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Study of the epidemiology of suicide in active duty Army personnel was replicated for calendar years 1977-78 using essentially equivalent methodology to that followed in studying Army suicides for the 1975-76 biennium. The annual suicide rate per 100,000 soldiers-at-risk was found to be 14.8, a drop of 1.6 points from the rate found in 1975-76. The annual rate for women suicides moved upward from 9.9 to 15.2, surpassing the male rate of 14.8. The enlisted to officer rate ratio and the white male to black male rate ratio showed little change from 75-76 to 77-78, viz., 1.7 to 1.8 and 1.9 to 2.1.

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respectively. There were no black female soldier suicides in 75-76 and only one in 77-78.

Grade-specific and age-specific rates were studied and compared with the previous biennium. Demographic data and information on circumstances surrounding the suicidal act were presented and compared. Marriage and fertility data were very similar from one biennium to the next, as were counts of note-leaving, hint-dropping, previous suicide attempts, psychiatric history, and use of drugs and alcohol at the time of the fateful act. The victim's home was the place where suicide occurred for more than 50 per cent of the cases in either biennium. Day of the week and month of the year data showed little correspondence from one two-year period to the next.

Analysis of the suicided person's psychosocial situation (as reflected in the kinds of personal problems recorded in the reports and investigations of the incident) showed remarkable consistency in the two time-periods studied. The psychosocial circumstance judged to have the highest frequency of occurrence and, therefore, inferred to be most salient and most probable in the Army suicide, is that of unrequited love.

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# Suicide in United States Army Personnel, 1977-1978

William E. Datel, Ph.D.\*  
 COL Franklin Del Jones, MC, USA\*\*  
 LTC Maria E. Esposito, MC, USA‡

Datel and Johnson<sup>2</sup> reported suicide findings in United States Army active duty personnel for calendar years 1975 and 1976. Using equivalent methodology, we went on to track Army suicide for the following two years and report here the results of this biennial replication.

## Method

The principal data source was the line of duty (LOD) investigation file, which was received routinely by the psychiatry consultant in the Office of the Surgeon General, to provide information for the mental competency determination of the suicided soldier. While the LOD file was under review, selected information from it was extracted and inserted in a cumulative suicide log for later coding and data processing.

TABLE I  
 SUICIDE INCIDENCE AND RATE PER 100,000  
 IN ACTIVE DUTY ARMY  
 PERSONNEL FOR CALENDAR YEARS 1977 AND 1978

	Enlisted		Officer		Total	
	Incidence	Rate	Incidence	Rate	Incidence	Rate
Male	197	15.8	15	8.1	212	14.8
Female	14	14.9	2	17.5	16	15.2
Total	211	15.7	17	8.6	228	14.8

Because previous research<sup>1</sup> had suggested that accumulative LOD files may not represent an exhaustive count of Army completed suicides, and because data elements were sometimes missing from the LOD files, several other data sources were also searched: (1) the Individual Patient Data System (IPDS) of the Army Medical Department; (2) the Casualty Information System (CIS) of

From the Division of Neuropsychiatry, Walter Reed Army Institute of Research,\* the Directorate of Health Care Operations, Office of the Surgeon General, Department of the Army,\*\* and the Department of Psychiatry, Walter Reed Army Medical Center.†

\*Research Psychologist, Division of Neuropsychiatry, Walter Reed Army Institute of Research, Washington, D.C. 20021.

\*\*Psychiatry Consultant.

†Staff Psychiatrist.

the Adjutant General's Office; (3) the autopsy registry at the Armed Forces Institute of Pathology; (4) files at the Crime Records Center of the Army Criminal Investigation Command; and (5) files at the National Archives and Records Service at the National Personnel Records Center.

## Results

From 1 January 1977 through 31 December 1978, a total of 228 soldiers killed themselves intentionally. Using mid-year strength data provided by the Defense Manpower Data Center, the Army annual crude suicide rate for the two-year period was found to be 14.8 cases per 100,000 soldiers-at-risk. In 1977, the suicide incidence was 111 and in 1978 it was 117. These counts produced annual crude rates of 14.3 and 15.4, respectively.

The 228 suicides are broken out by sex and by enlisted versus officer status in Table I, and the corresponding rates are also given. The female rate of 15.2 exceeds slightly the male rate of 14.8. The enlisted rate to officer rate ratio is 1.8.

