



AMERICAN
PSYCHOLOGICAL
ASSOCIATION

Distribution of Licensed Psychologists and Drug Overdose Mortality Rates

AMERICAN PSYCHOLOGICAL ASSOCIATION
CENTER FOR WORKFORCE STUDIES

FEBRUARY 2019

KEY TERMS AND DATA SOURCES

Licensed psychologists: Doctoral-level active licensed psychologists. Data are from de-duplicated state licensing board lists in 2015, compiled by the American Psychological Association. In 2015, there were an estimated 95,000 doctoral-level psychologists actively working in the United States.

Concentration of licensed psychologists: The number of licensed psychologists per 100,000 population. Population data are from U.S. Census Bureau, 2015. The concentration of psychologists in 2015 was approximately 29.0 psychologists per 100,000 population in the United States.

Drug overdose mortality: Drug overdose mortality was identified using International Classification of Diseases, Tenth Division (ICD-10), and indicates the number of deaths due to drug poisoning, including accidental, intentional, and undetermined poisoning by and exposure to 1) nonopioid analgesics, antipyretics and antirheumatics, 2) antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, 3) narcotics and psychodysleptics [hallucinogens], 4) other drugs acting on the autonomic nervous system, and 5) other and unspecified drugs, medicaments and biological substances. ICD-10 codes included X40-X44, X60-X64, X85, and Y10-Y14. These codes were used by CDC to identify drug overdose mortality. Data are from Compressed Mortality File by the Center for Disease Control and Prevention, compiled by County Health Rankings, Robert Wood Johnson Foundation, 2016. Counties with missing drug overdose deaths were treated as zeros.

Drug overdose mortality rate: Number of deaths due to drug poisoning per 100,000 population. Population data are from U.S. Census Bureau, 2016. The drug overdose mortality rate in the U.S. was 19.8 deaths per 100,000 population in 2016.

Hot spot analysis: Hot spot analysis uses geographic inferential statistics to identify areas with statistically higher or lower concentration of a particular variable of interest.

RECOMMENDED CITATION

American Psychological Association. (2019). *Distribution of licensed psychologists and drug overdose mortality rates*. Washington, DC: Author.

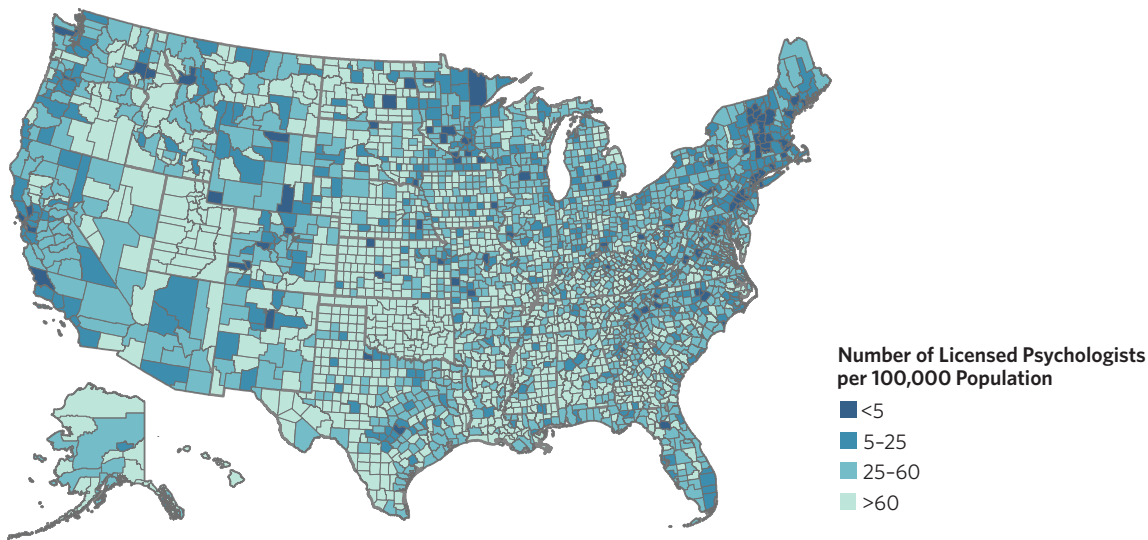
FINDINGS

Figure 1 presents the concentration of licensed psychologists by county. Higher concentrations of psychologists were found in the Northeast and the Pacific coast areas.

