ABSTRACT: Discriminant analysis is one of the multivariate statistics techniques which idea consists in classifying new individuals in one of several populations known a priori. Thus, several estimators for the parametric overall misclassification probability (OMP) were proposed, using jackknifing methods and whose performance was assessed through Monte Carlo simulation. In the present work, the performance of OMP\textsubscript{1}, OMP\textsubscript{2}, OMP\textsubscript{3}, OMP\textsubscript{4}, OMP\textsubscript{5} and OMP\textsubscript{6} estimators was compared for two homoscedastic multivariate normal populations, considering the same costs of misclassification and priori probabilities. The first one is Lachenbruch & Mickey's method (1968), based on Jackknife methods, the second one was derived from Lachenbruch & Mickey's method (1968), using a common variance estimator into the function which estimates OMP. Third and fourth methods were proposed in the present work, in which Lachenbruch & Mickey's method (1968) was been modified, associating Fisher's linear function with Jackknife methodology. Fifth and sixth methods were derived using the same previous reasoning, setting the linear combination vector Gamma\textsubscript{1} of the variates and applying the Jackknife for the constant of the Fisher's linear combination. The performance was assessed through bias and quadratic mean square estimator. Thus, the mean vector from population \( \mu \) was set to 0 (\( \mu = 0 \)). The approximate search of \( \mu \) from population \( \mu \), for a settled value of the Mahalanobis distance \( D \), was accomplished by trial and error. For population \( \mu \), the sampling sizes were \( n_1 = 10, 50, 100 \) and for \( \mu \), \( n_2 = 10, 50, 100 \) that were factorially combined with \( p = 2 \) and 10 variates and correlation coefficient \( \rho = 0, \rho = 0.5 \) and \( \rho = 0.9 \). The estimators OMP\textsubscript{1} and OMP\textsubscript{5} underestimated OMP, whereas OMP\textsubscript{2}, OMP\textsubscript{4}, OMP\textsubscript{3} and OMP\textsubscript{6} overestimated it. The OMP\textsubscript{1}, OMP\textsubscript{2}, OMP\textsubscript{3} and OMP\textsubscript{6} estimators were more efficient than OMP\textsubscript{1} one, originally proposed by Lachenbruch & Mickey (1968). The OMP\textsubscript{3} estimator with heterogeneous variance estimators was considered optimum, due to the smallest positive bias.

KEYWORDS: Multivariate; estimator; classifying; simulation; Jackknife.