The WAGER Vol. 7(35) – Do Casinos have Casualties? Mixed Evidence for a Gambling-Suicide Link

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Over the years, researchers have sought evidence to support the widely held expectation that increased gambling would lead to increased rates of suicide. The evidence has been mixed: some studies have suggested a relationship with gambling (Bland, Newman, Orn, & Stebelsky, 1993; Phillips, Welty, & Smith, 1997), while others have found no link (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998; Marfels, 1998). This week, the WAGER reports on a recent study that attempts to resolve this issue by examining relationships between the presence of casinos in a geographic area and the suicide rate among its residents (McCleary, Chew, Merrill, & Napolitano, 2002).

Using U.S. Mortality Detail Files (National Center for Health Statistics, 1998) from 1970 to 1995, the researchers examined the possible link between gambling and resident suicide through (1) a time series analysis and (2) a cross-section analysis that controlled for several predictors of suicide. For the time series analysis, McCleary et al. examined six counties with clearly defined pre- and post-gambling eras for which mortality data was available for at least seven years before and three years following legalization of gambling. In the cross-section analysis, the authors compared the 1990 suicide rates of 148 metropolitan regions controlling for various factors, including geographic region and gaming presence. Gaming presence was defined as the presence of Las Vegas-type casinos (i.e. state-licensed facilities with hotel accommodations and a variety of gaming activities) and only three of the metropolitan areas studied met this criterion: Las Vegas, Atlantic City, and Reno.

As Table 1 shows, after the legalization of gambling, five of the six counties showed no statistically significant change in the suicide rate; the one exception was a significant decrease in suicidality in Lawrence County, South Dakota.

Table 1. Before/After Statistics for Gaming Counties (McCleary et al.,

2002)

County	Casino Opening	Base Rate (suicides per 100,000)	Absolute Change After Legalization	*t*-ratio	p(*t*)
Atlantic, NJ	1978	8.62	+0.66	+0.75	0.77
Lawrence, SD	**1989**	**19.25**	**-9.73**	**-2.67**	**<.01**
Douglas & Glipin, CO	1991	18.59	-4.43	-1.20	0.12
Harrison, MS	1992	12.83	+2.29	+1.34	0.91
Will, IL	1992	9.64	-1.42	-1.00	0.16

Note: Due to their size, Douglas and Gilpin Counties were combined for this analysis. Significant changes are in bold.

The cross-sectional analysis used regression to examine the relationship of various ecological factors to suicide rate. The table below presents the coefficients from this regression. The magnitude of each coefficient indicates the relative strength of the relationship, while the valence of each coefficient (i.e., positive or negative) indicates whether the relationship is direct or inverse. Although casino presence was significantly related to the suicide rate, the amount of variance explained (1%) was small; other factors, including race, age composition, economic vitality, and public safety showed much stronger relationships with suicide rates.

Table 2. Regression of Metropolitan Characteristics on Resident Suicide Rate (McCleary et al., 2002)

Predictor Variable	β	*p*
Region*		
New England	-.381	<.001
East North Central	-.576	<.001
West North Central	-.254	<.001
Mid-Atlantic	-.734	<.001
South Atlantic	-.536	<.001
East South Central	-.429	<.001
West South Central	-.294	.002
Western Pacific	-.338	.001
Proportion aged 65+	.233	.001
Black percent	-.228	.044
Unemployment rate	-.315	<.001
Accidental death rate	.468	<.001
Homicide rate	.260	.014
Casino presence	.135	.025

* The effect of region is relative to the Western Mountain region.

One limitation to this study is that the casino inclusion criteria are extremely narrow and preclude the inclusion of a number of gambling venues. A broader set of criteria, such as including Indian or riverboat casinos, might more accurately identify geographic areas affected by gambling; doing so could change the results substantially. The regression analysis is problematic for another reason:

unemployment operates in the opposite than expected direction. Unemployment was used as an indicator of economic lethargy, which correlates positively with suicide (i.e., an increase in regional economic problems leads to an increase in suicides). However, this study showed a negative relation between unemployment and suicide; since this finding is unusual and inconsistent with other research, it raises questions about the validity of the entire model. The time series analysis is also limited since national trends in suicide rates could confound the comparisons of rates from different time periods; the authors fail to correct for this in their analysis. Since national suicide rates fluctuated over the period 1970 to 1995; suicide rates for the pre- and post-legalization periods may be distorted in the direction of the national rate at that point in time. Finally, this study does not necessarily examine gambling-related suicides. Consequently, relationships between gambling settings and suicide rates could potentially be due to common features that influence suicide other than casino presence. For example, Nevada is home to a great number of retirees, a population which has demonstrated higher suicide rates. These confounding influences might account for some of Nevada's elevated risk (Holinger, 1987; Kushner, 1989).

While the cross-sectional analysis showed casinos may have a small effect on suicide rate, the time series analysis showed no consistent change in the suicide rate. Although the time series findings tentatively suggest gambling confers protection against suicide, the authors caution against this interpretation of the data without further study. The mixed results demonstrate the complexity of studying dynamic social phenomena while simultaneously revealing that it can be done. This encourages scientists and public policy makers to continue to monitor and study this issue. In the meantime, the authors suggest that public health efforts combating suicide focus on known risk factors.

Comments on this article can be addressed to Rachel Kidman.

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