

## TECHNICAL NOTE

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# Suicide on Death Row

**ABSTRACT:** The suicide rate on death row for the period 1976 through 1999 was found to be high (113 per 100,000 per year), some five times higher than the suicide rate for the male population of the United States. The death row suicide rate was predicted by features of the death row population (negatively with the population on death row) and by social indicators of the society as a whole (negatively with birth and divorce rates and positively with marriage rates).

**KEYWORDS:** forensic science, suicide, death row

The problem of prisoners committing suicide has become important for criminal justice agencies, particularly because of the threat of litigation against those who fail to properly supervise and assist incarcerated populations. The suicide rates in American prisons, however, are not unusually high. For example, Stone (1) reported a suicide rate of 15.9 per 100,000 in Texas prisons from 1980 through 1985, while Salive et al. (2) found a rate of 39.6 per 100,000 men in Maryland state prisons. Lester (3) reported a suicide rate for all American prisons from 1980 through 1983 of 24.3 for men and 4.7 per for women. These figures approximate those for the general population of adults in the United States in 1980, as calculated by the present authors—24.4 for men and 7.0 for women.<sup>2</sup>

Suicide, however, is especially common in some institutional settings, such as areas where juveniles are incarcerated in adult institutions (4) and in forensic units (5). Suicide is also especially common on death row, a surprise given the greater supervision usually afforded those on death row. Lester (6) calculated a suicide rate of 146 for death row inmates from 1977 through 1982. Estimates of the suicide rate on death row for the period 1975 through 1999 are shown in Table 1.<sup>3</sup> Because of the small number of suicides, the suicide rate varies greatly (from 0 in 1979 to 312 in 1980). The median suicide rate for the period is 113 per 100,000 per year.<sup>4</sup> In the United States as a whole, the male suicide rate in 1990, as calculated by the present authors, for example, was 26.3 per 100,000 per year based on the population over the age of 15.

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<sup>2</sup> Official government suicide rates are calculated per 100,000 per year for the total population. The rates reported here for the general population, calculated by the present authors, are based on the population over the age of 15, which makes them more comparable to suicide rates for prisoners, most of whom are adults, especially since deaths are rarely recorded as suicide for those under the age of 15, no matter what the cause of death.

<sup>3</sup> Up to 1991, all prisoners on death row were state prisoners. By 1999, 0.55% of the prisoners on death row were federal prisoners.

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Researchers and practitioners have studied the factors relating to suicides in correctional settings such as police lockups, jails, and prisons. These studies have generally focused on inmate characteristics (7–9), supervision practices (10–16), and the physical design of the cellblocks and institutions (12,17–19).

Prisoners are also members of the larger society, and it may be that suicide rates in institutions are affected by the same social forces that have an impact on the suicide rate of the general population. For example, Lester (20) examined suicides in French prisons from 1852 through 1913 and found that the prison suicide rate was positively associated with the overall French male suicide rate. Furthermore, French marriage and birth rates were related in the same manner with both the prison suicide rate and the suicide rate of the males in the general population. Thus, French male prisoners appeared to respond in their suicidal behavior in the same way to social forces as the French male population as a whole. These results were consistent with Durkheim's (21) theory of suicide, which argued that suicide would be more common when social integration was weaker (marriage strengthens social integration, while divorce weakens social integration).

In another study, Lester (22) examined the suicide rate in Finnish prisons for the period 1969 through 1992. He found that the Finnish prison suicide rate was associated with the marriage and divorce rates of Finnish society in the same way as was the suicide rate of all Finnish males. The prison inmate suicide rate and the Finnish male suicide rate were both negatively associated with the marriage rate and positively associated with the divorce rate. Three social indicators (Finnish overall birth, marriage, and divorce rates) accounted for 57% of the variance in the prison suicide rate and 88% of the Finnish male suicide rate over the period.

The present study was designed to explore the correlates of the death row suicide rate in the United States, focusing on two sets of variables, those from death row itself and those from the larger society.

