

Contact With Mental Health and Primary Care Providers Before Suicide: A Review of the Evidence

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Objective: This study examined rates of contact with primary care and mental health care professionals by individuals before they died by suicide.

Method: The authors reviewed 40 studies for which there was information available on rates of health care contact and examined age and gender differences among the subjects.

Results: Contact with primary care providers in the time leading up to suicide is common. While three of four suicide victims had contact with primary care providers within the year of suicide, approximately one-third of the suicide victims had contact with mental health services. About one in five suicide victims had contact with mental health services within a month before their suicide. On average,

45% of suicide victims had contact with primary care providers within 1 month of suicide. Older adults had higher rates of contact with primary care providers within 1 month of suicide than younger adults.

Conclusions: While it is not known to what degree contact with mental health care and primary care providers can prevent suicide, the majority of individuals who die by suicide do make contact with primary care providers, particularly older adults. Given that this pattern is consistent with overall health-service-seeking, alternate approaches to suicide-prevention efforts may be needed for those less likely to be seen in primary care or mental health specialty care, specifically young men.

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Suicide is a serious public health problem. Among industrialized countries in 1990, suicide was among the top 10 causes of death (1). In 1998 approximately 30,000 people died by suicide in the United States, making it the eighth leading cause of death (2). Recently, the *National Strategy for Suicide Prevention* was issued (3), outlining specific goals intended to prevent suicide in the United States. Programs aimed at improving the ability of primary care and mental health professionals to identify and treat those at risk for suicide are recommended. A primary goal of this review was to consider the potential of such strategies. Although general estimates of service contact before suicide are often cited (4, 5), there has been no systematic review of how frequently different types of health care professionals have contact with various populations who eventually commit suicide. At least one review has examined contacts with health and mental health care providers before suicide (6); however, its usefulness was limited because it did not take into consideration specific populations that eventually commit suicide, such as older adults or youth, who may differ in their rates of health care contact.

Despite limited systematic reviews of health care contacts before suicide, some prevention strategies involving health care providers have been suggested. On the basis of studies of psychological autopsies and record reviews from general practitioner sites, it has been recommended that

detecting and treating depression in primary care may be effective in preventing elderly suicides, since a majority of older adults seek primary care services within a month of suicide (7). Others have recommended that improved detection and treatment of depression by primary care practitioners may reduce suicides among women, but not men, since women are more likely to seek health services (8). It would seem that a systematic review of the evidence of health care contacts among suicide decedents of various age groups, and between men and women, could be helpful in a consideration of prevention approaches.

To that end, this review examined rates of contact with primary and specialty mental health care providers of individuals before their suicide. Contact information within 1 month of death and within the year of suicide was reviewed. Given the importance of diagnosis and treatment of mental disorders in preventing suicide, lifetime contact with mental health services was also examined.

Method

Literature Search

Relevant studies were identified by using several electronic databases, including MEDLINE, PsycINFO, and the Social Sciences Citation Index, from the years of their inception through May 2000. The search included articles related to completed suicide

TABLE 1. Studies Examining Length of Time Between Last Contact With Mental Health Care Professional and Subject Suicide