Figure 2 presents the distribution of drug overdose mortality rates by county. Drug overdose mortality rates were highest in the West, Southwest, Northeast, and the Appalachian mountain area in particular.

FIGURE 1.

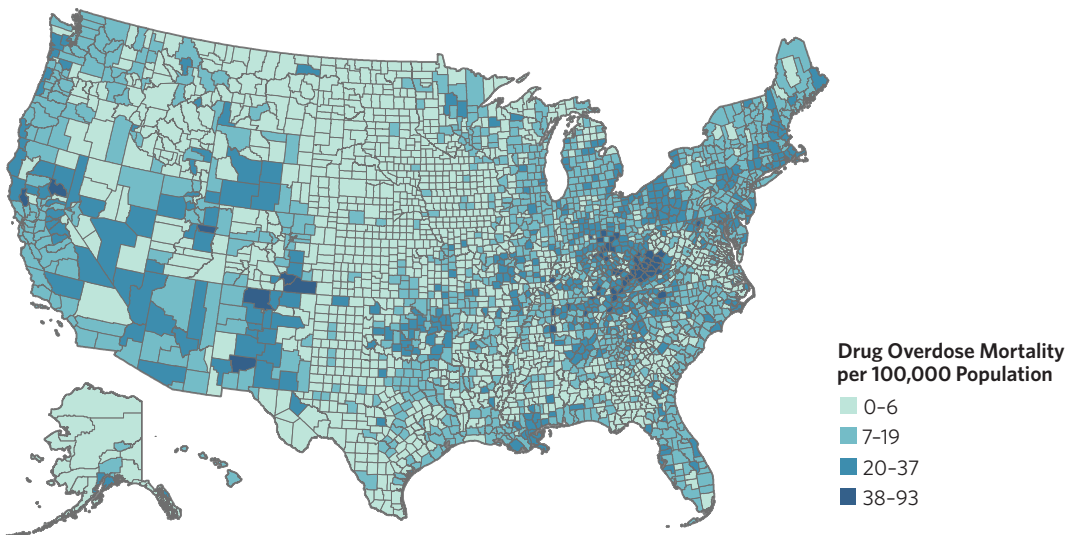
LICENSED PSYCHOLOGISTS PER 100,000 POPULATION BY COUNTY, 2015



Source: American Psychological Association, 2015; US Census Bureau, 2015.

FIGURE 2.

