are qualitatively different, one-way ANOVAs were performed using the data of participants in the first and third groups whose SSI scores demonstrated some level of suicidal ideation. Participants whose SSI scores indicate no current suicidal ideation were excluded from this analysis. The dependent measures of the tests of differences were the future attempts, preventers, and supporters scores on the SBQ. Method of suicide reported on the SBQ was tested in a Chi Square analysis.

To analyze the possibility that the other psychological factors measured in this study contribute to suicidal ideation differentially at the beginning and end stages of HIV illness, tests of differences were performed between the scores of participants in groups 1 and 3 whose SSI scores were not zero. The dependent measures were the scores obtained on the adjunct scales: the BDI, the HS, the SSQ6, and the control measure of the semantic differential.
All ANOVA procedures were done as follows: First, a Levene's test for variances was performed to determine whether the variances of the groups was statistically different. If no significant difference was found, a regular ANOVA was performed. If a difference was found, a Welch approximation of $F$ was used. Whenever a large skew was found on a measure, the ANOVA results were followed up with a Kruskal-Wallis calculation to check the accuracy of the ANOVA statistic.
CHAPTER 3. RESULTS

Hypothesis 1

It was expected that the HIV-positive group would exhibit higher levels of suicidal ideation than the HIV-negative controls. To test this hypothesis, a series of one-way ANOVAs was performed, comparing the two groups on a number of suicidality measures, as well as on measures of depression and hopelessness (see Table 3). Significant differences were found to exist on both of the global measures used, indicating that the HIV-positive group ideated more about suicide than the control group. On the SSI, HIV-positive participants obtained a mean score of 6.00, compared to a mean score of 0.93 for the control group: Welch $E(1, 104) = 34.60, p < .0001$. And on the SBQ, the HIV-positive group obtained a mean composite score of 31.24, compared with a mean of 9.90 obtained by the control group: Welch $E(1, 90) = 17.07, p < .0001$. The seropositive group also obtained a higher mean score on the SBQ question which measures the development of a suicide plan ($M = 0.64$, compared to $M = 0.31$ for the control group), a difference that was also significant: Welch $E(1, 62) = 6.74, p < .02$. Kruskal-Wallis calculations confirmed these significant differences on the SSI ($H[1] = 12.21, p < .001$), on the SBQ composite score ($H[1] = 6.33, p < .02$), and on the SBQ measure of the presence of a suicide plan ($H[1] = 5.49, p < .02$).

In addition, 53.8% of the seropositive group obtained a score on the SSI indicating some level of suicidal ideation, while only 20.7% of the control
**TABLE 3**

COMPARISON OF HIV-POSITIVE PARTICIPANTS AND HIV-NEGATIVE CONTROLS: SUICIDAL IDEATION AND RELATED MEASURES

<table>
<thead>
<tr>
<th>Variable</th>
<th>Means</th>
<th>HIV+</th>
<th>HIV-</th>
<th>Statistic</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSI</td>
<td>6.00</td>
<td>0.93</td>
<td></td>
<td>$E(1, 104) = 34.60$</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td></td>
<td>SD = 6.96</td>
<td>SD = 2.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presence of suicidal ideation</td>
<td>53.8%</td>
<td>20.7%</td>
<td></td>
<td>Chi Sq = 9.40</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>SBQ total</td>
<td>31.24</td>
<td>9.90</td>
<td></td>
<td>$E(1, 90) = 17.07$</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td></td>
<td>SD = 44.51</td>
<td>SD = 7.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plan</td>
<td>0.64</td>
<td>0.31</td>
<td></td>
<td>$E(1, 62) = 6.74$</td>
<td>&lt; .02</td>
</tr>
<tr>
<td></td>
<td>SD = 0.68</td>
<td>SD = 0.54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDI*</td>
<td>12.96</td>
<td>5.24</td>
<td></td>
<td>$E(1, 97) = 39.85$</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td></td>
<td>SD = 8.43</td>
<td>SD = 4.12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS</td>
<td>6.62</td>
<td>3.07</td>
<td></td>
<td>$E(1, 82) = 17.78$</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td></td>
<td>SD = 5.27</td>
<td>SD = 3.20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$N = 109$ on all tests, except BDI and HS ($N = 107$).

† Welch approximation, df noted.

* The suicidality question was omitted from the BDI for this study.

The HIV-positive group indicated suicidal ideation. A Chi Square analysis yielded a value of 9.40, which was significant beyond the .002 level. These tests indicate that the HIV-positive group was clearly more engaged in suicidal ideation than was the seronegative control group.

One-way ANOVAs performed on BDI and HS scores revealed similar differences between the two groups. On the BDI, the seropositive group obtained a mean score of 12.96, compared to 5.24 for the control group, which represented a significant difference: Welch $E(1, 97) = 39.85$, $p < .0001$. And
HS scores were higher for the HIV-positive group as well ($M = 6.62$ and $3.07$ for the seropositive and seronegative groups, respectively), which was significant beyond the .0001 level ($Welch \, F[1, \, 82] = 17.78$). A Kruskal-Wallis calculation for the HS scores confirmed the significance of this result: $H(1) = 12.14, \, p < .001$. These results indicate that the HIV-positive group was significantly more depressed and more hopeless than the HIV-negative group.

Tests of differences reported previously failed to establish substantial differences between these two groups on the demographic variables of age, level of education, SES, and ethnicity. They also failed to find support for a difference in psychological set or predisposition to suicidality as measured by the SCARS and lifetime suicidality question on the SBQ (see Table 1). It appears, therefore, that the differences in measures of suicidality, depression, and hopelessness found here can be attributed to factors related to the diagnosis of HIV seropositivity in the experimental group. They do not appear to be a result of the social stigma of being gay or a characteristic tendency toward either risk-taking behaviors or suicidality.

Because some of the adjunct instruments used in this study have been found to be associated with suicidal ideation (see Table 2), one-way ANOVAs were conducted with four of these measures, comparing the scores obtained by the ideating and nonideating HIV-positive participants. The instruments included in these analyses were the BDI, the HS, and the Number and Satisfaction scores of the SSQ6. As reported in Table 4, all of these instruments measured significant differences between ideators and nonideators except the Satisfaction score of the SSQ6. On the BDI, ideators scored significantly higher ($M = 15.50$) than nonideators ($M = 10.00$), indicating a greater degree of depression: $Welch \, F(1, \, 69) = 9.80, \, p < .01$.
### TABLE 4

**COMPARISON OF IDEATING AND NONIDEATING HIV-POSITIVE PARTICIPANTS: MEASURES WITH DEMONSTRATED RELATIONSHIP TO SUICIDALITY**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Ideators</th>
<th>Nonideators</th>
<th>Statistic</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI*</td>
<td>15.50</td>
<td>10.00</td>
<td>$E(1, 69) = 9.80$</td>
<td>&lt; .01</td>
</tr>
<tr>
<td>SD = 9.50</td>
<td>$SD = 5.82$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS</td>
<td>7.74</td>
<td>5.31</td>
<td>$F = 4.32$</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>SD = 5.23</td>
<td>$SD = 5.07$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSQ6</td>
<td>19.67</td>
<td>27.56</td>
<td>$F(1, 64) = 5.64$</td>
<td>&lt; .03</td>
</tr>
<tr>
<td>Number</td>
<td>$SD = 12.33$</td>
<td>$SD = 16.34$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>29.29</td>
<td>31.97</td>
<td>$F = 3.38$</td>
<td>ns</td>
</tr>
<tr>
<td>SD = 6.98</td>
<td>$SD = 5.72$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n = 78.