						Cumulative Percent of Subjects in Contact With Mental Health Care Professional Before Suicide		
Group and Study	Year of Report	N	Study Design ^a	Location	Year(s) Studied	Within 1 Month	Within 1 Year	During Lifetime
All ages								
Seager and Flood (11)	1965	325	Record review, including hospital and general practitioner records	United Kingdom	1957–1961		16	
McCarthy and Walsh (12)	1966	284	Record review	United Kingdom	1954–1963		24	
Jacobson and Jacobson (13)	1972	170	Record review, including hospital records	United Kingdom	1963–1969	16		
Ovenstone and Kreitman (14) ^b	1974	106	Record review; information from general practitioner, mental health care provider, and others	United Kingdom	1969–1971		31	48
Barraclough et al. (15)	1974	100	Psychological autopsy	United Kingdom	1967–1968	18	24	
Bagley et al. (16)	1976	50	Psychological autopsy	United Kingdom	1970–1971	14		52
Myers and Neal (17) ^c	1978	100	Record review, including general practitioner and mental health care records	United Kingdom	1965–1973			39
Hagnell and Rors- man (18)	1979	28	Longitudinal	Sweden	1947–1972	21	36	57
Perris et al. (19)	1980	172	Record review, including mental health care records	Sweden	1965–1976	23	41	53
Rich et al. (20) ^b	1986	283	Psychological autopsy	United States	1981–1983	27		49
Eisele et al. (21)	1987	104	Psychological autopsy	United States	1983–1984			50
Sundqvist-Stensman (22)	1987	523	Record review, including general practitioner and mental health care records	Sweden	1977–1984		46	63
King (23), King and Barraclough (24) ^b	1994, 1990	245	Database linkage	United Kingdom	1974–1981	20	38	60
Vassilas and Morgan (25, 26) ^b	1993, 1997	139	Record review, including mental health care records; general practitioner interview	United Kingdom	1990–1991	22		50
Evans (27) ^b	1994	87	Database linkage	United Kingdom	1990–1992		32	
Foster et al. (28) ^b	1997	118	Psychological autopsy	United Kingdom	1992–1993	19	37	58
Power et al. (29) ^b	1997	41	Record review, including general practitioner and hospital records	United Kingdom	1993			63
Appleby et al. (30) ^b	1999	10,040	Database linkage	United Kingdom	1996–1998	11	24	
Boardman et al. (31) ^b	1999	212	Record review, including hospital and general practitioner records	United Kingdom	1991–1995	18	36	
Douds and Bridges (32)	1999	74	Record review, including general practitioner and mental health care records	United Kingdom	1995–1996	7		54
Milton et al. (33) ^b	1999	61	Record review, including general practitioner, hospital, and mental health care records	United Kingdom	1993–1994	28		46
Average						18.77	32.08	53.00
Age 35 and younger								
Cosand et al. (34) ^b	1982	315	Record review	United States	1950–1979			24
Shafii et al. (35)	1985	20	Psychological autopsy	United States	1980–1983			45
Rich et al. (20) ^b	1986	133	Psychological autopsy	United States	1981–1983	23		52
Eisele et al. (21)	1987	25	Psychological autopsy	United States	1983–1984			32
Thompson (36)	1987	190	Record review	Canada	1971–1982			15
Brent et al. (37)	1988	27	Psychological autopsy	United States	1984–1986	7		33
Marttunen et al. (38)	1992	53	Psychological autopsy	Finland	1987–1988		23	36
Brent et al. (39)	1993	67	Psychological autopsy	United States	1986–1990	15		58

TABLE 1. Studies Examining Length of Time Between Last Contact With Mental Health Care Professional and Subject Suicide (continued)

						Cumulative Percent of Subjects in Contact With Mental Health Care Professional Before Suicide		
Group and Study	Year of Report	N	Study Design ^a	Location	Year(s) Studied	Within 1 Month	Within 1 Year	During Lifetime
Age 35 and younger (continued)								
Vassilas and Morgan (25, 26) ^b	1993, 1997	51	Record review, including mental health care records; general practitioner interview	United Kingdom	1990–1991	13		35
Marttunen et al. (40)	1995	116	Psychological autopsy	Finland	1987–1988	14	25	34
Shaffer et al. (41)	1996	120	Psychological autopsy	United States	1984–1986			46
Foster et al. (28) ^b	1997	38	Psychological autopsy	United Kingdom	1992–1993	11	24	
Groholt et al. (42)	1997	117	Record review; general practitioner and mental health care information	Norway	1991–1992	7		24
Appleby et al. (43) ^b	1999	135	Record review; general practitioner and mental health care provider interviews	United Kingdom	1995–1996	32		65
Average						15.25	24.00	38.38
Age 55 and older								
Barraclough (44)	1971	30	Psychological autopsy	United Kingdom	1967–1968	8		
Clark (45)	1991	54	Psychological autopsy	United States	1990		6	13
Evans (27) ^b	1994	18	Database linkage	United Kingdom	1990–1992		11	
Cattell and Jolley (46)	1995	100	Record review, including mental health care records	United Kingdom	1980–1991	14		26
Average						11.00	8.50	19.50
By gender								
Perris et al. (19)	1980		Record review, including mental health care records	Sweden	1965–1976			
Women		28				39	68	89
Men		141				20	31	43
Sundqvist– Stensman (22) ^b	1987		Record review, including general practitioner and mental health care records	Sweden	1977–1984			
Women		173					57	72
Men		350					40	58
Vassilas and Morgan (25, 26) ^b	1993, 1997		Record review, including mental health care records; general practitioner interview	United Kingdom	1990–1991			
Women		33						73
Men		111						41
Foster et al. (28) ^b	1997		Psychological autopsy	United Kingdom	1992–1993			
Women		25				32	48	
Men		91				16	34	
Average								
Women						35.66	57.66	78.00
Men						18.00	35.00	47.33

^a Record review included review of coroner's or medical examiner's files.

^b Included "undetermined" deaths judged to be suicides.

^c Subjects had previously "seen a psychiatrist" (p. 39).

and health or mental health care contact and was limited to studies in the English language.

