

Suicidal Ideation, Suicide Attempts, and HIV Infection

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A cross-sectional study was performed to investigate the prevalence and predictors of suicidal ideation and past suicide attempt in an Australian sample of human immunodeficiency virus (HIV)-positive and HIV-negative homosexual and bisexual men. Sixty-five HIV-negative and 164 HIV-positive men participated. A suicidal ideation score was derived from using five items selected from the Beck Depression Inventory and the General Health Questionnaire (28-item version). Lifetime and current prevalence rates of psychiatric disorder were evaluated with the Diagnostic Interview Schedule Version-III-R. The HIV-positive (Centers for Disease Control and Prevention [CDC] Stage IV) men (n = 85) had significantly higher total suicidal ideation scores than the asymptomatic HIV-positive men (CDC Stage II/III) (n = 79) and the HIV-negative men. High rates of past suicide attempt were detected in the HIV-negative (29%) and HIV-positive men (21%). Factors associated with suicidal ideation included being HIV-positive, the presence of current psychiatric disorder, higher neuroticism scores, external locus of control, and current unemployment. In the HIV-positive group analyzed separately, higher suicidal ideation was discriminated by the adjustment to HIV diagnosis (greater hopelessness and lower fighting spirit), disease factors (greater number of current acquired immunodeficiency syndrome [AIDS]-related conditions), and background variables (neuroticism). Significant predictors of a past attempted suicide were a positive lifetime history of psychiatric disorder (particularly depression diagnoses), a lifetime history of injection drug use, and a family history of suicide attempts. The findings indicate increased levels of suicidal ideation in symptomatic HIV-positive men and highlight the role that multiple psychosocial factors associated with suicidal ideation and attempted suicide play in this population. (Psychosomatics 1998; 39:405-415)

Suicide, attempted suicide, and suicidal ideation are complex clinical issues associated with life-threatening conditions such as human immunodeficiency virus (HIV) infection. Suicide in persons with HIV infection/acquired immunodeficiency syndrome (AIDS) has been reported in most cases to be associated with a concomitant psychiatric disorder.¹ The risk of

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Suicide and HIV Infection

suicide may extend to those fearful of contracting HIV infection^{2,3} as well as the family and partners of those infected.⁴ Elevated lifetime rates of affective disorders (particularly major depression) and substance use disorders have been reported in studies of HIV-positive men.⁵⁻⁷ Further, certain patterns of behavior associated with the risk of acquiring HIV infection (e.g., injection drug use) may be associated with higher rates of suicidal ideation and psychiatric disorder.⁸

Patterns of attempted suicide and suicidal thoughts may differ throughout the progression of HIV infection. There are at least two high-risk periods: 1) the initial 6 months after diagnosis of infection with HIV and 2) the onset of physical complications of AIDS.⁹⁻¹¹ The period of greatest risk may be within the first 3 months of diagnosis (one study reported that over 40% of the men in one cohort who were HIV-positive had attempted suicide within this 3-month period⁹). HIV-positive persons who are asymptomatic or have early HIV-related disease may experience higher rates of suicidal ideation compared with persons with AIDS.^{11,12} A history of alcohol abuse, other drug dependence, major depression, past suicide attempts, and diagnosis of a personality disorder have also been associated with suicide risk.¹² A longer duration of HIV infection,¹³ the onset of acute illness, and bereavement are also factors that may increase suicide risk, as well as stigma, social isolation, the perception of poor social support, and occurrence of HIV-related occupational and interpersonal problems.^{10,13}

In a study of U.S. national suicide data from 1987-1989,¹⁴ a suicide rate of 165 per 100,000 person years of observation was calculated for individuals with AIDS, a rate 7.4 times higher than demographically similar individuals in the general population. However, while still high, this figure was a decrease in the suicide rate among individuals with AIDS over the 1987-1989 period, leading the authors to speculate about the roles that better psychiatric care, newer therapies for HIV, and a possible lessening of social adversity and stigma faced by HIV-positive men may have played in this decrease.