† Welch approximation, df noted.

* The suicidality question was omitted from the BDI for this study.

Likewise on the HS, ideators’ scores indicated significantly more hopelessness ($M = 7.74$) than did nonideators’ scores ($M = 5.31$): $F(1, 76) = 4.32, p < .05$. On the SSQ6, ideators indicated that they had a significantly smaller social support network than did nonideators (means for the ideators and nonideators were 19.67 and 27.56, respectively): Welch $F(1, 64) = 5.64, p < .03$. But there were no significant differences between these two groups on the measure of satisfaction with social support network: $F(1, 76) = 3.38, ns$.

Because the ideator group comprised individuals with a very wide range of levels of suicidal ideation (including those with scores close to zero),
there was concern that the above operational definition of ideators might not adequately differentiate from nonideators. Therefore, a second operational definition was developed, for which the ideator group was divided into two groups based on a median split of SSI scores for ideators: those who fell above the median score of 11.5 were labeled ideators-2 \((n = 21)\). Nonideators were then compared to ideators-2 on these measures to maximize differences (see Table 5). On the BDI, ideators-2 \((M = 18.67)\) scored significantly higher than nonideators: Welch \(F(1, 27) = 12.75, p < .01\). On the HS, ideators-2 \((M = 10.14)\) again scored significantly higher than did nonideators: \(F(1, 55) = \) 

### TABLE 5

<table>
<thead>
<tr>
<th>Variable</th>
<th>Nonideators</th>
<th>Ideators-2</th>
<th>Statistic</th>
<th>(p) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BDI</td>
<td>10.00</td>
<td>18.67</td>
<td>(F(1, 27) = 12.75)†</td>
<td>&lt; .01</td>
</tr>
<tr>
<td></td>
<td>SD = 5.82</td>
<td>SD = 10.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS</td>
<td>5.31</td>
<td>10.14</td>
<td>(F = 12.10)</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>SD = 5.07</td>
<td>SD = 5.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSQ6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number</td>
<td>27.56</td>
<td>15.24</td>
<td>(F(1, 53) = 10.95)†</td>
<td>&lt; .01</td>
</tr>
<tr>
<td></td>
<td>SD = 16.34</td>
<td>SD = 11.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction</td>
<td>31.97</td>
<td>26.43</td>
<td>(F = 9.64)</td>
<td>&lt; .01</td>
</tr>
<tr>
<td></td>
<td>SD = 5.72</td>
<td>SD = 8.09</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(n = 57,\)

† Welch approximation, \(df\) noted.

* The suicidality question was omitted from the BDI for this study.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
12.10, \( p < .001 \). On the SSQ6, ideators-2 indicated a significantly smaller network (\( M = 15.24 \)) than nonideators (Welch \( F[1, 53] = 10.95, p < .01 \)) and less satisfaction with their support networks (\( M = 26.43 \)) than nonideators (\( F[1, 55] = 9.64, p < .01 \)). These findings generally corroborate previous findings of correlations between suicidal ideation and depression, hopelessness and social support.

**Hypothesis 2**

The second hypothesis—that the level of suicidal ideation changes in a curvilinear fashion in response to HIV-related illness variables—was tested first by regressing the factors of absolute CD4 counts, number of opportunistic infections, and time since diagnosis of seropositivity onto the SSI score, using a step-wise regression analysis. Also included in this regression were the ages of participants, to rule out any confound that might be present in studying the effects of illness progression on level of suicidality. In the initial regression, only time since diagnosis was found to significantly predict level of suicidal ideation. A second regression was then performed in which the variable, time since diagnosis squared, was included, to test the presence of a second-order effect. Again, only time since diagnosis significantly predicted level of suicidal ideation: \( F(1, 77) = 5.52, p < .05 \). The position of the variables after the first step of the regression are presented in Table 6, and the relationship between time since diagnosis and level of suicidal ideation is displayed graphically in Figure 1.

Since CD4 counts progressively decline over time in most HIV-positive populations, it was expected that CD4 counts and time since diagnosis would be correlated, and therefore that the decline in CD4 counts
TABLE 6

REGRESSION OF HIV-RELATED FACTORS ONTO LEVEL OF SUICIDAL IDEATION

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>$E$ to remove</th>
<th>Variable</th>
<th>Partial Corr.</th>
<th>$E$ to enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Time</td>
<td>5.52</td>
<td>Age</td>
<td>-.05087</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CD4</td>
<td>.09450</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ols</td>
<td>.11817</td>
<td>1.08</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Time Sq.</td>
<td>-.04026</td>
<td>0.12</td>
</tr>
</tbody>
</table>

Resultant Statistics:

- Multiple $R$ = 0.2587
- Multiple $R^2$ = 0.0669
- Adjusted $R^2$ = 0.0548
- $F(1, 77) = 5.52$, $p < .05$

would also predict level of suicidal ideation. In order to rule out the possibility that this particular group of participants differed from this expected relationship between time since diagnosis and CD4 counts and to establish the relationship between CD4 counts and time since diagnosis in this particular sample, CD4 counts were regressed onto time since diagnosis. As displayed in Figure 2, CD4 counts in this sample did indeed decline over time, with a correlation between the two factors on the order of -.24, which was significant beyond the .05 level. Thus it could not be assumed that other illness factors were unable to significantly predict level of suicidal ideation was because the progression of illness in this particular sample differed significantly from that in the larger population of individuals infected with HIV.
FIGURE 1. RELATIONSHIP BETWEEN LEVEL OF SUICIDAL IDEATION AND TIME SINCE DIAGNOSIS OF HIV POSITIVITY

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
FIGURE 2. RELATIONSHIP BETWEEN PERCEIVED CD4 COUNT AND TIME SINCE DIAGNOSIS OF HIV POSITIVITY

(n = 80; r = -.24; p < .05)
As a further test of the strength of the relationship between time since diagnosis and level of current suicidal ideation, a third regression analysis was performed in which CD4 counts were forced into the equation first. In this way, the partial correlation between time since diagnosis and current level of suicidal ideation (i.e., with the effects of CD4 counts partialled out) could be obtained. The resultant partial correlation was on the order of .27 ($E[1, 77]$ to $= 6.13, p < .05$), suggesting that the relationship between time since diagnosis and current level of suicidal ideation is not dependent on the deterioration of the health of the immune system that inevitably accompanies the time-related progression of HIV illness.

The regression function that resulted from the above analysis was then subjected to a discriminant analysis to measure its diagnostic utility in differentiating between ideators and nonideators. The resulting function, while statistically significant ($E[1, 78] = 4.16, p < .05$), proved not very clinically useful in discriminating between ideators and nonideators (see Table 7).