Criteria for Inclusion

Only studies of groups of individuals who completed suicide were included in the review. Data regarding nonfatal suicidal behaviors (e.g., suicide attempts, suicidal ideation) were not included because the individuals who complete suicide often have different characteristics than those who exhibit nonfatal suicidal behaviors (9, 10). Only studies that included at least one estimate of mental health or primary care contact before suicide were included.

In order to increase the generalizability of the review, only studies that reflected a defined epidemiological group were included. Excluded were studies that were duplicative of prior reports with regard to information on health service contact and those that used groups selected for specific diagnoses, insured groups, or suicide victims with previous contact with a certain psychiatric hospital (e.g., clinical follow-up studies).

Characteristics of Studies

Criteria for classifying deaths as suicides varied across studies. In a number of studies, only deaths classified by the medical examiner as suicides were included. Other studies included both

deaths classified as suicides and deaths classified as “undetermined” (in the United States) or “open” (in the United Kingdom) that were judged to be suicides. Studies were based in Europe, Australia, and the United States. Although it would have been desirable to limit this review to U.S. study groups only in order to increase the review’s relevance to interventions in the U.S. health care system, few studies containing relevant data were available.

Three main types of studies were included in this review: psychological autopsies, record reviews, and record reviews plus additional sources of information. Studies were considered psychological autopsies if the investigators interviewed at least one individual who had a personal relationship with the deceased as a primary source of data. Record review studies used medical examiner’s or coroner’s reports as the sole source of data. Studies with record review plus supplemental data included studies that used medical examiners’ reports as the primary source of data but supplemented this data with information from a number of other sources. Additional sources of information included interviews with physicians or mental health professionals, physician or mental health provider case notes, and preexisting databases of health records.

Presentation of Results

Data are presented according to percentage of suicide victims who had contact with health care providers during each time period. Information reported during the interval between the last contact and suicide completion varied widely from study to study. In order to increase comparability across studies, several periods were selected for summary. Time periods included within 1 month from last contact and within 1 year from last contact, and, for mental health care contact, cumulative lifetime contact was also recorded. Mental health care contact included both outpatient and inpatient service use.

Summaries were broken down by age group and separately by gender. Data were clustered into three age groups: age 35 and under, age 55 and older, and the full age range. Although it would have been desirable to examine more specific age groups, as well as possible gender-by-age-group effects, there were insufficient data available for such analyses.

Results

As of May 2000, 40 studies had been found that fit our criteria and contained data on the duration between the individuals’ last contact with mental health or primary care professionals and their suicide (9, 11–52). Of these, four were classified as a record review only, 21 were classified as a record review plus supplemental data, and 15 were classified as psychological autopsies. An informal analysis of rates of contact across different types of methods suggested that rates were fairly comparable across methods, except when looking at primary care contact, in which studies of psychological autopsies appeared to report slightly higher rates of contact than the other two methods. We reported means for time periods that had two or more measurement points to contribute to the computation of the average. The Mann-Whitney U test was used to examine differences in rates of health care contact among the groups.

Contact With Mental Health Services

Reports on study groups representing the full age range showed that overall rates of contact with mental health services within 1 month before suicide averaged approxi-

mately 19% (range=7%–28%), and in the year before suicide, rates of contact averaged 32% (range=16%–46%). Lifetime rates of contact with mental health services averaged 53% (range=39%–63%) (Table 1). For persons age 35 and younger on average, approximately 15% (range=7%–32%) had seen a mental health professional within 1 month of suicide. The average rate of contact within 1 year of suicide was 24% (range=23%–25%). Lifetime rates of mental health care contact averaged about 38% (range=15%–65%) (Table 1).

For persons age 55 and older, mental health contact within the last month averaged 11% (range=8%–14%) for the two U.K. studies containing data. Contact with mental health services within 1 year of suicide averaged 8.5% (range=6%–11%). Compared to mental health services contact for persons age 35 and younger (24%), older persons tended to have had less contact with mental health services within the year before suicide (8.5%) ($z=1.96$, $p=0.05$). Lifetime rates were not much more frequent, with an average of 19.5% (range=13%–26%) (Table 1).

For men versus women, gender comparisons were limited to studies that included suicide decedents across the lifespan. On average, 36% (range=32%–39%) of the women and 18% (range=16%–20%) of the men had some contact with mental health services within 1 month of their suicide. Within 1 year of suicide, an average of 58% (range=48%–68%) of the women and 35% (range=31%–40%) of the men had contact with mental health services. Lifetime rates of mental health care also were higher among female suicides: 78% of the women (range=72%–89%) and 47% of the men (range=41%–58%). For lifetime contact (78% and 47%, respectively), as well as contact in the year before suicide (58% and 35%), the women were more likely than the men to have had contact with mental health care ($z=1.96$, $p=0.05$, for both comparisons) (Table 1).

