Generalized estimating equations and its application in infantile colic data analysis

Yazdani j [1], Tatari M [2] * , Karami H [3] , Rohanizadeh H [4]

1- Associate professor of biostatistics. Health sciences research center , mazandaran university of Medical sciences.
2- MSc student of statistics. :school of health , mazandaran university of Medical sciences
3- Assistant professor. school of Medicine , , mazandaran university of Medical sciences
4-assistant of pediatric, Boali hospital , school of Medicine , , mazandaran university of Medical sciences
**Corresponding Author : MSc student of statistics. :school of health , mazandaran university of Medical sciences*
E Mail : maryamtatary@yahoo.com

Abstract

Background and Aims: Many Studies about Epidemiology and medical sciences that measured desired outcome at frequently individuals over times are done based on a longitudinal design. the features of a data set is repeated observes .For this reason , requirement of independence observation in longitudinal data is violated that causes this kind of data needs the specific statistical method. One of the methods that is used for analyzing this kind of data is marginal model . generalized estimating equations (GEE) is a famous statistical inference for this .

By this , the purpose of study GEE applications in data comes from the result of the clinical trail is to survey the treatment of infancy colic.

Materials and Methods: In this study , in addition to introduce generalized estimating equations benefits the usage of it on analyzing probiotics impact on infancy colic in breast milk fed by using SAS 9.2 soft ware .

These data include 98 infants that recourse pediatric gastroenterology clinic in Booali hospital in Sari .it is the result of accidental one side trial study . Patients were randomly divided in two 49 members groups .the control group was given placebo and another group was administered Biogaia oral drop in 28 days . In this study , the response variable is the average crying time of infants during the week –fist day,7th day, 14th day and 21th day were recorded respectively.

Results : The result showed that using probiotic drop, time and Maternal weight had significant impact on infancy colic.the crying time of those babies that used probiotic drop reduced 8.5 hours in compare with those who didn't use **(p=0.01)** . the children crying with the passage of per week 3.5 hours decreased **(p=0.001) .**

Conclution: By considering the correlations among observations and violate the independent observation default the GEE as a specific methods that considered the correlation among observations is an appropriate statistical method. The results of GEE statistic methods in longitudinal data showed that treatment with probiotics improves infant colic in children.

Keywords: Longitudinal Data,Generalized estimating equations,

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