**TABLE 7**

**PREDICTING PRESENCE OF SUICIDALITY FROM TIME SINCE DIAGNOSIS OF HIV SEROPOSITIVITY: DIAGNOSTIC UTILITY OF A DISCRIMINANT ANALYSIS FUNCTION**

<table>
<thead>
<tr>
<th>Group</th>
<th>Percent Correctly Classified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ideators</td>
<td>51.4</td>
</tr>
<tr>
<td>Nonideators</td>
<td>69.8</td>
</tr>
<tr>
<td>Total</td>
<td>61.2</td>
</tr>
</tbody>
</table>

$n = 80, E(1, 78) = 4.16, p < .05.$
While the function that included only time since diagnosis was somewhat better in correctly identifying nonideators than ideators, neither group was identified well enough to be used as a diagnostic tool. An examination of the raw data of those individuals who were incorrectly classified revealed no particular pattern which could explain their deviation from their expected classification based on time since diagnosis.

**Hypothesis 3**

It was hypothesized that ideators in the early stage of HIV illness would differ from those in a later stage of HIV illness, particularly on the variables of urgency of suicidality, violence of means, and the presence of persons in the ideator's environment who would help and those who would hinder a suicide attempt. To test this supposition, the HIV-positive participants were divided into three groups, based on time since diagnosis of seropositivity (since that is the only illness-related factor that significantly predicted ideation). The first group consisted of the participants who had been diagnosed within 24 months of participation ($n = 25$), the second group consisted of those who had been diagnosed anywhere from 24 to 60 months prior to participation ($n = 29$), and the third group subsumed those who had survived HIV seropositivity for more than 60 months ($n = 26$). This classification provided three groups of approximately equal size while also using dividing points that were reasonably naturally occurring. For the purposes of these analyses, only the first and third groups were compared to create a maximal contrast. These groups were called, respectively, the early-stage and late-stage groups, although this labeling refers only to the time factor and not to prognosis or other disease factors.
To ensure that the particular method of creating these two groups adequately preserved the relationship between time since diagnosis and suicidal ideation noted above, a one-way ANOVA was performed which compared the early-stage and late-stage groups on SSI scores. The late-stage group reported significantly more ideation than the early-stage group ($M = 9.23, SD = 7.99$ and $M = 3.60, SD = 5.68$, respectively): $F(1, 50) = 8.47, p < .01$. A Chi Square analysis (see Table 8) was also significant, finding a difference in the incidence of ideators between the two groups (Chi Square = 5.65, $p < .02$).

**TABLE 8**

**PRESENCE OF SUICIDAL IDEATION: COMPARISON OF EARLY-STAGE AND LATE-STAGE SEROPOSITIVES**

<table>
<thead>
<tr>
<th>Frequencies</th>
<th>Early-stage</th>
<th>Late-stage</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suicidal Ideation</td>
<td>9</td>
<td>18</td>
<td>27</td>
</tr>
<tr>
<td>No Suicidal Ideation</td>
<td>16</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td>Totals</td>
<td>25</td>
<td>26</td>
<td>51</td>
</tr>
</tbody>
</table>

Chi Square = 5.65, $p < .02$

A series of one-way ANOVAs was then performed which compared the early-stage ideators ($n = 9$) to the late-stage ideators ($n = 18$) on a number of variables that included the urgency of future ideation and attempts, the presence of individuals who would prevent and those who would assist a suicide, and the related constructs of depression, hopelessness, and social support. It is important to note here that there were only nine ideators in the
early-stage group. Therefore, the results of these analyses should be viewed with a cautious eye. As can be seen in Table 9, no differences were found between early-stage ideators and late-stage ideators on the scores of either the Future Ideation question or the Future Attempts question of the SBQ: Welch $E(1, 26) = 3.11$, ns; and $E(1, 26) = 1.26$, ns, respectively. A Kruskal-Wallis calculation for the Future Ideation question indicated a nonsignificant

**TABLE 9**

**COMPARISON OF EARLY-STAGE AND LATE-STAGE IDEATORS.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Early-stage</th>
<th>Late-stage</th>
<th>$E$</th>
<th>$p$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Future Ideation</td>
<td>27.67</td>
<td>10.33</td>
<td>3.11†</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>$SD = 27.82$</td>
<td>$SD = 13.92$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Future Attempts</td>
<td>15.56</td>
<td>8.11</td>
<td>1.26</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>$SD = 21.96$</td>
<td>$SD = 12.66$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stoppers</td>
<td>1.67</td>
<td>1.39</td>
<td>0.71</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>$SD = 0.71$</td>
<td>$SD = 0.85$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helpers</td>
<td>0.56</td>
<td>1.22</td>
<td>4.35</td>
<td>&lt; .05</td>
</tr>
<tr>
<td></td>
<td>$SD = 0.73$</td>
<td>$SD = 0.81$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BDI</td>
<td>20.22</td>
<td>17.06</td>
<td>0.58</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>$SD = 10.11$</td>
<td>$SD = 10.22$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HS $\beta$</td>
<td>10.00</td>
<td>7.94</td>
<td>0.97</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>$SD = 6.25$</td>
<td>$SD = 4.50$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSQ6 (size of network)</td>
<td>13.33</td>
<td>19.17</td>
<td>2.08</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>$SD = 8.99$</td>
<td>$SD = 10.32$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSQ6 (satisfaction)</td>
<td>26.44</td>
<td>29.56</td>
<td>1.08</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>$SD = 9.40$</td>
<td>$SD = 6.10$</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$n = 27$.
† Welch approximation, df 1, 10.
trend ($H[1] = 3.54, \ p < .06$), but with the small number of early-stage ideators, this trend cannot be interpreted with any confidence.

The SBQ question asking participants to rate the presence of individuals in their environment who would stop a suicide attempt if they could found no difference between the early- and late-stage groups: $F(1.26) = 0.71$, ns. However, the late-stage group scored significantly higher ($M = 1.22$) than the early-stage group ($M = 0.56$) on the question asking about the presence of individuals who would offer at least emotional support for a suicide: $F(1, 26) = 4.34, \ p < .05$. This result was confirmed by a Kruskal-Wallis calculation: $H(1) = 3.85, \ p < .05$. These results indicate that the support networks of long-term survivors of HIV who are contemplating suicide can be distinguished from those of ideators who have been more recently diagnosed with HIV by the increased presence of helpers for suicidal attempts, but not by a difference in the presence of stoppers of such behaviors.

Interestingly, no differences were found between the early- and late-stage ideators on any of the adjunct measures used in this study. To wit, the two groups did not differ in reported levels of depression, hopelessness, or in the size or level of satisfaction of their support networks. The lack of difference in support network size has particular bearing on the findings related to helpers and stoppers reported above. Together, these results indicate that the increase in helpers did not affect the total size of the networks and therefore reflects a more qualitative change in the make-up of the networks. The lack of differences between the two groups on measures of depression and hopelessness is also important, because it suggests that the increase in suicidal ideation that was observed is unrelated to these two constructs that
have been traditionally associated with suicide. This serves to strengthen the supposition that ideation is a function of accumulated stress.

Among the early-stage ideators, only three reported any planned method of suicide; among the late-stage ideators, 13 participants reported any method. Of all of these, 12 reported pharmacological methods of suicide: 10 listed overdose, one listed carbon monoxide poisoning, and one reported that he would stop taking his medications. All of these methods could be considered to be relatively nonviolent in nature. Of the remaining participants, two indicated a planned method of jumping, one indicated drowning, and one indicated that he would die by intentional automobile collision (so as to appear to be an accident); all methods that could be termed violent in comparison. Despite the expectation that the early-stage group would tend to indicate more violent methods, all three of the participants in that group who reported any method indicated nonviolent means. To test this part of the hypothesis statistically, a Fisher's Exact Test was performed, which was nonsignificant. Therefore, it appears that rather than a difference between long-term survivors of HIV and individuals who have been newly diagnosed, there is a strong preference--within this sample at least--for pharmacological methods for suicide which obscures any differences based on length of time that the individual has lived with HIV.

