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Multi-responses Model in Patients Suffering from Decubitus Wound Using Generalized Penalized Spline

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Abstract: Longitudinal data are derived from observations conducted to n subjects that are independent, observed repeatedly (repeated measurement) within a certain time. In longitudinal data of health sector, it is frequently found more than one response variable of repeated observations results on subjects that are similar, so that the proper data analysis is the analysis of biresponse longitudinal data. The purpose of this study is to establish the longitudinal equation with Generalized Penalized Spline (GPS) approach. The data were obtained from a study conducted by Fernandes and Wardhani, that was the data of patients suffering *Decubitus Wound* with the response of wound extent on hands and wound extent on body. The longitudinal data equation using the approach of GPS biresponse results in the best estimator when using knot at 1 with polynomial of degree 2 (quadratic) with $GCV = 1983,417$ and R^2 equal to 97.829% and 98.119%.

Keywords: Longitudinal Data, GPS, biresponse, Decubitus Wound.

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