## Method

Data on the population on death row for each year, the number of death sentences, the number of executions, and the number of

TABLE 1—*Suicides on death row.*

Year	Executions	Under Sentence of Death at Start of Year	Received Death Sentence during Year	Suicides	Mid-Year Pop*	Suicide Rate	3-Year Moving Average	Male Suicide Rate, General Population >15 Years of Age
1977	1	420	159	1	421.5	237	...	...
1978	0	423	209	1	452.5	221	142	24.7
1979	2	482	172	0	537.5	0	184	24.3
1980	0	593	198	2	642	312	154	24.4
1981	1	691	245	1	773.5	129	169	24.4
1982	2	856	264	1	953	105	175	25.1
1983	5	1050	259	3	1129.5	266	236	25.0
1984	21	1209	280	4	1307	306	203	25.7
1985	18	1405	273	1	1498	67	178	25.9
1986	18	1591	297	3	1686	178	158	26.8
1987	25	1781	299	4	1882.5	212	213	26.6
1988	11	1984	296	5	2054	243	180	26.1
1989	16	2124	251	2	2187	91	138	25.9
1990	23	2250	244	2	2303	87	72	26.3
1991	14	2356	266	1	2419	41	69	26.1
1992	31	2482	265	2	2528.5	79	79	25.5
1993	38	2575	266	3	2645.5	113	100	25.8
1994	31	2716	306	3	2803	107	95	25.8
1995	56	2890	310	2	2972	67	123	25.7
1996	45	3054	299	6	3136.5	191	149	25.0
1997	74	3219	256	6	3277	183	153	—
1998	68	3335	285	3	3400	88	108	—
1999	98	3465	272	2	3496	57	...	—

\* The Bureau of Justice Statistics reports year-end populations. To get mid-year populations, the populations at the beginning and end of the year were averaged, resulting in non-integers for some years.

suicides were obtained from the annual publication from the Bureau of Justice Statistics entitled "Capital Punishment." Data were supplemented by a staff member from the Bureau of Justice Statistics. These data are shown in Table 1. An annual suicide rate and a three-year moving average were calculated, also shown in Table 1. Bivariate and multivariate analyses were conducted on death row suicide rates from 1978 through 1996, since more recent data on some of the independent variables used here were not available.

The majority of the inmates on death row were male (98.6% at the beginning of 1999), so the suicide rate for males in America was used for comparison purposes. These rates were calculated especially for this paper based on the population over the age of 15. The social variables for the larger society were those used by Lester (22) in his study of Finnish prison suicide rates, namely, birth, marriage, and divorce rates, plus the unemployment rate, which has been found to be a strong correlate of the societal suicide rate (23). Marriage, birth, divorce, and unemployment rates were available for the period 1978 through 1996 from the Census Bureau (24), and male suicide rates were gathered from the World Health Organization (25).

The correlational and regression analyses were carried out using a statistical package from Doan (26). Multiple regression models (simple and using the Cochrane-Orcutt technique to correct for the serial autocorrelation in the data sets) were also developed.

## Results and Discussion

The results of the correlational analysis are shown in Table 2. It can be seen that the suicide rate on death row has declined over the period studied, and, since the population on death row has increased over this period, the suicide rate on death row is negatively associated with the population on death row ( $r = -0.38$ , two-tailed  $p < 0.05$  for the annual suicide rate:  $r = -0.55$ ,  $p < 0.01$  for the

TABLE 2—*Correlations between the suicide rate on death row and predictor variables.*

	Suicide Rate ( $n = 23$ )	Three-Year Moving Average ( $n = 21$ )	Multiple Regression	
			Simple	Corrected
Year	-0.388	-0.553*		
Number of executions	-0.303	-0.350	0.97	1.11
New death sentences	-0.094	-0.069	0.85*	0.79
Population on death row	-0.379	-0.550*	-0.07*	-0.08*
R <sup>2</sup>			0.62	0.67

\* Two-tailed  $p < 0.01$ .

three-year moving average). It could be that suicide prevention efforts in prisons have improved over the period, resulting in a lower suicide rate on death row. Alternatively, it could be that the increasing population has changed the social environment and also the mind state of the inmates on death row. It might be also that death row inmates are less likely to be housed alone in single cells as the population on death row increases. Housing prison inmates in multiple-occupancy cells is a simple suicide prevention tactic for prisons.