Exploratory Analyses

One of the exploratory areas of interest in this study was whether the feeling of control that suicidal thoughts presumably give ideators might be more prominent in the early or later stages of HIV illness and thereby help to explain any other qualitative differences between the patterns of ideation in
the two groups. To assess this, the two control items on the semantic
differential scale were subjected to one-way ANOVAs, comparing the early-
stage and late-stage ideators. No significant differences were found between
the two groups on either the item which proposed a situation in which the
participant would not die (M = 3.88, SD = 2.03 for the early-stage ideators and
M = 3.63, SD = 2.47 for the late-stage ideators) or on the item which proposed
a situation in which the participant would die (M = 4.75, SD = 1.28 and M =
5.38, SD = 1.96 for the early- and late-stage ideators, respectively). Neither
did these items successfully distinguish between ideators (M = 3.83, SD =
2.34) and nonideators (M = 3.79, SD = 2.36) within the HIV group. Analyses
using a combination of the two measures to form one composite control
measure also failed to produce any significant results.

Also of interest was the importance to individuals with HIV of various
reasons for not committing suicide. Each of the subscale scores on the RFL
was submitted to one-way ANOVAs comparing ideating and nonideating
seropositives (see Table 10), as well as comparing ideating-2 and
nonideating seropositives (see Table 11). In the first comparison, nonideators
rated as significantly more important Survival and Coping Beliefs (M = 4.83
and 3.94 for the nonideators and ideators, respectively, F[1, 75] = 13.25, p <
.001) and Responsibility to Family (M = 3.75 and 2.59, respectively, F(1, 75) =
13.87, p < .001). These results indicate that family responsibility and desire to
survive successfully differentiated between ideators and nonideators in this
HIV-positive sample, while other reasons (i.e., fear of suicide, fear of social
disapproval, and moral objections) that previously have been found to
differentiate ideators did not do so. In the second comparison, support was
TABLE 10
RFL SCORES: COMPARISON OF IDEATORS AND NONIDEATORS.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Grand Means</th>
<th></th>
<th></th>
<th></th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ideators</td>
<td>Nonideators</td>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survival &amp; Coping</td>
<td>3.97</td>
<td>4.83</td>
<td>13.25</td>
<td>&lt; .001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD = 1.20</td>
<td>SD = 0.75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility to</td>
<td>2.59</td>
<td>3.75</td>
<td>13.87</td>
<td>&lt; .001</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>SD = 1.33</td>
<td>SD = 1.37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Suicide</td>
<td>2.68</td>
<td>2.82</td>
<td>0.23</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD = 1.24</td>
<td>SD = 1.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Social</td>
<td>2.07</td>
<td>2.52</td>
<td>2.61</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td>Disapproval</td>
<td>SD = 1.15</td>
<td>SD = 1.27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moral Objections</td>
<td>2.00</td>
<td>2.57</td>
<td>2.99</td>
<td>ns</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SD = 1.40</td>
<td>SD = 1.44</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n = 76.

found for the above differences on the subscales of Survival and Coping Beliefs (M = 3.31 for ideators-2, Welch F[1, 29] = 26.04, p < .0001) and Responsibility to Family (M = 2.33 for ideators-2, F[1, 53] = 13.28, p < .001).

Again, no differences were found on the subscales for Fear of Suicide and Fear of Social Disapproval. However, on the Moral Objections subscale, ideators-2 (M = 1.51) scored these items as significantly less important than did nonideators (M = 2.57): Welch F(1, 53) = 12.38, p < .001. This additional difference indicates that seropositive individuals who have more than a minimal level of suicidal ideation rate moral and religious objections for committing suicide as less important in deciding whether to actually commit suicide.
TABLE 11

RFL SCORES: COMPARISON OF NONIDEATORS AND IDEATORS-2.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Nonideators</th>
<th>Ideators-2</th>
<th>F</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survival &amp; Coping</td>
<td>4.83</td>
<td>3.31</td>
<td>26.04†</td>
<td>&lt; .0001</td>
</tr>
<tr>
<td></td>
<td>SD = 0.75</td>
<td>SD = 1.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility to Family</td>
<td>3.75</td>
<td>2.33</td>
<td>13.28</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>SD = 1.37</td>
<td>SD = 1.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Suicide</td>
<td>2.82</td>
<td>2.56</td>
<td>0.81</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>SD = 1.20</td>
<td>SD = 1.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Social Disapproval</td>
<td>2.52</td>
<td>1.95</td>
<td>2.71</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>SD = 1.27</td>
<td>SD = 1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moral Objections</td>
<td>2.57</td>
<td>1.51</td>
<td>12.38</td>
<td>&lt; .001</td>
</tr>
<tr>
<td></td>
<td>SD = 1.44</td>
<td>SD = 0.91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n = 76.
† Welch approximation, df for S&C 1, 29; df for MO 1, 53.

A third set of analyses was run on the RFL scores, which compared early-stage and late-stage ideators (see Table 12) to discern whether there may be any qualitative differences between ideators who were newly diagnosed and those who were long-term survivors of HIV. When the early-stage and late-stage ideators were compared on these same measures, no differences were found on the subscales of Survival and Coping Beliefs or Responsibility to Family. Nor were any differences found for Fear of Suicide. However, significant differences were found on the subscales of Fear of Social Disapproval and Moral Objections. On the Fear of Social Disapproval subscale, early-stage ideators ranked these reasons as significantly more
TABLE 12

RFL SCORES: COMPARISON OF EARLY-STAGE AND LATE-STAGE IDEATORS.

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Grand Means</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Early-stage</td>
<td>Late-stage</td>
<td>E</td>
<td>p value</td>
</tr>
<tr>
<td>Survival &amp; Coping</td>
<td>4.15</td>
<td>3.82</td>
<td>0.39</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>SD = 1.09</td>
<td>SD = 1.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsibility to</td>
<td>3.41</td>
<td>2.40</td>
<td>3.31</td>
<td>ns</td>
</tr>
<tr>
<td>Family</td>
<td>SD = 1.72</td>
<td>SD = 1.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Suicide</td>
<td>3.34</td>
<td>2.41</td>
<td>3.89</td>
<td>ns</td>
</tr>
<tr>
<td></td>
<td>SD = 0.50</td>
<td>SD = 0.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fear of Social</td>
<td>3.11</td>
<td>1.76</td>
<td>5.55</td>
<td>&lt; .05</td>
</tr>
<tr>
<td>Disapproval</td>
<td>SD = 1.61</td>
<td>SD = 0.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moral Objections</td>
<td>2.89</td>
<td>1.40</td>
<td>5.83</td>
<td>&lt; .04</td>
</tr>
<tr>
<td></td>
<td>SD = 1.77</td>
<td>SD = 0.76</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

n = 27.

important reasons for not committing suicide (M = 3.11) than did late-stage ideators (M = 1.76): F(1, 26) = 5.55, p < .05. Likewise, early-stage ideators ranked as more important Moral Objections than did late-stage ideators (M = 2.89 and 1.40, respectively): F(1, 26) = 5.83, p < .04.