Sex by race breakout of the suicide frequencies is presented in Table II. Rate ratios are as follows: white male to black male, 2.1; white female to black female, 4.8; white male to non-white male, 1.9; white female to non-white female, 5.4.

Age and grade distributions are summarized in Table III. The data are broken out by enlisted versus officer status and by sex. The average age for male or female enlisted soldiers was 25. Most enlisted suicides occurred in grade E4.

Age-specific rates were calculated for either sex and are plotted by five-year age groups in Fig. 1, along with the age-specific rates for the general US population, obtained from the Mortality Branch of the National Center for Health Statistics. The volatile nature of the curve for Army females is probably artifactual; i.e., due to the effect of small numbers; the 16 women suicides were distributed into the respective age groupings as follows: 2, 8, 3, 3. An examination of the yearly age-specific rates revealed that the highest Army rates (for both sexes combined) were for

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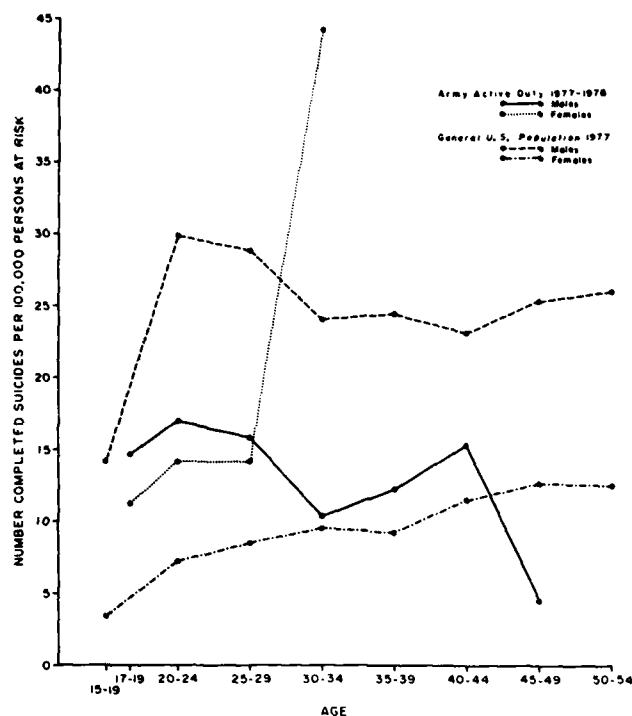


Fig. 1. Age-specific suicide rates by five-year age groups for Army active duty personnel 1977 and 1978 and for general United States population 1977.

ages 43 (rate of 32.0), 28 (28.8), 29 (21.6), 22 (20.6), and 19 (20.2).

Grade-specific rates by sex and for the total are presented in Table IV. These rates were calculated by using as denominators the 1977 and 1978 mid-year grade strengths compiled by the Defense Manpower Data Center.

Table V presents marital status and number of children distributions. Missing data account for the abbreviated total in the number of children tally. Half of the suicides were currently married and two-thirds of the total had no children at the time of death. These proportions are virtually identical to those obtained in the 1975-76 study. In 1978, in the Army at large, 52 per cent of the enlisted strength and 81 per cent of the officer strength were married, according to MILPERCEN's five per cent sample survey.

Time and place circumstances were as shown in Fig. 2 and 3, and in Table VI. Suicides were most frequent in the month of December and on Mondays. The home (includ-

ing parental home, family quarters, apartment, and barracks) was the site of suicide for more than one-half of the cases. In terms of geographic location, it was noted that in the two-year period 12 continental United States (CONUS) stations reported five or more instances of completed suicide. Fort Bragg reported the largest number of suicides—15. CONUS reported a total of 173 suicide deaths (rate of 18.6), Alaska five (rate of 26.3), Hawaii three (rate of 8.3), Europe 41 (rate of 10.0), and Korea three (rate of 4.5).

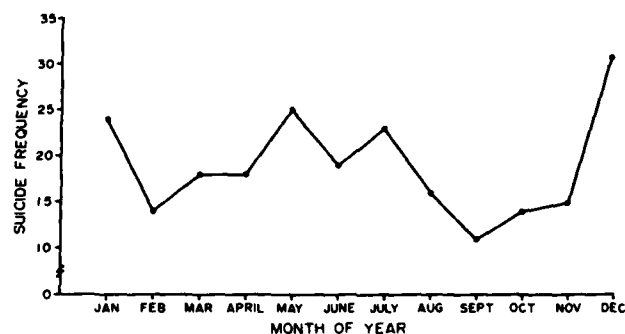


Fig. 2. Frequency of suicide by month of year, 1977-78.

