Results-WriteUp

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Note that the definition in this project for high-fatality is either patients who died after commiting suicide and receing hospital treatment or patients who immediately died after commiting suicide without receiving any treatment. The two conditions could be a bit different but perform the same under the high-fatality standard. Meanwhile, this model only focus on individuals whose occupation is either household or

The binary logistic regression model investigates the factors influencing the likelihood of a high fatality outcome compared to a medium fatality outcome. Age is a significant predictor (p < 0.001), where increasing age reduces the odds of high fatality slightly (Estimate = -0.0176). Gender also shows a significant effect (p = 0.0064), with males having lower odds of high fatality compared to females (Estimate = -0.318). This suggests that gender differences may play a role in survival outcomes following a suicide attempt. Education level reveals mixed effects. Primary education significantly increases the odds of high fatality (p < 0.001), and secondary education has an even stronger effect (p < 0.001). However, tertiary education is not statistically significant (p = 0.4247), suggesting its effect on fatality is minimal. Regarding suicide methods, hanging (p < 0.001) and jumping (p = 0.0024) are associated with significantly lower odds of high fatality, whereas poison (p = 0.0226) and unspecified methods (p = 0.0449) increase the odds of high fatality. Notably, drowning shows no significant association, likely due to data sparsity.

Temporal effects are also significant. Compared to 2009, the odds of high fatality decrease significantly in 2010 (p = 0.0119) and 2011 (p < 0.001), suggesting an overall decline in fatality rates over time. Seasonal variation reveals that spring (p = 0.0103) and winter (p = 0.0212) significantly reduce the odds of high fatality compared to fall, while summer has no significant effect (p = 0.7081).

The binary logistic regression model provides odds ratios that allow us to interpret the likelihood of a high fatality outcome relative to a medium fatality outcome.

For age, the odds ratio is approximately 0.98 (exp(-0.0176)), meaning that for every additional year of age, the odds of a high fatality outcome decrease by about 2%, holding all other variables constant. This suggests that older individuals have a slightly lower likelihood of experiencing high fatality compared to younger individuals. For gender, the odds ratio for males is approximately 0.73 (exp(-0.318)), indicating that males have about 27% lower odds of a high fatality outcome compared to females, holding other factors constant. This suggests that gender may influence survival rates following suicide attempts.

In terms of education, individuals with primary education have 2.28 times higher odds of high fatality compared to those with no formal education (exp(0.8227)). For secondary education, the odds ratio is 11.94 (exp(2.4811)), indicating a substantial increase in the likelihood of high fatality compared to the baseline group. Conversely, tertiary education does not show a significant impact on fatality outcomes (p > 0.05). For suicide methods, the results vary. Hanging has an odds ratio of 0.016 (exp(-4.13)), meaning that the odds of high fatality are approximately 98.4% lower for individuals using this method compared to cutting methods. Similarly, jumping has an odds ratio of 0.024 (exp(-3.74)), indicating a 97.6% reduction in odds comparing with cutting methods. On the other hand, poisoning shows an odds ratio of 4.01 (exp(1.39)), suggesting that individuals who use poisoning have about 4 times higher odds of high fatality than cutting as baseline. Unspecified methods also increase the odds of high fatality, with an odds ratio of 5.39 (exp(1.68)).

For year, both 2010 and 2011 demonstrate significant reductions in the odds of high fatality compared to 2009. Specifically, the odds ratio for 2010 is 0.70 (exp(-0.356)) and for 2011 is 0.53 (exp(-0.629)), representing a

30% and 47% decrease in odds, respectively. This suggests a downward trend in high fatality rates over time. Finally, for seasons, spring and winter are associated with significantly lower odds of high fatality compared to fall. The odds ratios for spring and winter are 0.66 (exp(-0.421)) and 0.67 (exp(-0.403)), respectively, indicating about a 34% reduction in the odds of high fatality in these seasons. Summer, however, does not significantly differ from fall. Therefore, the consecutive decline in fatality rates from 2009 to 2011 may reflect a gradual but steady recovery of China's farming sector and overall conditions following the 2008 global financial crisis. While there may not be a direct connection between fatality rates and national economic or societal conditions, it is reasonable to speculate that they are indirectly related. The improving trends over the years could also be linked to better medical access, increased social awareness within farming and household groups, rising household incomes, and overall improved living conditions, as China experienced steady economic growth and development throughout the 2010s.

In summary, significant predictors such as age, gender, education, suicide method, year, and season demonstrate varying influences on the odds of high fatality. Methods like poisoning and temporal trends (e.g., year effects) highlight key areas for targeted prevention strategies.