

Example of research paper on suicide rates

[Sociology](#), [Women](#)



In the U. S., suicide ranks among the top ten causes of death, causing an estimated 1.5 percent of all deaths. The annual number of suicides that occurred later in 1980, an average of 30,000 per year, respectively, exceeding the annual number of deaths from homicides. Rating suicide (number of suicides per 100,000 population) in the United States has remained relatively stable since the 1950s, fluctuating between 10 and 13 cases per 100,000 each year.

Rating suicide is different for different age groups. Of all age groups, the elderly have the greatest risk of suicide, especially men with whites over 75 years old. Increase rating of suicide among the elderly, apparently due mainly debilitating effects of physical illness, loss of social roles and family periodic depression. Rating suicide for persons aged up to 24x 15ti years increased in 1993 compared to 1950 three times. The reasons for this increase are not clear enough, but the researchers explain this fact by the prevalence of mental illness and substance abuse among young people, as well as the presence of firearms at home.

Rating suicide also varies between men and women and between different ethnic groups. Men end up about 80% of all suicides. However, women do attempt suicide three times more often than men. Among men, Native Americans have the highest risk of suicide, and then there are people with white skin. White men and women make about 90% of all suicides.

According to www.suicide.org, the U. S. suicide rates in 1950-2003 were the following:

In this paper the regression models for forecasting the suicide rates will be constructed.

We construct scatterplots for male, all ages, female, all ages and all ages, age adjusted.

As we may see, the amount of suicides is getting lower with time.

Now, we want to construct the linear regression equations to make forecasts for future years and check, if our models are good enough - we will compare the results of model with the future information - the 2009 year suicide rates in the U. S.

Using Excel tools, we obtain the following equations.

For females:

$$y = -0,0429x + 90,2$$

$$R^2 = 0,5676$$

For males:

$$y = -0,0464x + 111,61$$

$$R^2 = 0,4352$$

For all ages, age adjusted:

$$y = -0,0544x + 120$$

$$R^2 = 0,7589$$

The coefficient of determination (R^2 - R-squared) is the proportion of variance in the dependent variable explained by the model under consideration depending, that is, the explanatory variables. More precisely - it is one minus the proportion of unexplained variance (variance of the random error model, or conditional on factors variance in the dependent

variable) in the variance in the dependent variable. It is regarded as a universal measure of a random variable depending on many others. In the particular case of the linear dependence of R-squared is the square of the so-called multiple correlation coefficient between the dependent variable and the explanatory variables. In particular, a linear regression model steam determination factor equal to the square of the correlation coefficient between the conventional y and x.

We can see, that the highest coefficient of determination is in adjusted model. This regression equation is the best to make the forecast.

Let's calculate, how many suicides (on 100, 000 persons) will show all our models for 2009 year:

Females:

$$y = -0,0429x + 90,2 = -0,0429 \cdot 2009 + 90,2 = 4,0139$$

Males:

$$y = -0,0464x + 111,61 = -0,0464 \cdot 2009 + 111,61 = 18,3924$$

Age adjusted:

$$y = -0,0544x + 120 = -0,0544 \cdot 2009 + 120 = 10,7104$$

According to the National Vital Statistics Reports, the following suicide rates were in the U. S. in 2009: females: 5. 5; males: 19. 5; adjusted average: 12. 0

As we may see, the obtained forecasted values is quite close to real. The possible deviation from the real values may be explained by the non-linear dependence between the variables or by the impact of some other factors which are not counted in the model.

Works Cited

“ Suicide Awareness, Prevention and Support”. Retrieved 2013. 11. 16, www.suicide.org

" National Vital Statistics Reports, vol. 60."

Unless otherwise stated all statistics are from WHO: " Suicide rates per 100,000 by country, year and sex (Table)". World Health Organization. 2011. Retrieved 2012-01-26.

Suicide rates by country, 1950-2011 published by the World Health Organization (WHO).