

A Comparison of Techniques for Handling Missing Data

[C. MCGRATH](#), The University of Hong Kong, China

Missing data is a fact of research life and is a growing concern given the rise in use of non-clinical outcome measure in dentistry; notably subjective oral health status measures. Objectives: To compare different methods of handling missing data when values are missing data completely at Random (MCAR). Methods: A data set was artificially created with 20% of missing data from a population based study of child oral health related quality of life (COHQoL) involving 521 12-year-old children. Then listwise deletion, pairwise deletion, mean imputation, simple mean imputation and regression imputation methods were employed to handle the missing data and the results compared to the original data set. Results: Mean COHQoL scores ranged from 45.44 to 46.22; thus was more or less the same irrespective of the deletion or imputation methods employed. However, depending on deletion or imputation technique employed there were variations in sample size (272 to 521), variance (10.33 to 11.58), range (53 to 87), skewness (1.30 to 1.94) and kurtosis (1.56 to 6.71). Conclusion: Different methods of handling missing data, (MCAR) yielded similar means to the original data. However, there were differences in the characteristics of the data compared to the original data depending on the type of deletion or imputation method employed. This is important to consider as techniques employed to deal with missing values have implications in further analyses and interpretation of the data.

[Behavioral Sciences/Epidemiological Methods](#)

[The Preliminary Program for International Association for Dental Research - 20th Annual Scientific Meeting of the Southeast Asia Division and Southeast Asia Association for Dental Education - 16th Annual Scientific Meeting \(Sept. 1-4, 2005\)](#)