The aim of this study, conducted between 1989 and 1992, was to identify factors associated with suicidal ideation and attempted suicide in an Australian sample of HIV-positive and HIV-negative homosexual and bisexual men. We hypothesized that suicidal ideation scores would be significantly higher in those with symptomatic HIV infection, compared with those with asymptomatic infection, and that suicidality would be less prevalent among those who are HIV-negative. We also predicted that for all groups, suicidal ideation and past suicide attempt would be associated with the presence of a psychiatric disorder, assessed in a diagnostic interview.

METHODS AND SUBJECTS

A convenience sample of HIV-antibody positive and HIV-negative men was recruited from three Australian centers. Recruitment was done at diverse sites, including hospital and community clinical facilities (e.g., HIV medical outpatient clinics), AIDS/HIV support services and agencies, and volunteer organizations. No subjects were directly recruited from either psychiatric inpatient or outpatient facilities. This approach is consistent with that taken in other studies of psychiatric morbidity in HIV infection.¹⁵ Participants were not paid. The project was reviewed by the relevant institutional ethics committees, and informed consent from the subjects was obtained by research staff at study entry. Exclusion criteria included failure to give consent, age outside the range of 18-65 years, and evidence of significant central nervous system complications stemming from HIV (e.g., cerebral opportunistic infection, AIDS-related tumors such as lymphoma, or a diagnosis of HIV Dementia Syndrome).

The total sample size was 229 (65 HIV-negative and 164-HIV positive men). The HIV-positive group was composed of 74 HIV-positive men who were asymptomatic (Centers for Disease Control and Prevention [CDC] Stage II), 5 men with persistent generalized lymphadenopathy (CDC Stage III), and 85 men in CDC Stage IV of the disease. The mean duration

since diagnosis of HIV infection was 42.8 months for the HIV-positive sample (range: 1–114 months). A difference in duration of HIV infection was detected between the symptomatic HIV-positive men (mean \pm SD: 48.9 \pm 26 months) and the asymptomatic HIV-positive men (mean \pm SD: 36.1 \pm 24.3 months) ($t = 3.20$, $df = 157$, $P = 0.002$).

The study was conducted with the collaboration of the following centers: The University of Queensland, Department of Psychiatry; The National Centre for HIV Epidemiology and Clinical Research, Sydney; St. Vincent's Hospital, Darlinghurst; and Department of Psychiatry, University of Melbourne, Victoria.

1. Measures of Recent Psychological Functioning and Lifetime Psychiatric Disorders

Suicidal Ideation Scale and Attempted Suicide. Recent suicidal ideation was assessed by using a variable composed of the sum of five suicidal ideation items from the General Health Questionnaire (GHQ),¹⁶ 28-item version, and the Beck Depression Inventory (BDI).¹⁷ These items included 1) the BDI item with the following responses (scores from 0–3): “I don't have any thoughts of killing myself,” “I feel I would be better off dead,” “I have definite plans about committing suicide,” and “I would kill myself if I had the chance” and 2) the following GHQ items (each scored from 0–3): “found that the thought of taking your own life kept coming into your mind” (Item 24), “found yourself wishing you were dead and away from it all” (Item 25), “felt that life isn't worth living” (Item 27), and “thought of the possibility that you might do away with yourself” (Item 28). The scale was summed to a total score ranging from 0 to 15.

Through the use of self-report questions, the participants were also asked to indicate any past history of suicide attempt, whether they had more than one suicide attempt in their life, and the date of their last suicide attempt.

Recent Alcohol and Drug Use. The Short Canterbury Alcoholism Screening Test¹⁸ is a

24-item, self-report instrument that assesses recent alcohol use. Self-report items also assess past injection drug use.

Psychiatric Disorder. The Diagnostic Interview Schedule–Version III-R (DIS)¹⁹ was used to determine current and lifetime rates of psychiatric disorder, according to DSM-III-R diagnostic criteria.²⁰ The following sections of the DIS were used: affective disorders, anxiety disorders, substance use disorders, schizophrenia and schizoaffective states, and posttraumatic stress disorder. The data from the DIS interviews were entered, checked, and scored by using the DIS data entry-and-scoring program.