The death row suicide rate (moving average) was not significantly associated with the male suicide rate in the general population (Pearson  $r = -0.22$ ). The results of the multiple regressions (simple and using the Cochrane-Orcutt techniques) are shown in Table 3. Surprisingly, the measures of social integration (marriage,

TABLE 3—Multiple regressions.

	Death Row Suicide Rate		General Population Male Suicide Rate	
	Simple	Corrected	Simple	Corrected
Constant	542.15	980.20†	23.99†	27.86†
Marriage	86.41*	157.52†	0.53	0.21
Birth	-46.29*	-76.08†	0.60	0.13
Divorce	-109.33	-235.56†	-2.67	-1.32
Unemployment	2.24	-5.48	-0.02	-0.01
R <sup>2</sup>	0.54	0.70	0.47	0.73

\*  $p < 0.05$ .†  $p < 0.01$ .

birth, and divorce rates) were as successful in predicting the suicide rate on death row (moving average) as in predicting the male suicide rate in the general population. Both in the simple (ordinary least squares) and the corrected multiple regression, the birth rate was negatively and the marriage rate was positively associated with the death row suicide rate. The divorce rate was negatively associated with the death row suicide rate in the corrected multiple regression.

The results for the male suicide rate in the general population did not reach statistical significance (see Table 3). Regardless of this, the proportion of variance accounted for in the general population male suicide rate ( $R^2 = 0.47$  uncorrected,  $R^2 = 0.71$  corrected) was as high as for the death row suicide rate ( $R^2 = 0.54$  uncorrected,  $R^2 = 0.70$  corrected).

The present study has identified a high suicide rate among death row inmates. The median suicide rate was 113 per 100,000 per year as compared to a male suicide rate (based on the population over the age of 15) in the 1980s ranging from 24.4 to 26.8 (with a median of 25.8). This high rate, although it has declined in recent years, is unacceptable given that it has been apparent for more 20 years. More effective suicide prevention strategies should have been implemented on death row by now.

The death row suicide rate was not significantly associated with the suicide rate for men in the general population. The death row suicide rate was predicted in multiple regression by the number of new death sentences each year (positively) and the population on death row (negatively).

Although the suicide rate for men in the general population was not associated with the social indicators (marriage, birth, divorce, and unemployment rates), three of these social indicators (marriage and birth rates and to a lesser extent divorce rates) were associated with the death row suicide rate.

Early thinking on such sociological correlations held that these social indicators directly impacted upon the suicide rate. More recently, it has been suggested that the social indicators are indices of general characteristics of the society and that it is these characteristics that impact the suicide rate (27). The significant associations between the social indicators and the death row suicide rate are not, however, consistent with Durkheim's (21) theory of suicide, which would predict positive association with divorce rates and negative associations with marriage and birth rates. (Only the last of these correlations is in the predicted direction.) Thus, we are unable to account for the associations identified, but we have demonstrated that the death row suicide rate may be predictable based on the characteristics of death row and social indicators of the larger society. It is interesting to note that the associations for the male suicide

rate in the general population also are not consistent with Durkheim's theory. Perhaps the high rate of divorce in America, and the high rate of remarriage, means that in today's society divorce does not necessarily result in social disintegration and does not necessarily indicate lack of social regulation.

One possibility for future research is to explore indices of social integration on death row itself (rather than in the society at large), such as housing arrangements and visitor frequency and type that might affect the social integration of the inmates directly.

Since a large proportion of inmates on death row are minorities, and since minorities in the general population have a lower suicide rate than whites, it would be of interest in future research to examine the time-series associations by race. However, the race of the inmate suicides on death row was not available for the present study. (Race is not mentioned for the suicides in the annual reports on capital punishment in the United States.) Future research might also explore regional differences in the suicide rates and the time-series correlates of these suicide rates.

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