

Modeling Vague Status by Fuzzy Logistic Regression: Application in Evaluating the Effect of Folic Acid on Child's Appetite status

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Statistical logistic regression is used for modeling a binary response variable with two exact categories based on a set of explanatory variables. In practice, the state of a binary response variable may be described in linguistic terms rather than in exact ones. In these situations, the borders between linguistic terms are vague and it is not possible to categorize the samples in one of two response categories. So, no usual probability distribution can be considered for such binary response variables and, therefore, statistical logistic regression is not appropriate for modeling. In this paper the state of child's appetite is described by linguistic terms, and then a set of crisp explanatory variables which are supposed to be related with the state of appetite are collected. Fuzzy logistic regression, based on a least squares method, is used for modeling child's appetite via a set of explanatory variables.

Finally, the obtained model is evaluated by the means of a goodness-of-fit index.

Keywords: appetite, fuzzy logistic regression, least squares method, linguistic variable