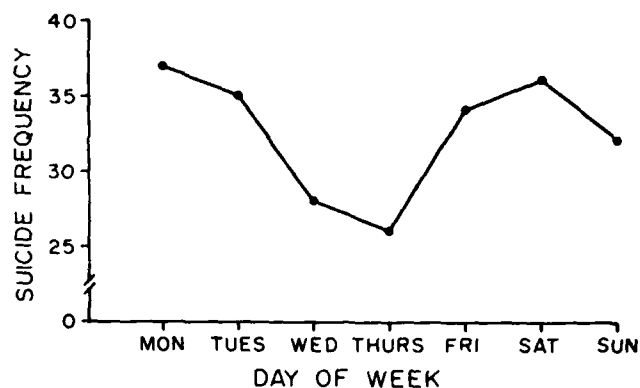


Fig. 3. Frequency of suicide by day of week, 1977-78.

To ascertain the extent to which the suicides occurred in time clusters, the cases were plotted by duty station assigned across the two-year period (Fig. 4). At four of the posts (Benning, Bragg, Carson, and Jackson), there were instances when three cases occurred within a 30-day pe-

TABLE II  
SUICIDE INCIDENCE AND RATE PER 100,000 BY SEX AND RACE  
IN ACTIVE DUTY ARMY  
PERSONNEL FOR CALENDAR YEARS 1977 AND 1978

	White		Black		Other		Total	
	Incidence	Rate	Incidence	Rate	Incidence	Rate	Incidence	Rate
Male	177	16.9	28	8.0	7	18.9	212	14.8
Female	15	19.3	1	4.0	0	—	16	15.2
Total	192	17.1	29	7.7	7	17.8	228	14.8

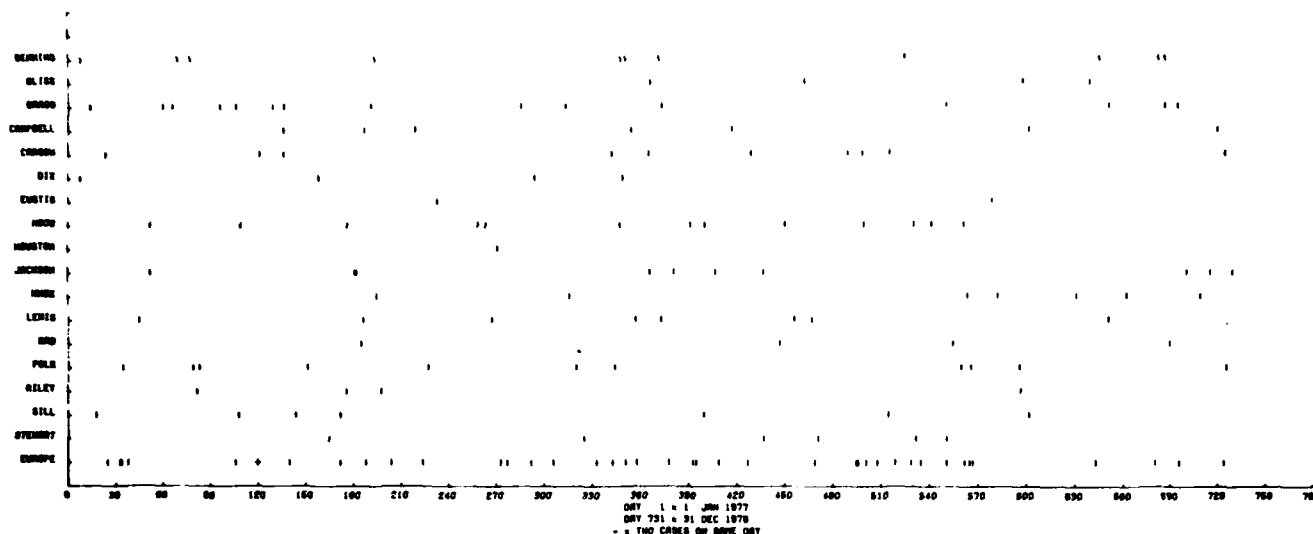


Fig. 4. Days upon which an Army active duty suicide occurred during a two-year period (1977-78) at selected Army locations.

riod. In Europe, there appears to have been a cluster of cases from Day 493 to Day 568, when 27 per cent of the suicides occurred in 10 per cent of the available days.