To examine whether there were any interaction between presence of suicidal ideation and time since diagnosis of seropositivity on any of the qualitative factors measured in this study which might facilitate and deepen an understanding of the subjective experience of HIV-positive ideators, two-way ANOVAs were performed. The dependent variables included the BDI, the HS, the SSQ6 size and satisfaction measures, the SBQ question on the presence
of helpers and stoppers, and the RFL subscale scores. Four interactions were significant: size of social support network, helpers, and the RFL subscales of Fear of Suicide and Moral Objections.

The interaction on social support network size was such that early-stage nonideators reported significantly more individuals in their support networks ($M = 31.93, SD = 17.09$) than did early-stage ideators ($M = 13.33, SD = 8.99$), but there was no difference between nonideators ($M = 21.88, SD = 15.36$) and ideators ($M = 19.17, SD = 10.32$) in the late-stage group. Bonferroni tests revealed that there was also no significant difference between the early-stage and late-stage ideators, indicating that the group that stood out as significantly different in this interaction was the early-stage ideating group. This relationship is graphically presented in Figure 3. In this two-way ANOVA, the interaction was significant beyond the .05 level: $F(1, 46) = 3.96$.

A significant interaction was also found on the variable of presence of helpers in the individual's support network (see Figure 4): $F(1, 47) = 5.08, p < .03$. In this interaction, early stage ideators and nonideators did not differ in the presence of helpers in their environments ($M = 0.56, SD = 0.73$ for ideators and $M = 0.38, SD = 0.62$ for nonideators). But in the late-stage group, ideators had a significantly greater presence of helpers ($M = 1.22, SD = 0.81$) than did nonideators ($M = 0.13, SD = 0.35$). Bonferroni tests for this ANOVA revealed that there were no significant differences on this variable between nonideators in the early and late stages or between early-stage ideators and either group of nonideators. A Chi Square analysis which compared participants who did and did not report a presence of helpers (i.e., responses of "0" compared to combined responses of "1" or "2") confirmed the significance of the difference between the late-stage ideators and
FIGURE 3. INTERACTION ON SIZE OF SOCIAL SUPPORT NETWORK

FIGURE 4. INTERACTION ON PRESENCE OF "HELPERS" IN SUPPORT NETWORK

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
nonideators: Chi Square (1) = 9.67, p < .01. This indicates that the interaction is due to the deviation from the other groups of the late-stage ideators, who have a greater presence of helpers.

The first of the significant interactions based on RFL scores involves the Fear of Suicide subscale (see Figure 5): F(1, 44) = 5.69, p < .03. This two-way ANOVA revealed that there was no main effect for either presence of suicidal ideation or for stage of illness on this variable. Rather there existed only an interaction in which ideators (M = 3.34, SD = 1.49) appeared to score higher on this subscale than nonideators (M = 2.51, SD = 1.08) in the early-stage group, but ideators (M = 2.41, SD = 0.98) scored lower than nonideators (M = 3.24, SD = 0.81) in the late-stage group. However, Bonferroni tests revealed no significant differences between any two of the four means.

In the other interaction based on an RFL subscale score (see Figure 6), there was no significant difference between ideators (M = 2.89, SD = 1.77) and nonideators (M = 2.17, SD = 1.29) in the early-stage group on scores for the Moral Objections subscale, but ideators' scores dropped significantly in the late-stage group (M = 1.40, SD = 0.76), while nonideators' scores did not (M = 2.92, SD = 1.83). This interaction was significant beyond the .05 level: F(1, 44) = 4.85. Bonferroni tests revealed that the only significant difference between pairs of means was between early-stage and late-stage ideators.
FIGURE 5. INTERACTION ON FEAR OF SUICIDE AS A REASON NOT TO COMMIT SUICIDE

FIGURE 6. INTERACTIONS ON MORAL OBJECTIONS TO COMMITTING SUICIDE

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
CHAPTER 4. DISCUSSION

Several investigators have reported an increase in suicidality among individuals infected with HIV (e.g., Dilley et al., 1985; Kessler et al., 1988; and Marzuk et al., 1988). However, the absence of any controlled, systematic study of this phenomenon left room for doubt as to whether the elevation in suicidality was real or was an artifact of some factor unaccounted for by these investigators. By directly comparing two groups of individuals that did not differ in any significant and meaningful way on such variables as age, level of education, SES and ethnicity, the previous findings were put to the test. By also taking into account whether the two groups might differ on prior or premorbid suicidality and prior or premorbid risk-taking behaviors, it was possible to discern whether aspects of the participants' personality or psychological set that pertained to suicidal thoughts and behaviors might have accounted for any differences between the groups.

In this study, no differences were found between groups of HIV seropositive and seronegative participants on demographic variables or on factors related to prior suicidality or a predisposing psychological set. It should be noted that the use of the SCARS in this study required seropositive participants to respond retroactively to the items: they were asked to recall how they had behaved prior to being diagnosed HIV-positive. This may have created a confound in the data for memory loss (i.e., some of the participants may have misreported their prior behavior due to an inability to accurately
recall just what they had done. Unfortunately, it is impossible to know for certain just how much of an impact this had on participants' responses, and it presents a problem for any retrospective design. On the other hand, the history of suicidality question also used a retrospective approach and no differences were found between the two groups on that item either. While this does not mean that a confound was not present on the SCARS, it does suggest that any differential influence was minimal.

In one sense, it is somewhat surprising that no difference was found between the seronegative and seropositive groups on the measure of recklessness: It can safely be assumed that nearly all of the men in the seropositive group contracted HIV through risky sexual behaviors. Would not such risk-taking in sexual behavior generalize to other behaviors and therefore show up on a measure of general risk-taking behavior such as the SCARS? Apparently not. First, it should be noted that the abbreviated version of the SCARS used in this study contains no items directly related to risky sexual behaviors. But more importantly may be the reasons that many gay men engage in such risky behaviors at all, and why they may not be related to other risk-taking behaviors.

Because the society in which gay men are socialized strongly discourages expression of homosexuality, many gay men assume that long-term homosexual relationships are not possible and that they are left to finding sexual encounters in such places as bathhouses and public parks, where sex is quick, anonymous, and rarely protected (i.e., condoms are seldom used). Many such men may realize the risks incurred in such behavior, but are willing to take these risks in order to meet their basic sexual needs. They may not, on the other hand, be willing to take risks unrelated to sexual behavior. In this
way, these gay men develop a behavioral pattern of engaging in risk-taking behavior in one circumscribed area of their lives (an area that indeed may be circumscribed in many other ways as well). But when assessed for general risk-taking behavior, they appear no different from other gay men who do not take such sexual risks.

Despite the lack of differences between the seropositive and seronegative groups on demographic factors and prior suicidality and risk-taking behaviors, a clear difference in level of suicidal ideation was found between these two groups. Therefore, the findings previously reported in the literature were supported: There does indeed appear to be a striking elevation in the level of suicidal ideation among individuals who are HIV seropositive. Concomitantly, this study found that a significantly larger proportion of men who were seropositive were currently thinking about suicide compared with men who were seronegative. This replication of previous findings adds credence to the hypothesis that suicidal ideation follows as a result of being infected with HIV.