2. Background Psychological Attributes

Eysenck Personality Inventory–Neuroticism (EPI). The EPI, a 10-item measure of neuroticism, was used to measure trait anxiety and propensity to emotional arousal.²¹

The Defense Style Questionnaire (DSQ). The Short-Form DSQ²² (40-item version) was used, from which three subscales are derived: immature, neurotic, and mature defense scores.

Locus of Control of Behavior (LCB). The LCB²³ (8-item version) was used to measure personality vulnerability on a dimension of internal and external locus of control.

Psychiatric History. Details of medical and family psychiatric history were asked in self-report format.

3. HIV Status and Measures of Disease Factors

All seropositive men were in classified, according to the Classification System for HTLV-III/LAV (HTLV: human T-lymphotropic virus, LAV: lymphadenopathy-associated virus), published by the CDC in 1987.²⁴ Two other measures of HIV-related variables were included. First, the subjects were asked about the total number of HIV physical complaints. The

participants were asked to indicate whether specific physical symptoms or complications of HIV infection had occurred following their diagnosis. This set of items included the following: weight loss, persistent cough, night sweats, headaches, swollen lymph glands, oral candida infection, and respiratory infection and enabled the listing of other physical symptoms not specified. Second, clinical data were obtained concerning the specific AIDS-related diagnoses; for example, diagnosis of specific opportunistic infections such as Kaposi's sarcoma, which were scored as a variable representing the total number of AIDS-related diagnoses.

4. Socioenvironmental Factors

Social Support. The Availability of Attachment subscale items from a self-report version of the Interview Schedule for Social Interaction²⁵ were used.

Life Events Inventory. A 12-item List of Threatening Life Experiences²⁶ recorded adverse life experiences in the preceding 4 months.

5. Patterns of Psychological Adjustment to Disease

The Mental Adjustment to Cancer Scale. The Mental Adjustment to Cancer Scale²⁷ was modified for use in HIV infection (Mental Adjustment to HIV Scale: MAHIVS). Instructions and individual items were modified to address reactions to having HIV infection or AIDS. The scale has been shown to have proven validity and reliability in cancer populations,²⁷ and its use in HIV infection has previously been reported.^{28,29} Each item presents a statement concerning a response to HIV infection/AIDS (e.g., "I feel that nothing I can do will make a difference") and is scored on a four-point scale ranging from "definitely does not apply to me" to "definitely does apply to me." Four MAHIVS subscales were used in this sample: fighting spirit, hopelessness/helplessness, minimization, and personal control of disease (Kelly et al., unpublished data, 1997).

Statistical Analysis

Analyses of the differences between the groups were done by using crosstabulation for categorical data and *t*-tests and analysis of variance (ANOVA) for continuous data (e.g., total suicidal ideation score). Discriminant function analysis was conducted to determine which variables discriminated between particular groups. Suicidal ideation scores were also analyzed by categorizing the scores. The high scores (top 25%) (score > 3) were compared with the 56% who reported the absence of any suicidal ideation (total score of 0) to maximize discrimination of clinically relevant groups. Discriminant function analysis is used to determine which variables best discriminate between two or more groups. The number of discriminant functions extracted is determined by the number of groups, minus one or the number of dependent variables, whichever is the smallest. Two methods are used to interpret significant discriminant functions: 1) examination of the standardized coefficients and 2) examination of the discriminant function variable correlations. The standardized coefficients provide information on the relative importance of the variable, whereas the discriminant functions variable correlations assess the relationship between the variable and the function score. Variables with high scores on both indices are deemed significant discriminators. Statistical significance was set at the level of $P < 0.01$ (two-tailed) to control for multiple tests of significance. Data analysis was conducted with the Statistical Package for Social Sciences.³⁰ At the chosen alpha level (0.01), sample sizes provided statistical power > 0.90 to detect small-to-moderate group effects (i.e., 0.30) in ANOVA and chi-square analysis.³¹