The methods that were used to execute the suicide are tallied in Table VII. Use of a firearm was the most common method employed by either sex. In the 1975-1976 data,<sup>2</sup> women used overdosing more frequently than firearms.

It was observed that 27 per cent of the 228 victims left a suicide note, 31 per cent of them spoke of or hinted about suicide prior to the act, and 13 per cent had histories of suicide attempts. Thirty-one per cent of the cases had a history of some kind of psychiatric contact—mental health clinic visit, hospitalization, or para-psychiatric counseling. We counted 18 per cent of the 228 cases who had been using alcohol at the time of the final act, and three per cent who had been using an illicit drug just before death. These percentages on communication, psychiatric history, and alcohol/drug variables are believed to be conservative representations, since observational data on the presence or absence of these items were not always included in the files reviewed.

Table VIII is a list of stressful problems, with a tally of the number of cases in whom the specific problem was noted to have existed prior to suicide. The percentages are based upon the 200 persons in whom one or more of the problems had been detected and recorded. In 28 of the victims, no motivational explanations or problem definitions could be found in the files searched.

The foremost problem is the one labeled "difficulties with love-object." When the nature of the love-object problem is explored (Table IX), divorce or breakup of the relationship is the most frequent manifestation. In 35 per cent of the cases in which a love-object problem was noted, reference to a quarrel or altercation just prior to the suicide could be found in the case material.

The taxonomy of suicidal motivation developed previously<sup>2</sup> was used again to categorize cases whenever suffi-

TABLE III  
SUMMARIES OF AGE AND GRADE DISTRIBUTIONS  
BY ENLISTED/OFFICER STATUS AND BY SEX  
FOR THE 228 ARMY SUICIDES, 1977-78

	Enlisted		Officer	
	Male	Female	Male	Female
Age				
N	197	14	15	2
Mean	24.7	24.6	31.8	26.0
Mdn	23.2	22.5	30	26.0
Mode	19	22	39	25,27
Range	18-46	19-34	21-45	25-27
Grade			Grade	No.
N	196*	14	WO	1
Mean	3.9	3.3	2LT	5
Mdn	4.4	3.5	1LT	0
Mode	4	4	CPT	1
Range	E1-E8	E1-E5	MAJ	4
			LTC	4

\*One cadet not included.

cient information was available. Sixty-two cases were assigned one of five classifications, with the following percentage results: (1) Exposed, caught, humiliated, cornered—24 per cent; (2) Guilty, remorseful, regretful—five per cent; (3) Rejected, deserted, cut off—55 per cent; (4) Inadequacy, inability, loss of functioning, dislike of self—15 per cent; and (5) Intractable pain, hopeless medical condition—two per cent.

### Discussion

The annual suicide rate per 100,000 soldiers-at-risk fell approximately one and one-half points from 1975-76 to 1977-78. However, when the yearly rates from 1975 through 1978 are posted, the trend is slightly upward in

**TABLE IV**  
GRADE-SPECIFIC SUICIDE RATES FOR ARMY  
ACTIVE DUTY PERSONNEL  
1977-1978

Grade	Male		Female		Total	
	N	Rate	N	Rate	N	Rate
E1	23	20.0	2	17.2	25	19.7
E2	30	21.2	0	—	30	19.5
E3	30	16.8	5	30.5	35	17.9
E4	44	13.2	6	18.0	50	13.6
E5	31	14.4	1	6.1	32	13.9
E6	20	14.3	0	—	20	14.1
E7	12	13.3	0	—	12	13.2
E8	6	23.6	0	—	6	23.5
E9	0	—	0	—	0	—
Warrant Officers Commissioned	1	3.8	0	—	1	3.8
Officers	14	8.8	2	17.7	16	9.4
All enlisted	197*	15.8	14	14.9	211	15.7
All officer	15	8.1	2	17.5	17	8.6

\*One cadet not included in grade breakout.