Contact With Primary Care Providers

Across all age groups, contact with primary care providers in the month before suicide averaged approximately 45% (range=20%–76%). The rate of contact with primary care providers within 1 year of suicide averaged approximately 77% (range=57%–90%) (Table 2). For persons age 35 and younger, contact with primary care providers within 1 month of suicide averaged about 23% (range=10%–36%), and an average of about 62% (range=42%–82%) had contact with primary care providers up to a year before their suicide (Table 2). For persons age 55 and older, within 1 month of suicide an average of 58% (range=43%–70%) of older adults had contact with primary care providers, which was significantly greater than those age 35 and younger (23%) ($z=2.62$, $p<0.05$). A majority of older adults, 77% (range=58%–90%) had contact with primary care providers in the year before their suicide (Table 2). For the men versus the women, on the basis of the two studies available, 100% of the women had contact with a primary care provider within 1 year of suicide, while 78% (range=

TABLE 2. Studies Examining Length of Time Between Last Contact With Primary Care Professional and Subject Suicide

						Cumulative Percent of Subjects in Contact With Primary Care Professional Before Suicide	
Age Group and Study	Year of Report	N	Study Design ^a	Location	Year(s) Studied	Within 1 Month	Within 1 Year
All ages							
Ovenstone and Kreitman (14) ^b	1974	106	Record review; information from general practitioner, mental health care provider, and others	United Kingdom	1969–1971	69	73
Barraclough et al. (15) ^c	1974	100	Psychological autopsy	United Kingdom	1967–1968	59	83
Bagley et al. (16)	1976	50	Psychological autopsy	United Kingdom	1970–1971	76	
Hagnell and Rorsman (18)	1979	28	Longitudinal	Sweden	1947–1972		75
Conwell and Caine (47), ^d Conwell (48) ^e	1991, 1994	85	Psychological autopsy	United States	1987–1991	38	
Vassilas and Morgan (25, 26) ^b	1993, 1997	139	Record review, including mental health care records; general practitioner interview	United Kingdom	1990–1991	37	73
Evans (27) ^b	1994	87	Database linkage	United Kingdom	1990–1992	35	75
Matthews et al. (49)	1994	665	Record review, including general practitioner records	United Kingdom	1988–1989	38	57
Obafunwa and Busuttil (50)	1994	400	Record review	United Kingdom	1987–1991	20	
Foster et al. (28) ^b	1997	118	Psychological autopsy	United Kingdom	1992–1993	34	90
Power et al. (29) ^b	1997	41	Record review, including general practitioner and hospital records	United Kingdom	1993	34	
Boardman et al. (31) ^b	1999	212	Record review, including hospital and general practitioner records	United Kingdom	1991–1995	52	87
Douds and Bridges (32)	1999	74	Record review, including general practitioner and mental health care records	United Kingdom	1995–1996	46	
Average						44.83	76.63
Age 35 and younger							
Conwell and Caine (47), ^d Conwell (48) ^e	1991, 1994	21	Psychological autopsy	United States	1987–1991	10	
Vassilas and Morgan (25, 26) ^b	1993, 1997	51	Record review, including mental health care records; general practitioner interview	United Kingdom	1990–1991	20	63
Marttunen et al. (40)	1995	53	Psychological autopsy	Finland	1987–1988		66
Appleby et al. (51) ^b	1996	144	Record review, including general practitioner records	United Kingdom	1991–1992	27	42
Foster et al. (28) ^b	1997	38	Psychological autopsy	United Kingdom	1992–1993	21	82
Appleby et al. (43) ^b	1999	135	Record review; general practitioner and mental health care provider interviews	United Kingdom	1995–1996	36	59
Average						22.80	62.40
Age 55 and older							
Barraclough (44)	1971	30	Psychological autopsy	United Kingdom	1967–1968	70	90
Clark (45) ^f	1991	54	Psychological autopsy	United States	1990	70	83
Conwell and Caine (47), ^d Conwell (48) ^e	1991, 1994	44	Psychological autopsy	United States	1987–1991	57	
Cattell and Jolley (46)	1995	100	Record review, including mental health care records	United Kingdom	1980–1991	43	58
Conwell et al. (52)	2000	84	Psychological autopsy	United States	1988–1994	50	
Average						58.00	77.00

^a Record review included review of coroner's or medical examiner's files.

^b Included "undetermined" deaths judged to be suicides.

^c Listed contact with "family doctor" (p. 368).

