TEMPORAL VARIATION IN COMPLETED SUICIDE

R. B. CHAFFEE
P. COBEN

REPORT NO. 83-9

NAVAL HEALTH RESEARCH CENTER
P. O. BOX 85122
SAN DIEGO, CALIFORNIA 92138

NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND

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LT R. Blake Chaffee, MSC, USNR*

and

Patricia Coben

Naval Health Research Center

P. O. Box 85122

San Diego, California 92138

Report Number 83-9, supported by Naval Medical Research and Development Command, Department of the Navy, under Research Work Unit 62706N M0933-PN.004.0003. The views presented in this paper are those of the authors. No endorsement by the Department of the Navy has been given nor should any be inferred.

*Environmental Medicine Department

The authors would like to express their gratitude to Mr. Frank Thompson for his technical assistance in the completion of this study.

SUMMARY

Active-duty Navy personnel with records of "death by own hand" between 1 January 1966 and 31 December 1977 were identified, and Julian dates of occurrence were abstracted and converted to calendar days of the month and days of the week. The resulting sample contained 549 Navy personnel, 542 men and 7 women. Given their small number, women were excluded from the statistical analyses. Results found no significant differences for any of the four temporal variables investigated (season, month, day-of-the-week, national holiday) when the observed distributions were compared with those that could be expected by chance.

INTRODUCTION

The predictability of self-destructive behavior has been the subject of much speculation and clinical anecdote. The temporal factors that may relate to completed suicide and suicide attempts have been of particular concern to clinicians who are often asked to determine whether or not a patient is self-destructie. No consistent relationship between variations in the frequency of completed suicides and temporal variables has emerged from the research on the topic. The most widely debated generalizations are Durkheim's hypotheses which state: (a) that the frequency of completed suicides increases month by month beginning in January and continuing until June when it declines to an annual low in December; an (b) that the greatest number of completed suicides occur during the summer, followed by the spring, fall, and winter, in that order (Wenz, 1977). Others have suggested that the increase of completed suicide varies with month, day-of-the-week, and national holidays (Blachly & Fairly, 1969). The research data do not support these assumptions. Studies that report positive associations between completed suicides and season (Sanborn, Casey, & Niswander, 1970; Wenz, 1977), month (Lester, 1971; 1979; Wenz, 1977), day-of-the-week (Lester, 1979), and national holidays (Lester, 1979) conflict with those reporting no relationships (Lester & Beck, 1975; Reid, Smith, & Greene, 1980; Sanborn & Sanborn, 1978; Zung, Green, & Durham, 1974). The purpose of the present study was to determine whether temporal factors were related to the occurrence of completed suicides among Navy personnel.

METHOD

Data were abstracted from computerized medical history files developed and maintained by the Naval Health Research Center. The files contain demographic and medical history information collected at the time of death. Active duty Navy personnel with records of "death by own hand" between 1 January 1966 and 31 December 1977 were identified and Julian dates of occurrence were abstracted and converted to calendar days of the month and days of the week. The resulting sample contained 549 Navy personnel, 542 men and 7 women. Given their small number, women were excluded from the statistical analyses. Comparisons of the observed and expected frequency distributions for the temporal variables were conducted utilizing the chi-square test of significance.

RESULTS

Results of the analyses revealed no significant differences for any of the four temporal variables (season, month, day-of-the-week, national holiday) when the observed distributions are compared to those that could be expected by chance (see Tables 1-4). The distribution for season follows the order predicted by Durkheim's hypotheses but does not approach significance. The analysis for month was also nonsignificant. The monthly frequencies did not follow the progression predicted by Durkheim and no clear trend was evident in the distribution. The highest frequencies for day-of-the-week occurred for Saturday and Sunday, but these were not significantly different from what could be expected by chance variation. Finally, the frequencies for completed suicides occurring on national holidays were inadequate to permit

statistical analysis. The number of completed suicides during the weeks preceding and following each holiday did not differ from those which might be expected by chance.

DISCUSSION

The significance of the present study for clinicians evaluating Navy personnel is that the temporal factors studied here are not significantly related to the occurrence of completed suicide. This does not mean that temporal factors may never be salient but that they were not at issue often enough to constitute a significant pattern. Temporal factors should be evaluated for their particular significance in each case without assumptions concerning population trends.