**TABLE V**  
MARITAL STATUS AND NUMBER OF CHILDREN  
(Army Suicides 1977-1978)

	Number	Per cent
Marital status		
Single	104	45.6
Married	116	50.9
Div'd or separ'd	7	3.1
Widowed	1	.4
Total	228	100.0
Number of children		
None	122	66.3
One	34	18.5
Two	18	9.8
Three/four/five	10	5.4
Total	184*	100.0

\*Less than 228 because of missing data.

**TABLE VI**  
PLACE WHERE SUICIDE ACT OCCURRED  
(Army Suicides 1977-1978)

Place	Number	Per cent
Home/quarters	102	45.7
Barracks	21	9.4
Friend's home	16	7.2
Motel/hotel	2	.9
Place of duty	16	7.2
Jail/hospital	15	6.7
On post, other	13	5.8
Off post, other	38	17.0
Total	223	99.9

1978: 18.4, 14.3, 14.3, 15.4. It can be said that Army active duty personnel continue to kill themselves at a pace of roughly two deaths per week, given a strength figure of approximately 700,000 soldiers.

It is not possible to calculate the relative contribution of suicide to the total mortality pattern in the Army, because of uncertainty and unreliability in soldier death count.<sup>1</sup> Until an accurate death registry is constructed and maintained, we must remain ignorant of the relative contribution to loss in fighting strength made by any given cause of death. In the meantime, we can study Army suicide data internally.

It is of interest, for example, to compare the 1977-78 Army suicide data with what was found<sup>2</sup> in 1975-76. The change in the ratio of rates by sex is noteworthy. The suicide rate per 100,000 women in the Army rose from 9.9 to 15.2, surpassing the rate for men (14.8) by a slight margin. However, the number of female suicide cases is quite limited in either biennium thus causing the derived rates to suffer from the instability of small numbers. The same caution should be attached to the finding of increased frequency of firearm usage by female suicides in 1977-78.

**TABLE VII**  
METHOD USED TO COMPLETE SUICIDE  
(Army Suicides 1977-1978)

Method	Men		Women	
	Number	Per cent	Number	Per cent
Firearm	131	61.8	8	50.0
Hanging	33	15.6	1	6.2
Overdose/ poison	9	4.2	5	31.2
Gas (CO, other)	25	11.8	—	—
Jump	7	3.3	—	—
Other	7	3.3	2	12.5
Total	212	100.0	16	99.9

**TABLE VIII**  
NUMBER AND PERCENTAGE OF SUICIDED PERSONS  
IN WHOM CERTAIN SPECIFIC STRESSFUL PROBLEMS  
WERE NOTED TO HAVE EXISTED PRIOR TO SUICIDE  
(Army Suicides 1977-1978)

Existent Problem	Number	Per cent
Difficulties with love object	124	62.0
Difficulties with job/work/Army	71	35.5
In trouble with the law (more than simple AWOL)	42	21.0
Financial problems	29	14.5
Suffering from a psychosis	21	10.5
Medical/health problems (other than psy- chiatric)	13	6.5
Death of a loved one	10	5.0
Alleged sexual deviation	6	3.0

Note: Percentages based on an N of 200, i.e., the number of persons with one or more detected stressful problems.

Two rate ratios showed little change from one biennium to the next. The enlisted to officer rate ratio moved from 1.7 to 1.8 and the white male to black male rate ratio went from 1.9 to 2.1. There were no black female suicides in 1975-76 and only one in 1977-78.

The mean age for enlisted male suicides and for enlisted female suicides each changed less than one year from 1975-76 to 1977-78. In the case of male officers, the mean age of suicides dropped from 35.6 to 31.8. The mean age of female officers dropped one year, from 27.0 to 26.0.

Age-specific rates for the Army male suicides were lower at all age levels than the comparable rates for the general US male population. (This finding also resulted in the 1975-76 data.) However, the reverse was true for women; Army women showed a higher suicide rate at all age levels through age group 30-34 than US women in general.

The grade of E5 had the highest enlisted male suicide rate (22.1) in 75-76, while the grade of E8 earned this dubious honor in 77-78 (rate of 23.6). The analogous results for enlisted females were E6 in 75-76 (rate of 48.1) and E3 in 77-78 (rate of 30.5). Probably because of small numbers, the warrant officer rate dropped from 27.1 to 3.8.