^d Included contact with "physician."

^e Included contact with "primary care" provider.

^f "Almost none of these contacts were with a psychiatrist or other mental health professional" (p. 13).

69%–87%) of the men had contact with primary care providers in the year before their suicide.

Discussion

This review suggests that contact with health care services in the year before suicide is common. Rates of contact are much higher for primary care providers, relative

to mental health services. This is consistent with that fact that in the United States (53) and the United Kingdom (54), persons with mental health problems are more likely to seek services in the primary care sector, rather than from mental health professionals. The second key finding is that rates of contact varied by age and gender.

Contact With Mental Health Services

Approximately one-third of the suicide decedents across these studies had contact with mental health services within a year of their suicide, and about one in five had contact within the month of death. Overall rates of contact varied among different age groups and across genders. Persons age 35 and younger tended to have higher rates of contact with mental health services within a year of death than suicide decedents age 55 and older. This age effect may be a cohort effect, since the younger group lived in a time when mental health issues became less stigmatized. Lifetime mental health service rates of contact for women tended to be higher than for men.

Contact With Primary Health Care Services

A greater portion of individuals who committed suicide had contact with primary care providers in the months before their suicide than with mental health specialists. Across the full age range, about one-half had contact with a primary care professional within 1 month of their suicide, and about three-quarters had contact within 1 year of suicide. These rates varied across age groups, with older adults having higher rates of primary care contact than younger adults in the month before their suicide. This suggests that interventions involving primary care professionals have the potential to significantly affect suicide rates for older adults. The two studies reviewed that included information on decedent gender and primary care contact indicate that women decedents tend to have higher rates of contact with primary care providers and thus may benefit more from prevention activities aimed at primary care practices. This interpretation is consistent with the Gotland Study (55), in which an educational program on the treatment of depression aimed at primary care practitioners appeared to mainly affect suicide rates of women.

Elderly men have the highest rate of suicide in the United States (2) and the United Kingdom (56); thus high rates of suicide for groups with a broad age range may be at least partially due to the inclusion of older adults in these calculations. Of interest, one U.S. study (34) reported that elderly suicide decedents who had not seen a doctor within 6 months of death had a reputation of having avoided doctors all of their lives.

Limitations

The studies reviewed only reported contacts with health services professionals by suicide decedents and did not describe the characteristics of all persons who sought care. As a result, we cannot determine if contacts with mental health or primary care providers had any preventative effects. However, recent U.S. estimates of age and gender characteristics of those who use medical care services have indicated that women and persons age 65 and older are more likely to use medical care than men and individuals under the age of 18 (57, 58). These patterns are

generally consistent with the pattern of rates of contact by suicide decedents in the reviewed studies.

Several caveats must be considered when an attempt is made to generalize beyond the study groups included in this review. First, different methods may have resulted in different reported rates of contact. Second, none of the studies provided information on the rates of health care contact for racial or ethnic minority suicide victims. On the basis of reports that minorities in the United States have lower levels of primary care and mental health care usage (59, 60), rates of contact with health services by ethnic and racial minority suicide decedents may be lower than those reported here. Third, this study did not address the rates of contact for more specific groups of interest. The group containing subjects age 35 and younger included multiple developmental periods, including adolescence and young adulthood. The onset of high-risk disorders, such as bipolar disorder or schizophrenia, is often in early adulthood. While it would be preferable to examine such subgroups, since they may have different patterns of contact with health care services, limited data precluded this effort.

Future Research Needs

To our knowledge, there are *no* U.S. studies that provide estimates for rates of contact for mental health services across the full age range in the year before suicide, and only one U.S. study (47, 48) provided contact estimates across the full age range with primary care services in the year before suicide. More data, as well as more recent data, are also needed, since the patterns of primary care and mental health care contact have changed significantly because of the rise of managed care in the United States (61).

Learning more about "mechanisms of action" in the contacts between health care providers and individuals at risk, including the protective processes that stop individuals from acting on suicidal thoughts, could improve suicide-prevention efforts. Determining rates of contact with specific subgroups of professionals (e.g., internists, social workers) might also be helpful in enhancing training for these specialties, as recommended in the *National Strategy for Suicide Prevention* (3). Obtaining additional information, such as insurance status and treatment adherence, could also enhance understanding of the role of service use in preventing suicide.

Summary

Only one-third of suicide decedents had contact with mental health services within the year of their death, while over 75% had contact with primary care providers. If current trends in health care contact continue (57, 58), suicide-prevention efforts involving primary care may be most effective in preventing suicide among older adults and possibly women. Alternative prevention activities may be needed for younger men at risk for suicide, who are less likely to seek out health care services.

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