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### Recommended Citation

Georgia Southern University, "College of Public Health News" (2020). *Public Health, Jiann-Ping Hsu College of - News*. 241.

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# Reports on Mixture Ranked Set Sampling for Estimation of Population Mean and Median

January 3, 2020



*Dr. Hani Samawi*

In this paper, a sampling scheme named 'mixture ranked set sampling' (MIRSS) for estimation of the population mean and median is suggested. The MIRSS is applicable when the ordinary RSS cannot be fully conducted in all cycles of the experiment. We show that when the underlying distribution is symmetric, MIRSS provides unbiased estimator of population mean. Moreover, unbiased estimator of population variances is derived. A simulation study is conducted to evaluate the performance of the estimators under suggested scheme for both perfect and imperfect ranking. Our simulation results showed that the proposed scheme is more efficient than the extreme ranked set sampling (ERSS) and simple random sampling (SRS). In addition, the MIRSS is more efficient than ordinary RSS design when ranking is not perfect. The suggested scheme is also illustrated using real data set.

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