RESULTS

Sociodemographic Characteristics of the Sample

Seventy-seven percent (77%) of the participants described themselves as exclusively homosexual, 19.5% as predominantly homosexual,

and 3.4% as bisexual. No differences in sexual identity were detected between the HIV-positive and HIV-negative individuals ($\chi^2 = 1.22$, NS). The median age of the sample was 33 years (range: 20–60 yrs), and there was a significant age difference across subgroups (mean \pm SD HIV seronegative: 33.2 ± 8.8 , mean \pm SD CDC Stage III: 34.2 ± 8.2 , mean \pm SD CDC Stage IV: 37.5 ± 8.7 ; $F_{(2,226)} = 5.43$, $P = 0.005$). Eighty-four percent of the sample were born in either Australia or New Zealand. Employment rates varied significantly among the groups, with 81% of the HIV-negative men currently in full- or part-time employment, compared with 72% of the HIV-positive men (CDC Stage II/III) and 44% of the men in the HIV-positive (CDC Stage IV) group ($\chi^2 = 19.78$, $df = 2$, $P < 0.001$). The participants were a predominantly well-educated group, with 70% having at least 12 years of education, which included 30% who had a tertiary qualification. No differences in educational level were detected among the groups ($\chi^2 = 3.5$, $df = 2$, $P > 0.1$).

Suicidal Ideation

The suicidal ideation items exhibited a high level of internal reliability (Cronbach's $\alpha = 0.89$). Total scores obtained on this suicidal ideation scale ranged from 0–14, with a mean of 1.8 (SD = 3.0). The total suicidal ideation scores were significantly higher in the HIV-positive group (mean \pm SD: 2.2 ± 3.3) than in the HIV-negative group (mean \pm SD: 0.9 ± 1.6) ($t = -2.62$, $df = 189$, $P < 0.01$). Significant differences in total suicidal ideation score were also detected between the HIV-negative men (mean \pm SD: 0.9 ± 1.6), CDC Stage II/III men (mean \pm SD: 1.8 ± 3.0), and CDC Stage IV men (mean \pm SD: 2.6 ± 3.6) ($F_{(2,190)} = 4.71$, $P < 0.01$). Tukey HSD (honest significant difference) post hoc analysis revealed statistically significant differences between the CDC Stage IV and HIV-negative groups ($P < 0.01$).

Current and Lifetime Psychiatric Disorder and Suicidal Ideation

A comparison of suicidal ideation scores was made across the most frequent psychiatric

diagnoses: major depression, anxiety disorder (panic disorder or generalized anxiety disorder), and substance abuse/dependence. One-way ANOVA was conducted by comparing those with no lifetime history of a diagnosis, those with a positive lifetime diagnosis (but no current 6-month diagnosis), and those with a current diagnosis (6 month). Suicidal ideation scores were significantly higher among the individuals with current (6 month) major depression diagnosis ($n = 36$, mean \pm SD: 4.3 ± 4.6) than those with a lifetime history of major depression (but no current major depression) ($n = 39$) (mean \pm SD: 1.5 ± 2.5) and those with no lifetime or current major depression ($n = 145$) (mean \pm SD: 1.4 ± 2.3) ($F_{(2,182)} = 12.70$, $P < 0.0001$). A similar pattern was detected for current anxiety diagnoses, with suicidal ideation scores significantly higher in the current diagnosis group ($n = 13$) (mean \pm SD: 5.8 ± 5.2) than both other groups (lifetime but no current disorder ($n = 11$) (mean \pm SD: 1.7 ± 2.5) and no lifetime disorder ($n = 193$) (mean \pm SD: 1.6 ± 2.7) ($F_{(2,180)} = 9.97$, $P < 0.001$). No differences were detected in suicidal ideation scores, according to the presence of a current diagnosis of substance abuse/dependence ($F_{(2,116)} = 2.66$, $P = 0.07$).

Rates of Past Suicide Attempt

Lifetime rates of attempted suicide were 29.1% for the HIV-negative men and 21.4% for the HIV-positive men ($\chi^2 = 1.29$, $df = 1$, $P = 0.26$). No significant differences in rates of attempted suicide were found, according to CDC classification: CDC Stage II/III 24.6%, CDC Stage IV 18.3% ($\chi^2 = 2.07$, $df = 2$, $P = 0.36$). Of those men who had a history of suicide attempts, the following rates of multiple (i.e., more than one) suicide attempt were reported: HIV-negative 66.7%, CDC Stage II/III 50%, and CDC Stage IV 61.5% ($\chi^2 = 0.94$, $df = 2$, $P = 0.63$).

