

RADARS[®]

S Y S T E M

Title:	Regional differences in seasonal trends in suicide exposures to prescription opioids as reported to poison centers participating in the RADARS [®] System
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Abstract:

Background: Suspected suicide is the predominant reason coded for intentional prescription opioid exposures reported to poison centers in the RADARS[®] System. Extant literature suggests suicides follow a seasonal pattern peaking in late spring and early fall. We sought to determine if suicide attempts using prescription opioids followed similar seasonal patterns and if these patterns differed by latitude.

Methods: Opioid exposures with a reason code of suicide were selected from 3-digit ZIP codes consistently covered from the 4th quarter of 2006 to the 4th quarter of 2011 by the Poison Center program. ZIP codes were used to classify cases in northern states, middle states, and southern states. Suicide exposure population rates were assessed in a negative binomial harmonic regression model. Suicide exposures were regressed on month, latitude (north, middle, and south), harmonic terms, and two level interactions of each covariate. A correlation structure that assumed higher correlation between points closer in time was used. Population was adjusted for average monthly growth with a linearized correction using state specific growth rates between the 2000 and 2010 Census.

Results: Suicide was the reason for exposure in 62,195 cases; 54.2% of all intentional exposure cases. The median reported age was 36 years (25th -75th percentile range 25 - 47). Females accounted for 61.2% of cases. Consistent with existing literature, the first and second harmonic terms were significant ($p < 0.05$), suggesting a seasonal pattern to suicide exposures to opioids detected using data from the Poison Center program. The interaction of the first harmonic and latitude was significant ($p < 0.05$), suggesting seasonal patterns differed by latitudes. The peak of the harmonics occurred in different times in the three different latitudes: April in the northern latitude, May and September in the middle latitude, and October in the southern latitude.

Conclusion: Suicide exposures detected by Poison Centers follow a seasonal pattern. This pattern varies by latitude with peaks generally occurring later in southern states. The differing patterns by latitude further support a general seasonal nature of suicide previously observed, but also suggest that this pattern could be related to different climatological factors in different latitudes such as the degree of which seasons change.