The analyses in the present study do not take into account two factors that could be assumed to have some bearing on their outcome or interpretation. First, the sample includes service members without regard to their duty stations. Some personnel were stationed overseas where the local season may have been different from that of the continental U.S., and this could have some influence on the outcome for season. Secondly, the analysis for national holidays posits depression or emotional/behavioral disturbance of some kind as a mediating variable. This assumption requires two further untenable assumptions, i.e., that national holidays are a sufficient stimulus to precipitate or exacerbate significant emotional/behavioral disturbance and that this disturbance results in self-destructive behavior. The literature lacks evidence to support either of these assumptions so that even if a positive association were obtained its interpretation would be limited to saying that a simple temporal contiguity existed. The present study did not control for psychiatric diagnosis so that all that can be concluded is that a simple temporal contiguity did not exist in this sample of completed suicides. An adequate investigation of depression as a mediating variable in self-destructive behavior at the time of national holidays would include clinically depressed patients who did not exhibit self-destructive behavior. Such investigation was beyond the scope of the present study.

The results for suicides occurring on national holidays utilized the same holiday list as Lester and Beck (1975). Which holidays to include is a subject of some debate in the literature, and the decisions made appear to depend upon which are most widely celebrated and presumably emotionally laden. Lester and Beck's list was chosen for the present study because it included the major holidays but not relatively minor holidays. The present study included analyses of whether the numbers of completed suicides occurring during the weeks before and immediately following each holiday differed significantly from what might be expected by chance variation. Christmas was deleted from the list for this analysis because the week following Christmas and preceding New Year's are the same. The fact that these analyses were nonsignificant indicates that completed suicides are no more likely to occur around the time of national holidays than at any other time during the year. This finding is interesting in light of the widespread assumption that hospital admissions increase around the time of some holidays because some patients are more likely to be more depressed. This asumption may, in fact, be

true, but it may not follow that patients are therefore more likely to complete suicide. Similar research on temporal factors and suicide attempts and psychiatric hospitalizations would further illuminate this issue. For the moment, the present study indicates that Navy personnel who complete suicide do so in a manner that is not influenced by the temporal factors studied here.

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Table 1

Completed Suicides in the U.S. Navy by Season

Season	N
Winter (Dec., Jan., Feb.)	126
Spring (Mar., Apr., May)	137
Summer (Jun., Jul., Aug.)	147
Fall (Sep., Oct., Nov.)	132
	542

$\bar{X}$ = 135.50; S.D. = 8.89

Table 2

Completed Suicides in the U.S. Navy by Month

Month	N
January	45
February	42
March	47
April	43
May	47
June	50
July	45
August	52
September	46
October	44
November	42
December	39
	542

$\bar{X}$ = 45.17; S.D. = 3.59

$\bar{X}^2$ = 3.16; df = 11; n.s.

Table 3

Completed Suicides in the U.S. Navy

By Day-of-the-Week

Day	N
Sunday	86
Monday	71
Tuesday	73
Wednesday	68
Thursday	79
Friday	70
Saturday	95
	542

$\bar{X}$ = 77.43; S.D. = 9.91

$\bar{X}^2$ = 7.62; df = 6; n.s.

Table 4

Completed Suicides in the U.S. Navy

by National Holidays

Holiday	N[a]	7 Days Before	7 Days After
New Year's	2	8	13
Lincoln's Birthday	2	11	9
Washington's Birthday	Ø	8	9
Good Friday	1	1Ø	1Ø
Memorial Day	1	14	5
Independence Day	2	14	7
Labor Day	1	8	12
Columbus Day	Ø	9	7
Veteran's Day	1	14	7
Thanksgiving	1	9	7
Christmas[b]	1	7	9
χ^2 =	-	5.76	8.19
df =	-	9	9
	ns	ns	ns

[a]Number of suicides occurring on the holiday

[b]Deleted from χ^2.

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SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER: 83-9	2. GOVT ACCESSION NO.: AD-A133 858
	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle): Temporal Variation in Completed Suicide	5. TYPE OF REPORT & PERIOD COVERED: Interim
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): R. Blake Chaffee and Patricia Coben	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Naval Health Research Center, P.O. Box 85122, San Diego, California 92138-9174	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: M0933-PN.004-0003
11. CONTROLLING OFFICE NAME AND ADDRESS: Naval Medical Research and Development Command, National Naval Medical Center, Bethesda, Maryland 20814	12. REPORT DATE: February 1983
	13. NUMBER OF PAGES: 8
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office): Commander, Naval Medical Command, Department of the Navy, Washington, D.C. 20372	15. SECURITY CLASS. (of this report): UNCLASSIFIED
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

Approved for public release; distribution unlimited.

18. SUPPLEMENTARY NOTES

To be published in Suicide and Life-Threatening Behavior

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Suicide
Navy Mental Health

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The predictability of self-destructive behavior was investigated by analyzing the dates of occurrence for a sample of 542 completed suicides on four temporal variables: season, month, day-of-the-week, and national holidays. The sample of Navy male enlisted personnel was drawn from computerized medical history files. Chi-square analyses revealed no significant differences for any of the four temporal variables. The present study indicates that temporal factors should be evaluated for their particular significance

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S/N 0102-LF-014-6601

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in each case without assumptions concerning population trends.