DRUG OVERDOSE MORTALITY RATES BY COUNTY, 2016

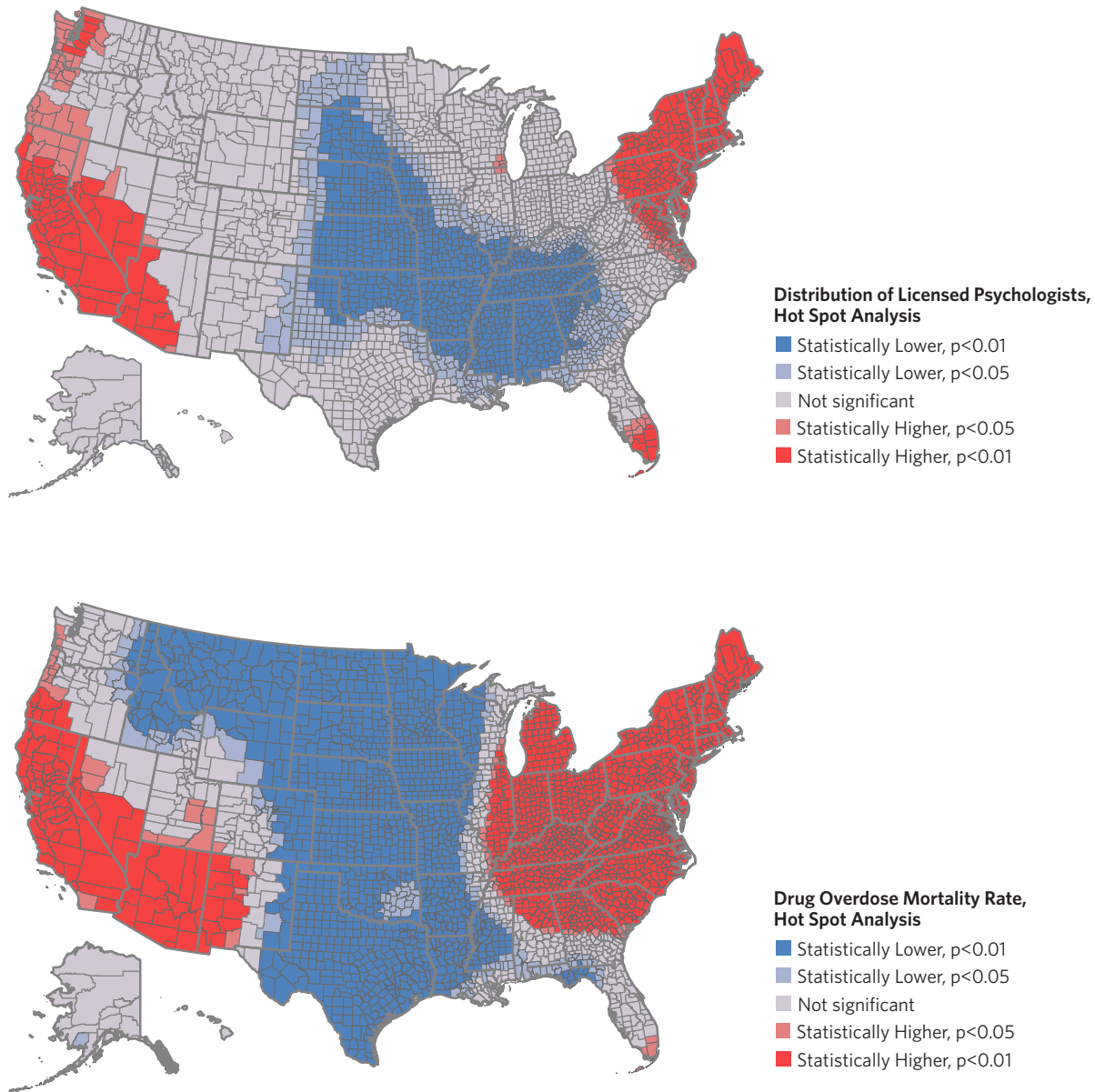


Source: Center for Disease Control and Prevention, compiled by County Health Rankings, 2016; US Census Bureau, 2016.

Figure 3 presents the hot spot analysis of licensed psychologists and drug overdose mortality rates throughout the country. Red areas indicate statistically higher concentrations of licensed psychologists or lower drug overdose mortality rates, whereas blue areas indicate statistically lower concentrations of licensed psychologists or lower drug overdose mortality rates. The hot spot analysis highlights the overall patterns presented in Figure 1 and Figure 2.

FIGURE 3.

HOT SPOT ANALYSIS OF LICENSED PSYCHOLOGISTS AND DRUG OVERDOSE MORTALITY RATE



Source: American Psychological Association; Center for Disease Control and Prevention, compiled by County Health Rankings; US Census Bureau.

Note: Hot spot analysis uses geographic inferential statistics to identify areas with statistically higher or lower concentration of a particular variable of interest.

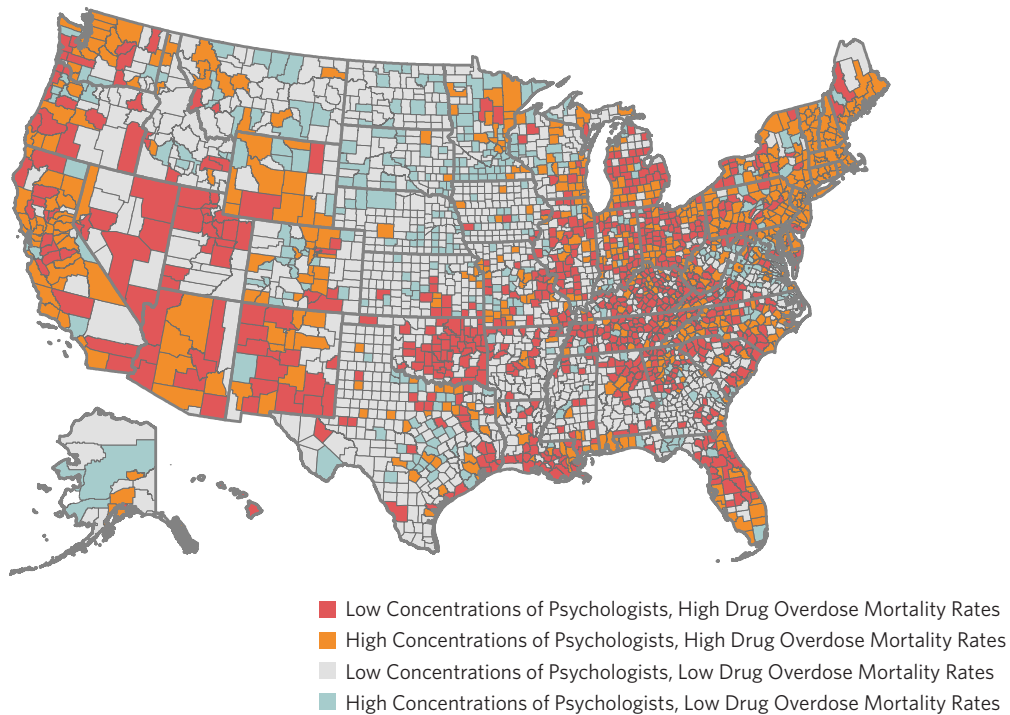
Figure 4 presents the relationship between drug overdose mortality rates and concentrations of licensed psychologists. Counties were categorized into four groups:

1. Pink areas indicate counties with drug overdose mortality rates higher than the mean of drug overdose mortality rates across all counties in the U.S. (9.4 deaths per 100,000 population per county), and concentrations of psychologists lower than the mean concentration of psychologists across all counties in the U.S. (14.2 psychologists per 100,000 population per county);
2. Yellow areas indicate counties with drug overdose mortality rates higher than the mean of drug overdose mortality rates across all counties in the U.S., and concentrations of psychologists higher than the mean concentrations of psychologists across all counties in the U.S.;
3. Gray areas indicate counties with drug overdose mortality rates lower than the mean of drug overdose mortality rates across all counties in the U.S., and concentrations of psychologists lower than the mean concentrations of psychologists across all counties in the U.S.;
4. Blue areas indicate counties with drug overdose mortality rates lower than the mean of drug overdose mortality rates across all counties in the U.S., and concentrations of psychologists higher than the mean concentrations of psychologists across all counties in the U.S.

Figure 5 presents the same analysis at the state level. States with high drug overdose mortality rates and low concentrations of psychologists included: Delaware, Florida, Indiana, Kentucky, Louisiana, Michigan, Montana, New Mexico, Nevada, Ohio, Oklahoma, Tennessee, Utah, and West Virginia. States with high drug overdose mortality rates and high concentrations of licensed psychologists were mostly in the Northeast and included: Connecticut, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, Pennsylvania, Rhode Island, and Vermont.

FIGURE 4.

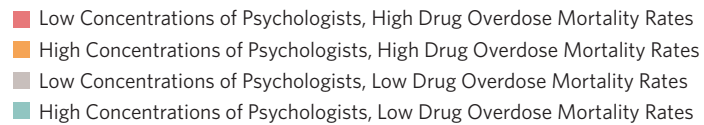
DRUG OVERDOSE MORTALITY RATES AND DISTRIBUTIONS OF LICENSED PSYCHOLOGISTS, BY COUNTY, 2015-16



Source: Center for Disease Control and Prevention, data compiled by County Health Rankings; American Psychological Association.

Note: High drug overdose mortality rates indicate the drug overdose mortality rate in the county is higher than the mean of drug overdose mortality rates across all counties in the U.S. (9.4 deaths per 100,000 population per county); low drug overdose mortality rates indicate the drug overdose mortality rate in the county is lower than the mean of drug overdose mortality rates across all counties in the U.S. High concentrations of psychologists indicate the number of licensed psychologists per 100,000 population in the county is higher than the mean concentration of licensed psychologists across all counties in the U.S. (14.2 psychologists per 100,000 population per county); low concentrations of psychologists indicate the number of licensed psychologists per 100,000 population in the county is lower than the mean concentration of licensed psychologists across all counties in the U.S.

DRUG OVERDOSE MORTALITY RATES AND DISTRIBUTIONS OF LICENSED PSYCHOLOGISTS, BY STATE, 2015-16



Note: High drug overdose mortality rates indicate the drug overdose mortality rate in the state is higher than the mean of drug overdose mortality rates across all states in the U.S. (21.0 deaths per 100,000 population per state); low drug overdose mortality rates indicate the drug overdose mortality rate in the state is lower than the mean of drug overdose mortality rates across all states in the U.S.. High concentrations of psychologists indicate the number of licensed psychologists per 100,000 population in the state is higher than the mean concentration of licensed psychologists across all state in the U.S. (29.6 psychologists per 100,000 population per state); low concentrations of psychologists indicate the number of licensed psychologists per 100,000 population in the state is lower than the mean concentration of licensed psychologists across all states in the U.S.