Discriminant Function Analysis: High and Low Suicidal Ideation

A series of discriminant function analyses was done to determine the variables that dis-

Suicide and HIV Infection

criminated between those with high and low suicidal ideation scores (Table 1 and Table 2). The first analysis was done by using the total sample of HIV-negative and HIV-positive individuals to assess the independent influence of HIV status on suicidal ideation. The second analysis was conducted by using the HIV-positive group only, which enabled investigation of variables specific to this group (e.g., adaptation to HIV diagnosis and severity of disease).

In the total group (Table 1), a significant discriminant function was detected, which contained the following variables (figures given are standardized correlation coefficient values), discriminating for higher suicidal ideation scores: higher EPI-neuroticism scores (0.52), external locus of control scores (0.45), current unemployment (-0.43), HIV-positive status (0.31), and the presence of any current (6 month) psychiatric disorder (0.28) (Canonical correlation = 0.77, $\chi^2 = 34.74$, $df = 5$, $P < 0.001$).

In the analysis of the HIV-positive group alone (Table 2), a significant discriminant function was detected, which contained the following variables: higher MAHIVS hopelessness

subscale (0.62), higher EPI-neuroticism scores (0.41), the greater number of current AIDS-related diagnoses (0.33), and lower MAHIVS fighting-spirit subscale (-0.24) (Canonical correlation = 0.65, $\chi^2 = 56.02$, $df = 4$, $P < 0.001$).

Discriminant Function Analysis: Attempted Suicide vs. No Past Attempted Suicide

A set of discriminant function analyses was done to determine the variables that discriminated for the presence of a lifetime history of attempted suicide (Table 3). These analyses were first conducted with the inclusion of depression diagnoses. In the total group, the significant discriminators were a positive lifetime diagnosis of dysthymic disorder (0.56), a positive lifetime diagnosis of major depression (0.46), DSQ-immature defense score (0.43), and DSQ-neurotic defense score (0.32) (Canonical correlation = 0.38, $\chi^2 = 26.25$, $df = 4$, $P < 0.0001$) (Centroids: no history = -0.24 , positive history of attempted suicide = 0.71).

In the separate analysis of the HIV-positive

TABLE 1. Discriminant factor analysis: high and low suicide ideation scores (total sample)

Variable	Standardized Coefficient	Discriminant Function-Variable Coefficients
External locus of control	0.45	0.46
Neuroticism	0.52	0.67
Any current psychiatric diagnosis	0.28	0.49
Employment status	-0.43	-0.51
HIV status	0.31	0.27

Note: HIV = human immunodeficiency virus. Canonical correlation = 0.77. Chi-square = 34.74, $df = 5$, $P < 0.0001$. Centroids: Group 1 (low suicidal ideation scorers) = -0.37 , Group 2 (high suicidal ideation scorers) = 0.79.

TABLE 2. Discriminant function analysis: high and low suicide ideation scores (HIV-positive group only)

Variable	Standardized Coefficient	Discriminant Function-Variable Correlations
Number of AIDS diagnoses	0.33	0.32
MAHIVS Hopelessness	0.62	0.88
MAHIVS Fighting Spirit	-0.24	-0.42
Neuroticism	0.41	0.59

Note: HIV = human immunodeficiency virus; AIDS = acquired immunodeficiency syndrome. MAHIVS = Mental Adjustment to HIV Scale. Canonical correlation = 0.65. Chi-square = 56.02, $df = 4$, $P < 0.0001$. Centroids: Group 1 (low suicidal ideation scorers) = -0.65 . Group 2 (high suicidal ideation scorers) = 1.12.

