

The aim of this thesis is to present in detail the methods of logistic regression analysis with a misclassified response and to compare them with examples. The first chapter provides a brief introduction to logistic regression and the EM algorithm. The second chapter describes the analysis methods while knowing the true sensitivity and specificity. The third chapter focuses on the situation where the true sensitivity and specificity are not known and briefly introduces possible approaches to this problem. The fourth chapter discusses in detail the situation where sensitivity and specificity are unknown but a validation group is available. The chapter addresses both the situation where sensitivity and specificity are constants and the situation where they may depend on explanatory variables. The chapter includes derivations of the observed information matrix and confidence intervals. The final chapter is devoted to a comparison of the methods through a simulation study.