It does not by itself, however, explain what it is about HIV infection that induces suicidal ideation. The regression of HIV-related factors onto suicidal ideation was designed to aid just such an investigation. From a review of previous research, it was expected that suicidal ideation would be high near the time of testing for HIV antibodies and then decline (Perry, et al., 1990), and be high again as symptoms develop and become serious (Mackenzie & Popkin, 1990). However, elevations in suicidality have also been found among asymptomatic patients (McKegney & O'Dowd, 1992; Rajs & Fugelstad, 1992). But all of these studies had divided participants into groups on an a
priori basis, without first trying to determine which factors should have been used to create such groups.

When various factors related to HIV illness were regressed onto level of suicidal ideation in this study, only time since diagnosis was found to significantly predict level of ideation. This throws into question the utility of categorizing participants by CD4 counts or by the presence of opportunistic infections. Since no other HIV-related factors loaded into the regression equation, particularly those that are inherently biological, this finding also appears to lend general support to the theory that suicidal ideation in HIV illness is the result of a psychological mediation process (see Mackenzie & Popkin, 1990).

However, it was expected that if level of suicidal ideation was indeed mediated by psychological processes, then the relationship between time since diagnosis and level of ideation would be curvilinear in response to particular stress points that arise in the course of HIV infection. Results of previous studies showed a decrease in ideation following HIV antibody testing and suggested a subsequent increase late in the disease process. Instead, the relationship between time and level of suicidal ideation was shown to be linear, with the level of ideation gradually increasing over time. It should be kept in mind, however, that only five of the participants in this study had been diagnosed as HIV-positive within six months prior to completing the questionnaire packet and none had been diagnosed within less than three months of participation. It may be that the initial drop in ideation occurs over the course of the first several weeks and was not reflected in this sample. Indeed, Rundell, Kyle, Brown, and Thomason (1992) found that 46.7% of attempters in their study attempted within three months of notification of
seropositivity, and over half of those attempted within the first week. Further investigation, with a focus on individuals who are very newly diagnosed, would be needed to tease out this possibility. The paucity of newly diagnosed seropositives in this study may be a result of their feeling emotionally overwhelmed, which may reduce the desire for, or even awareness of, research participation. It may be necessary to conduct such a study in the context of an antibody testing center in order to solicit the participation of seropositives immediately after testing.

If the psychological processes that seem to be involved in producing suicidal ideation are a result of stress associated with having and living with HIV, and if events such as HIV antibody testing, a drop in CD4 counts, and being diagnosed with an opportunistic infection all serve as stressors in the course of the illness, then a linear relationship seems to indicate that there is a level of stress that overshadows the discreet events that may appear more obvious to the outside observer. In particular, it appears that ideation in HIV seropositives may be closely related to stress accumulated over time since the diagnosis of HIV seropositivity. This course, then, seems to lend support for the primacy of psychological over specific biological events in leading to suicidal ideation. This would help to explain why the biological factors accounted for in this study did not directly predict level of suicidal ideation. Rather, their effect appears to be indirect, by affecting the psychological state of the individual.

Additionally, the HIV-positive participants reported higher levels of depression and hopelessness, which are both more direct indicators of emotional distress than is suicidal ideation, than did the control group. While it is ordinarily expected that depression and hopelessness would be found in
persons ideating about suicide (Sainsbury, 1986), this difference more clearly illustrates the increase in psychological distress associated with having been diagnosed with HIV and strengthens the argument that suicidal ideation is the result of psychologically mediated processes.

While the correlation between time since diagnosis and level of suicidal ideation is statistically significant, when this relationship was tested in a discriminant analysis, time since diagnosis was able to correctly classify ideators only 51.4% of the time and nonideators only 69.8% of the time. These percentages indicate that time since diagnosis of HIV seropositivity alone does not discriminate ideators from nonideators with enough accuracy to be diagnostically reliable. However, clinical diagnosis is rarely based on just one variable. Rather, it makes good clinical sense to consider all the variables available at the time of diagnosis. The significant relationship found here points out the value and importance of assessing the amount of time that any HIV-positive patient or client has known of his or her serostatus in any therapeutic or diagnostic relationship.

Based mostly on clinical observations, it was hypothesized that differences in certain qualitative aspects of suicidal ideation would emerge between ideators who had recently been diagnosed as HIV-positive and those who were long-term survivors of HIV. In particular, the ideation of newly diagnosed patients was expected to be more impulsive or urgent, because these individuals are temporally closer to the stress created by diagnosis. Any suicide plan was expected to be more violent in newly diagnosed patients, because the severity of this stressor would have created sudden changes in their affect and cognitive style (i.e., they would have become more depressed and hopeless). And there were expected to be more individuals in these
patients' social support networks who would hinder any suicide attempts and fewer who would offer assistance. Actually, it was thought that long-term survivors would have effected changes in their support networks resulting in fewer stoppers and more helpers.

In this study, no differences were found between ideators who were long-term survivors of HIV and ideators who were more recently diagnosed in the level of urgency in either future suicidal ideation future suicide attempts. It may be, as noted earlier, that the newly diagnosed participants in this sample do not accurately represent the total population of newly diagnosed individuals because some of those persons have suicided. It is possible that any such individuals would have reported higher levels of urgency on these measures. However, it must also be noted that there were no significant differences between HIV-infected participants and the control group in the level of prior suicidality, suggesting that this sample was not unusual and that there simply are no differences in level of urgency.

Unexpectedly, no difference was found between newly diagnosed and long-term survivors in the method of suicide ideated. Instead, what was found here was a predominant preference for pharmacological means of suicide that spanned both groups. These results are similar to those found by Rundell, et al. (1992). In their study of attempters, 50.0% overdosed on medications and another 5.6% used carbon monoxide poisoning. This finding may reflect the exposure to medical procedures and the preoccupation with pharmacological modes of treatment that individuals infected with HIV experience as patients and that participants in this study in particular experienced. Such individuals typically have frequent contacts with medical professionals, in which they are indoctrinated in the importance of
pharmacological interventions as well as the serious risks of such interventions. In this process, patients learn well the dosage levels of various medications that will likely result in toxicity and death. They are then sent home with just such medications. With this focus on pharmacological interventions and the ready availability of potentially lethal drugs, it is small wonder that most of the participants in this study who reported a suicide plan preferred methods that involved the use of some sort of drugs. It would therefore behoove health care providers who treat persons with HIV infection to take note of how much drug a patient has in his or her possession at any given time. While providing patients with lethal quantities of medications cannot always be avoided, physicians especially should be aware of the necessity of assessing suicide risk for patients who are prescribed such drugs.

Long-term survivors also reported having significantly more individuals in their support networks who would offer at least emotional help in committing suicide, but there were no differences between the two groups in the number of support network members who would prevent a suicide. There was also no difference between the groups in either the total size of support network or the level of satisfaction with that network. If this difference reflects an actual difference in support networks, these results suggest one of two possibilities: Either long-term survivors have effected a change in the make-up of their support networks to include more persons who are supportive of their suicidal wishes without having significantly affected the size of their networks, or at least some of the members of seropositives' support networks change their attitude toward suicide in such a way that they become supportive of such wishes. In reality, either or both of these processes may occur. On the other hand, it is possible that the differences here reflect only a
difference in perception of support networks between early-stage and late-stage ideators. It is important to understand that real change is only implied here; it cannot be deduced that change actually occurred from the data of any cross-sectional study. It would be necessary to conduct a longitudinal study to be certain whether there was not some extraneous factor that affected this difference.