TABLE 3. Discriminant factor analyses: past suicide attempt

Total Sample (HIV-positive and HIV-negative groups combined)	Including Depression Diagnoses			Excluding Depression Diagnoses		
	Variable	Standardized Coefficient	Discriminant Function- Variable Correlation ^a	Variable	Standardized Coefficient	Discriminant Function- Variable Correlation ^b
	Lifetime history of dysthymic disorder	0.56	0.65	Lifetime history of injection drug use	0.47	0.52
	Lifetime history of major depression	0.46	0.59	DSQ: Immature Defense Score	0.44	0.67
	DSQ: Immature defense score	0.43	0.61	DSQ: Neurotic Defense Score	0.44	0.57
	DSQ: Neurotic defense score	0.32	0.44	Family history of suicide attempt	0.36	0.30
				HIV status	-0.35	-0.28
HIV-Positive Group ^c	Variable	Standardized Coefficient	Discriminant Function- Variable Correlation	Variable	Standardized Coefficient	Discriminant Function- Variable Correlation ^d
	Lifetime history of injection drug use	0.73	0.74	Lifetime history of injection drug use	0.69	0.69
	External locus of control	0.46	0.43	DSQ: Immature Defense Score	0.43	0.61
	Family history of suicide attempt	0.41	0.40	Family history of suicide attempt	0.34	0.37
	Lifetime history of major depression	0.26	0.38	External locus of control	0.31	0.43

Note: HIV = human immunodeficiency virus; DSQ = Defense Style Questionnaire.

^aCanonical correlation = 0.38. Chi-square = 26.25, df = 4, $P < 0.0001$.

^bCanonical correlation = 0.32. Chi-square = 16.72, df = 5, $P < 0.05$.

^cCanonical correlation = 0.40. Chi-square = 20.00, df = 4, $P < 0.001$.

^dCanonical correlation = 0.42. Chi-square = 22.21, df = 4, $P < 0.001$.

Suicide and HIV Infection

group only, the significant discriminators for a lifetime history of suicide attempt were a positive lifetime history of injection drug use (0.73), external locus of control (0.46), a positive family history of suicide attempt (0.41), and a positive lifetime history of major depression (0.26) (Canonical correlation = 0.40, $\chi^2 = 20.00$, $df = 4$, $P < 0.001$) (Centroids: no history = -0.22 , positive history of attempted suicide = 0.88).

Another discriminant function analysis was done, but this time with depression diagnoses excluded because the presence of a history of attempted suicide is an item included in the DIS for the diagnosis of major depression. In the total group, the following variables discriminated for the presence of a history of attempted suicide: a lifetime history of injection drug use (0.47), higher DSQ-neurotic defense scale scores (0.44), higher scores on the DSQ-immature defense scale (0.44), a positive family history of attempted suicide (0.36), and HIV serostatus (-0.35) (i.e., being HIV-negative) (Canonical correlation = 0.32, $\chi^2 = 16.72$, $df = 5$, $P < 0.01$) (Centroids: no history = -0.18 , positive history of attempted suicide = 0.63). In the HIV-positive group, the following variables contributed to a significant discriminant function: a positive lifetime history of injection drug use (0.69), DSQ-immature defense score (0.43), a positive family history of attempted suicide (0.34), and external locus of control (0.31) (Canonical correlation = 0.42, $\chi^2 = 22.21$, $df = 4$, $P < 0.001$) (Centroids: no history = -0.23 , positive history of attempted suicide = 0.93).

DISCUSSION

The aim of this study was to examine current suicidal ideation and past suicide attempt as dimensions of psychological morbidity in HIV infection. Significantly higher total suicidal ideation scores were present in the CDC Stage IV group, compared with the HIV-negative group, but the former's scores were not significantly higher than the HIV-positive CDC Stage II/III group. Multivariate analyses indicated significant independent effects of the following variables on suicidal ideation scores in the total sam-

ple: personality measures (external locus of control and neuroticism), psychiatric disorder (the presence of current psychiatric disorder), disease factors (being HIV-positive), and social factors (being unemployed).

Among the HIV-positive men, when analyzed separately, psychiatric disorder was not a significant discriminator of high suicidal ideation scores, yet the number of current AIDS diagnoses (and therefore the possible burden of disease), a greater level of hopelessness, and lower fighting spirit scores, along with higher neuroticism scores, were significant. These findings suggest that the severity of HIV disease and patterns of psychological adaptation to disease (lower level of perceived control, greater hopelessness), along with premorbid attributes (e.g., neuroticism), represent the chief discriminators of suicidal ideation in the HIV-positive group. The salience of hopelessness as a discriminator for suicidal ideation is consistent with existing literature in community samples and medically ill populations.^{32,33} Psychiatric disorder may have failed to discriminate for high suicidal ideation scores because of the more powerful role of coexisting hopelessness.

