

عنوان مقاله:

FUZZY LOGISTIC REGRESSION : A NEW POSSIBILISTIC MODEL AND ITS APPLICATION IN CLINICAL VAGUE STATUS

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خلاصه مقاله:

Logistic regression models are frequently used in clinical research and particularly for modeling disease status and patients survival. In practice, clinical studies have several limitations. For instance, in the study of rare diseases or due ethical considerations, we can only have small sample sizes. In addition, the lack of suitable and advanced measuring instruments lead to non-precise observations and disagreements among scientists in defining disease criteria have led to vague diagnosis. Also, specialists often report their opinion in linguistic terms rather than numerically. Usually, because of these limitations, the assumptions of the statistical model do not hold and hence their use is questionable. We therefore need to develop new methods for modeling and analyzing the problem. In this study, a model called the "fuzzy logistic model" is proposed for the case when the explanatory variables are crisp and the value of the binary response variable is reported as a number between zero and one (indicating the possibility of having the property). In this regard, the concept of "possibilistic odds" is also introduced. Then, the methodology and formulation of this model is explained in detail and a linear programming approach is used to estimate the model parameters. Some goodness-of-fit criteria are proposed and a numerical example is given as an example.

کلمات کلیدی:

Logistic Regression, Clinical research, Fuzzy logistic regression, Possibilistic odds

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