Two significant interactions were found among the data on factors related to social support networks. While newly diagnosed HIV-positive ideators tended to have significantly fewer individuals on whom they could rely for support, after years of living with HIV this difference between the two groups disappeared. The group that significantly stood out in this interaction was the early-stage nonideators: they had a larger support network than the other groups. There appear to be two factors that relate to the size of the seropositive individual's social support network. The first, and more immediate, is the presence of suicidal ideation: ideators had fewer persons to whom they could turn in times of need. The primacy of this difference was evidenced by the obvious discrepancy in network size that presented itself in the early-stage group. The second factor appears to have been related to living with HIV. This factor seems to have taken longer to impact on network size, possibly because newly diagnosed individuals may not initially disclose their serostatus to others, thereby delaying the impact this may have on members of their networks.

Conversely, while both ideators and nonideators who are newly diagnosed report similar levels of the presence of individuals who would support them in committing suicide, after several years, ideators have significantly more helping support. In this analysis, the data point that
diverged from the rest was the late stage ideators', who reported a greater presence of helpers in their support networks. This lends further support to the notion advanced above that ideators effect changes in their support networks over time, so that they end up with more individuals who would in some way lend support for a suicide attempt. Again, caution must be used in interpreting these results, since participants in this study were not followed over any period of time.

Among the exploratory questions asked in this study was that of whether suicidal ideation served the function of giving seropositive individuals more of a sense of being in control while suffering from an illness that leaves them very much not in control. The most direct test of this question was presented by the control items on the semantic differential scale. However, one-way ANOVAs failed to detect any significant differences on these measure (separately or combined), either between ideators and nonideators or between early- and late-stage ideators. This measure represented an attempt to fairly directly address the question of control. Because this measure was designed for this study and had not been used before, it is unclear whether its design was inadequate for the task, whether a less direct approach would have been more successful, or whether ideation simply did not serve a purpose of helping these individuals to regain a sense of control.

Schneider, Taylor, Hammen, et al. (1991) surmised, based on their data, that ideation does serve, at least in part, as a coping mechanism designed to boost the ideator's sense of control over HIV. They found that while suicidal ideation was related directly to psychologically mediated HIV-related stressors, level of distress was not necessarily related in this way. In this study, early-stage and late-stage ideators did not differ significantly on
level of depression, hopelessness, or size or satisfaction of support network. Yet level of suicidal ideation was clearly elevated in the late-stage group. This suggests that ideation among HIV seropositives does not differ as a function of level of distress (i.e., depression, hopelessness, etc.). While this does not directly support the concept of ideation as a coping function, it certainly does leave this possibility open.

Much of the speculation that ideation serves as a means of gaining control over illness stems from the conclusions made by Taylor (1983) in her study of the coping mechanisms utilized by cancer patients. In her study, Taylor observed the various ways in which these patients dealt with having cancer and drew the conclusion from these observations that these mechanisms were largely ways of gaining control over having a terminal illness. However, she did not employ in her study a measure of control, and therefore was not able to address this construct directly. Regarding the current study, another explanation for the lack of concordance between level of suicidal ideation and measures of psychological distress is that ideation serves a function other than control and ultimately leads to a decrease in distress factors. For example, ideation may simply make individuals with chronic or debilitating illnesses feel better in some way, or it may serve as a distractor from the pains and discomforts of illness. It may be clear that ideation serves some sort of coping mechanism, but it is not clear just what psychological processes are involved in this mechanism. Further exploration of ways to address this question is warranted.

A second area of exploration related to the reasons that individuals give as reasons not to commit suicide. Using the RFL, it was found that HIV-positive ideators ranked as less important than nonideators reasons on two
subscales: Survival and Coping Beliefs and Responsibility to Family. They did not differ from nonideators on the subscales of Fear of Suicide, Fear of Social Disapproval, and Moral Objections. When nonideators were compared to ideators-2, similar results were found on all subscales except Moral Objections, on which significant differences were found to exist between these two more clearly differentiated groups. These results suggest that the primary differences between ideators and nonideators among seropositives (at least gay male seropositives) are that nonideators feel a stronger duty to family members and that they have greater faith in their ability to find ways of coping with difficulties. Additionally, ideators with higher level of suicidal ideation appear to regard religious and moral reasons as less a barrier to committing suicide than do nonideators.

When early-stage and late-stage ideators were compared on the RFL, late-stage ideators were found to rate as less important reasons not to commit suicide Fear of Social Disapproval, and Moral Objections. There were no differences on the subscales of Survival and Coping Beliefs, Responsibility to Family, and Fear of Suicide. These results suggest that late-stage ideators do not differ from early-stage ideators in their beliefs about being able to cope with difficulties or their sense of duty to family members, but have set aside what may have previously been barriers to suicide related to fear of reproach, either from others or their own consciences.

Two-way ANOVAs turned up two significant interactions on the RFL subscales: on Fear of Suicide and Moral Objections. In the first, the results imply that ideators and nonideators move in different directions on this subscale: ideators tended to rate fear of suicide as a less important barrier as time progresses while nonideators tended to rate it as more important as time

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
progresses. Because of the cross-sectional design of this study, no clear meaning can be assigned to this interaction, since no two data points were significantly different. Further investigation, using a longitudinal approach would be needed.

The second interaction, on the Moral Objections subscale, showed a similar pattern to that on the Fear of Suicide subscale: ideators tended to rate items on this scale as less important over time while nonideators tended to rate them as more important. Since the only two data points that were significantly different from each other were the late-stage ideators and late-stage nonideators, all that can be said with any confidence is that among long-term survivors, moral objection present less a barrier to suicide for ideators than it does for nonideators. In both of these interactions, it appears that ideators move in the direction of disposing of reasons not to commit suicide, while nonideators bolster those same reasons.

A word of caution is in order regarding the interpretation of some of these results, because of the fact that 20% of the HIV-positive participants failed to complete all of the questionnaires in the packet. In most cases, specific scales (i.e., the RFL and semantic differential scale) were omitted with notes left by participants that they did not understand the instructions of these scales. In no case, did a participant indicate that the questionnaires had caused him to feel suicidal or depressed. The scale most profoundly affected by these omissions was the semantic differential, which would likely have significantly decreased its power in the statistical analyses. No other scales were affected to such a degree that a significant drop in power was likely.

The levels of suicidal ideation, depression, and hopelessness found in this seropositive sample can be compared to levels found in psychiatric
patient populations. Ranieri et al. (1987) reported means and standard deviations for the SSI, BDI, and HS in inpatient and outpatient psychiatric samples: On the SSI, their inpatient sample obtained a mean score of 8.42 ($SD = 10.42$) and their outpatient group obtained a mean of 6.20 ($SD = 9.69$). On the BDI, inpatients averaged a score of 24.08 ($SD = 12.25$) and outpatients averaged 21.28 ($SD = 13.18$). And on the HS, the mean score for inpatients was 8.88 ($SD = 5.87$) and for outpatients was 9.16 ($SD = 5.74$). Cassileth et al. (1984) reported that a cancer patient sample obtained a mean BDI score of 7.33 ($SD = 8.29$). Similarly, Plumb and Holland (1977) reported a mean BDI score of 9.6 in a cancer patient sample. The mean scores obtained in the current sample on these scales do not appear to be significantly different from those reported above. No reported means for the SSI or HS in chronic or terminal medical populations could be found in the literature.