High rates of past suicide attempt were detected in this population (18%–30%), similar to those rates reported from other studies of HIV-positive populations.¹² The consistent predictor of attempted suicide remained a positive lifetime history of a psychiatric disorder. The findings also suggest a link between psychiatric disorder (particularly depression diagnosis), lifetime history of injection drug use, psychological adjustment patterns (e.g., DSQ and LCB), and family history of attempted suicide. The significant role of HIV-negative status as a discriminating factor for a lifetime history of suicide attempt may indicate the effect of recruitment bias or perhaps an effect of fear of acquiring HIV infection.

In the HIV-positive men, there was no significant association between past suicide attempt and the number of HIV physical symptoms or CDC classification. This finding suggests that these indices of disease severity were far less influential on suicide attempts in the HIV-positive individuals than the presence of psy-

chiatric disorder (particularly major depression) and patterns of psychological adaptation (DSQ scores and family history).

The findings support the dimensional nature of suicidal behavior, with suicide attempts closely associated with the presence of a psychiatric disorder, whereas current suicidal ideation demonstrates a stronger association with hopelessness in response to the current impact of HIV infection and is associated with a range of adaptational, personality, and social factors.

Study limitations include the potential bias in a convenience sample, although it has been argued that it is difficult to establish the representativeness of selected samples of homosexual/bisexual men.³⁴ The study also did not include women; therefore, the generalizations from this sample to broader populations of individuals with HIV infection are limited.

The measure for suicidal ideation was derived from the GHQ and BDI, similar to methods used in other studies of HIV infection^{3,12} and general community,³⁵ but may have limited our focus to the most overt forms of suicidal ideation. Other issues concern the potential intercorrelations among hopelessness, suicidal ideation, past attempted suicide, and depression diagnoses, as items used to measure one variable (e.g., hopelessness) may also be incorporated into items or criteria for other key variables (e.g., the presence of major depression). Past suicide attempts and suicidal ideation are included in the DIS major depression items and criteria. The use of separate measures of past history of attempted suicide, current suicidal ideation (e.g., a composite self-report measure), and the DIS for psychiatric diagnosis provides a relatively independent set of measures of suicidal ideation and psychiatric disorder. The findings of this study also need to be interpreted alongside the recent advances in the treatment of HIV infection, namely therapy with multiple protease inhibitors.³⁶ This study was done before the widespread use of such treatments; therefore, the more recent impact of these newer treatments, the prospects of longer term survival with HIV infection, and the effects of these developments on psychological morbidity need to be consid-

ered.³⁶ Many HIV-positive individuals also participate in trials of new treatment modalities. The influence of the participation in such clinical trials on the levels of psychological symptoms and suicidal ideation was not addressed among our participants.

CONCLUSION

The findings in this study are consistent with the other published findings from studies addressing suicidal ideation and attempted suicide in individuals with HIV infection.⁹⁻¹³ Suicidal ideation and attempted suicide were found to be associated with a family history of attempted suicide, drug use, and psychiatric disorder.

Patterns of adaptation to disease and appraisal of HIV infection, other than disease severity alone, represent significant predictors of suicidal ideation in this group of HIV-positive gay men. Greater levels of fighting spirit, a specific pattern of adjustment to disease such as HIV infection, were linked with lower levels of suicidal ideation, further supporting the potential protective role of such responses against psychological morbidity in the face of a life-threatening illness, which has not been previously reported in association with suicidal ideation. Therefore, these findings provide a basis for improving clinical knowledge about the factors that may increase suicidal ideation and risk of suicide in HIV-positive and HIV-negative men, highlight the need for careful screening for suicidal risk and suicidal ideation by HIV clinical services, and emphasize the important role of psychiatric assessment and liaison.³ It is important that further research assess the impact of treatment improvements and newer therapies for HIV/AIDS on indicators of psychological morbidity, such as suicidal ideation and suicidal behaviors, in this patient population.

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