

DISTRIBUTION STATISTICS AND ANALYSIS

Subjects: Probability and Statistics

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Abstract

The Image shows an hypothesis of Sigmoid Distribution with Boltzmann and Gaussiun Probability individually . The Sigmoid Probability is combined with Gaussiun Probability to get a new mathematical function called Gaussiun-Sigmoid function . accordingly the Boltzmann - Sigmoid function .The distribution is applied to epidemiological parameters like mortality rate (MR), Case fatality rate (CFR) , Infection fatality rate (IFR) .

The concept of distribution statistics can be applied to most important epidemiological parameter ie Infection fatality rate (IFR) is correlated with age of the population through **sigmoid statistics of Logistic model**. The IFR is a special case of case fatality rate (CFR) . The CFR is termed as the number of deaths due to symptomatic Covid infection within entire population per unit time . The IFR is a special case of CFR where number of deaths to be considered as total number of deaths due to symptomatic as well as asymptomatic infection within the same population per unit time .

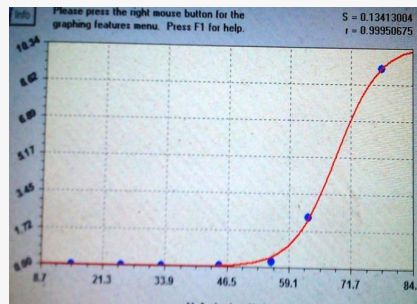
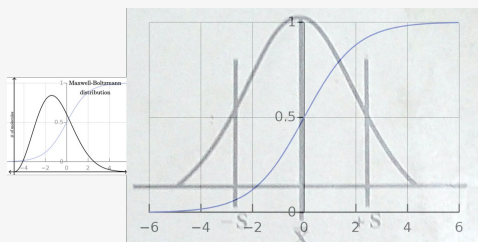


Figure - I

The **Figure - I** represents the Sigmoid or Logistic regression model . The sigmoid function represents a sharp rise in S-shape sharp rise distribution statistics of bivariate model . $Y [IFR] = \text{Sigmoid func} (X [\text{Age of patients}])$. The **Figure - I** shows a significant fit of pre-processed dataset of Age Vs IFR. Naturally the Infection Fatality Ratio of Covid19 of the said population shows just a sharp- S - rise @ Age of 45 Yrs and the infection become more fatal after an old age of 70 for both symptomatic & asymptomatic patient of the considered population.

REF : 1. https://figshare.com/articles/poster/Gaussiun_Probability_Dimensional_View/12195864

2.

https://figshare.com/articles/preprint/BOLTZMANN_SIGMOIDAL_AND_GUSSIUN_SIGMOIDAL_An_Analysis/12907619

3 DISTRIBUTION STATISTICS AND ANALYSIS , encyclopedia.pub , Jaydip Datta ,2020 .

4. Figure - I (INFECTION FATALITY RATE OF COVID19 – A LOGISTIC MODEL)

Citations -

APA

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Keywords

Boltzmann Distribution;Gaussiun Distribution;Sigmoid Distribution;Probability;Infection fatality rate;epidemology

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