These comparisons suggest that the participants in this study are similar to other patient populations. However, it might be expected that persons with HIV illness would be more distressed and more suicidal than persons with other psychiatric or medical illnesses. It is possible that because participants in this sample were generally inclined to participate in multiple research protocols, they took a more aggressive approach to combatting their illness. It may be that these individuals possess a personality style that accounts for both their inclination to participate in research and their lower than expected levels of distress. Or their participation itself may serve as some sort of coping mechanism, a byproduct of which is that these individuals feel less distressed.

It should be kept in mind that this study was conducted solely with gay male participants. This was done in order to assure that a large enough and
adequately matched control group could be found. However, it is not entirely clear that all of the findings in this study will apply to other demographic populations that are infected with HIV. For example, would HIV-infected women, many of whom have children to care for, be more or less likely than gay men, most of whom do not have children, to consider suicide as a viable option to dealing with their pain and suffering? And would IV drug users, who have ready access to a multitude of drugs which are lethal in sufficient quantities, become steadily more suicidal as time progresses, or would they be more impulsive in making suicide attempts soon after they are aware of an HIV diagnosis?

These are more than just academic questions. In the highly fragmented campaign in the United States to encourage adolescents and adults to protect themselves from the risk of HIV infection when they have sex, it has become obvious that different types of messages must be used with different populations. The first community to launch such a campaign, the gay male community, found that a combination of education about the natural life of the virus and an understanding of the risks of infection for particular sexual activities and specific ways that those risks can be reduced proved largely effective in mobilizing gay men to use condoms during sex. However, when that same general strategy was applied to trying to prevent pregnancies in HIV-positive IV drug using women, it was met with little success. Further investigation of this problem has demonstrated that these women consider the roughly 30% chance that a baby born of an HIV-positive mother will also be infected to be good odds. In their experience, where one bad vial of drug can kill, a 70% chance of giving birth to a healthy child looks good.
These differences have been found within the gay male community as well. The risk-reduction program described above has been successful mostly among white gay men, who identify themselves as gay. It has proven much harder to reach a large proportion of black gay men, many of whom do not label themselves as gay and therefore feel that the messages being sent to the gay community do not apply to them. It therefore cannot be assumed that the results of this study apply universally. Instead, these examples point to the necessity of conducting a study such as this in a diverse group of individuals infected with HIV. Doing so would, of course, make it much more difficult to conduct a controlled study, since seronegative IV drug users are wary of exposing their illegal practices for altruistic purposes. However, with the demonstration that this study provided that suicidal ideation is elevated in persons with HIV infection, at least among gay men, it is arguable that a controlled study, while still desirable, is not absolutely necessary. Rather, a comparison of the various populations infected with HIV would prove much more useful to clinicians at this point in time, providing valuable information about both the quantitative and qualitative aspects of suicidality.

Such a study design would not discern whether the elevation in suicidal ideation found in gay male samples would be found among other HIV populations as well. However, it is also important to keep in mind the similarities that are usually found across diverse populations. For example, investigators have generally found that suicidal ideation and behavior is strongly associated with such factors as depression, hopelessness, loneliness, and the like. The greater levels of depression and hopelessness and the smaller social support networks reported by the ideators in this study suggest that ideation that is experienced by seropositives is not grossly
different than that experienced by other populations. That is to say that seropositives' ideation is accompanied by all, or at least most, of the same changes in affect, cognition, and interpersonal relationships as the ideation of individuals who may be thinking of suicide under ostensibly different circumstances. This may serve as a reminder that while differences may be pursued and studied, there is also a certain amount of universality in the suicidality of all groups that makes findings such as these applicable to any clinical work.
APPENDIX 1

Instructions: On this page, you are asked to describe your feelings in response to a hypothetical situation. Example: If on a scale ranging from responsible to irresponsible you feel very responsible, mark the scale like this:

responsible __X__:_____:_____:_____:_____:_____ irresponsible

If your feelings are more toward the middle between these two descriptions, place an "X" more toward the middle, like this:

responsible __:_____:_____:_____:_____:_____:_____ irresponsible

Now, please use the following scales to rate how intentionally harming yourself or attempting suicide would generally affect you, by placing an "X" in the appropriate space on each continuum. Assume, of course, that you do not die.

passive __:_____:_____:_____:_____:_____:_____ active
secure __:_____:_____:_____:_____:_____:_____ insecure
weak __:_____:_____:_____:_____:_____:_____ strong
dominant __:_____:_____:_____:_____:_____:_____ submissive
careful __:_____:_____:_____:_____:_____:_____ careless
in control __:_____:_____:_____:_____:_____:_____ out of control

Now, please describe how thinking about actually committing suicide (and dying) would generally affect you, by marking the appropriate space on each continuum.

passive __:_____:_____:_____:_____:_____:_____ active
secure __:_____:_____:_____:_____:_____:_____ insecure
weak __:_____:_____:_____:_____:_____:_____ strong
dominant __:_____:_____:_____:_____:_____:_____ submissive
careful __:_____:_____:_____:_____:_____:_____ careless
in control __:_____:_____:_____:_____:_____:_____ out of control
APPENDIX 2

DEMOGRAPHIC & HEALTH INFORMATION

Please provide the following information as completely as you can, to help us to analyze your data. If you are unsure of any response, please make the best estimate that you can and mark that item with an asterisk (*).

Date of Birth: __/__/__  Age: ___  Education _____________________________
(highest year completed)

Ethnic Origin: __ White  ___ Black  ___ Asian/Pacific Island
___ Native American  ___ Hispanic  ___ Check here if unable to work due to HIV

Date you completed this questionnaire packet: __/__/__
Date of HIV test in which you first learned you were seropositive: __/__/__

If your were tested before this, please give the last date for which you tested negative: __/__/__

Last T4 count: _______  Date of last T4 count: __/__/__

Opportunistic infections:  _____ Pneumocystis carinii pneumonia  _____ MAI infection
(indicate number of incidents of each)  _____ Kaposi's sarcoma  _____ Lymphoma
_____ Esophageal Candidiasis  _____ Herpes Zoster
_____ CMV (specify if: _____ retinitis or _____ colitis)
_____ Toxoplasmosis  _____ other (please specify) ___________________________________

Please list all drugs/medications you are currently taking, with their dosage if known.

__________________________________________________________________________
__________________________________________________________________________

Please note: Completing this questionnaire packet may have made you more accutely aware of your feelings, particularly feelings of depression, anxiety, and hopelessness. While it is normal to become aware of such feelings when completing such a questionnaire as this one, we would like to remind you that the members of your treatment team are available to you if you feel that you would like someone to talk to about any feelings that arose during your participation in this study. Feel free to contact them.

Please place your questionnaire in the envelope provided, seal it, and give it to the receptionist. Thank you for your participation in this research project. Your input is very valuable and greatly appreciated.
REFERENCES


dysfunctional attitudes to suicide ideation in psychiatric patients. *Psychological Reports*, 61, 967-975.


Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.