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BORWORNWAN DIREGPOKE : AN APPLICATION OF MULTIPLE IMPUTATION FOR ANALYSING ACCIDENT DATA OF MOTORCYCLE DRIVERS.
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Missing values not only mean less efficient estimates in analysing a reduced data set but also mean that standard complete-data methods cannot be immediately used to analyse the data. Multiple imputation allows performing valid statistical analysis over single imputation.

The objectives of this research were to compare the standard errors of the estimates from complete data set and multiply-imputed data sets using Multiple Hot-Deck Imputation for item nonresponse with $M=1, 3, 5$ by assuming that the data were missing at random (MAR). The samples in this study were the data of 2,668 injured motorcycle drivers who had been treated at the Emergency Department of Rajvithi Hospital during January 1 to December 31 B.E. 2538.

The results of applying the multiple imputation method indicated that the standard errors of logistic regression coefficients from multiply-imputed data sets $M=3, 5$, were higher than that of single imputation, $M=1$, in predicting response variable normal Coma Scale by the predictor variables : Drug use, Helmet use, Alcohol use, Age and Sex with the first three variables being binary covariates with missing values. When comparing the estimates in multiply-imputed data sets, it was found that the standard errors were higher using $M=3$ than when using $M=5$ except for the Helmet variable. Also the standard errors of complete case analysis were higher than for multiply-imputed data sets and single imputation. The analysis from multiply-imputed data sets indicated that the logistic regression model was significant. This method is superior to analysing only the complete data and it can be applied to item nonresponse, which requires the available variables to be categorized.