Marriage and fertility data were quite similar in the two biennia. In either, one-half of the suicided persons were married and two-thirds of the group were childless.

The data having to do with note-leaving, communicating intent, history of attempts and psychiatric contact, and using alcohol or drugs at the time of suicide were amazingly similar in 1977-78 to what they were in 1975-76. The place where the act occurred was also similar, in that 55 per cent of the suicides occurred in the deceased's home (including parental home, family quarters, or barracks) in 1977-78 and 52 per cent in 1975-76.

Day of the week and month of the year results showed little consistency from one two-year period to the next. In 1975-76 suicide occurred most frequently on Wednesdays and in June; in 1977-78, there was no clearly outstanding day of the week (Wednesday was next to the most infrequent) and December contained more suicides than any other month.

Most important, perhaps, is the consistency one sees in the "motivational results" in the two time-periods studied.

TABLE IX

NUMBER AND PERCENTAGE OF LOVE-OBJECT-PROBLEM-SUICIDED PERSONS IN WHOM THE LOVE-OBJECT-PROBLEM WAS MANIFESTED IN CERTAIN SPECIFIC WAYS  
(Army Suicides 1977-1978)

Manifestation of Love Object Problem	Number	Per cent
Recent or pending divorce, separation, or breakup	73	58.9
Altercation with love object just before suicide	44	35.5
Infidelity an issue	15	12.1
Murdered love object at time of suicide	4	3.2
Attempted to murder love object but failed	4	3.2

Note: Percentages based on N of 124, i.e., number of persons with a detected love object problem.

More than any other kind of constellation in social dynamics, the impending Army suicide is characterized by a festering problem with his or her spouse or lover, a recent breakup or threat of same (often there is a quarrel or altercation just before the act), and a compelling feeling of rejection or isolation from the other party in the dyad.

The following appropriately disguised account from the files places the typical dynamics of Army suicide into sharp relief:

25 year old Specialist Fourth Class shot his wife and young daughter, then himself. Divorce action had been pending. Soldier had been upset; had discharged a weapon at a barn a few days previously. History of prior suicide attempt. Was threatened with divorce by wife a few months ago; then came to a temporary reconciliation. Divorce action was filed a few days before the shooting. EM was seen by Mental Health Clinic and by Chaplain and was noted to be desperate, depressed, suicidal. Was given leave to go home to patch things up. After drinking and arguing with wife for two hours, the shooting took place.

### Summary

Study of the epidemiology of suicide in active duty Army personnel was replicated for calendar years 1977-78, using essentially equivalent methodology to that followed in studying Army suicides for the 1975-76 biennium.

The annual suicide rate per 100,000 soldiers-at-risk was found to be 14.8, a drop of 1.6 points from the rate found in 1975-76. The annual rate for women suicides moved upward from 9.9 to 15.2, surpassing the male rate of 14.8. The enlisted to officer rate ratio and the white male to black male rate ratio showed little change from 75-76 to 77-78, viz., 1.7 to 1.8 and 1.9 to 2.1, respectively. There were no black female soldier suicides in 75-76 and only one in 77-78.

Grade-specific and age-specific rates were studied and compared with the previous biennium. Demographic data and information on circumstances surrounding the suicidal act were presented and compared. Marriage and fertility data were very similar from one biennium to the next, as were counts of note-leaving, hint-dropping, previous suicide attempts, psychiatric history, and use of drugs and alcohol at the time of the fateful act. The victim's home was the place where suicide occurred for more than 50 per cent of the cases in either biennium. Day of the week and month of the year data showed little correspondence from one two-year period to the next.

Analysis of the suicided person's psychosocial situation (as reflected in the kinds of personal problems recorded in the reports and investigations of the incident) showed remarkable consistency in the two time-periods studied. The psychosocial circumstance judged to have the highest frequency of occurrence and, therefore, inferred to be most salient and most probable in the Army suicide, is that of unrequited love.

### Acknowledgments

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<sup>1</sup>Datel, W. E.: The reliability of mortality count and suicide count in the United States Army. *Milit. Med.*, 144:509-512, 1979.

<sup>2</sup>Datel, W. E. and Johnson, A. W., Jr.: Suicide in United States Army personnel, 1975-1976. *Milit. Med.*, 144:239-244, 1979.

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