

## HYBRID SEMINAR

# IDENTIFYING AND MANAGING MISSING DATA AND OUTLIERS IN CLINICAL AND HEALTH SCIENCES RESEARCH

**Hybrid session:**



**Seminar Room, Level 1, HSAAS**

**Online via** 

Google Meet



**August 10th, 2023**

**2.00 pm - 5.00 pm**



**Prof. Dr. Karuthan A/L Chinna**

**BSc. (Education), MSc. (Applied Stats), PhD. (Management)**

**Registration Fees:**

RM10 (UPM Staff)

RM30 (UPM Students)

RM50 (Non-UPM Staff/Students)



\*E-certificates for all participants will be given

\*CPD points for UPM staff are available

## Objectives

- Types of "Missing data" such as Missing Completely at Random (MCAR), Missing at Random (MAR) and Missing not at Random (MNAR).
- Method to identify the type/mechanism of missing data.
- Methods for missing data management based on the type/mechanism of missing data such as: complete case analysis, available case analysis, single imputation method, multiple imputation, multivariate imputation chained equation (MICE) and maximum-likelihood imputation.
- Types of outliers such as 'influential outliers' and 'noisy outliers' and how to distinguish these types of outliers.
- Classification of outlier management:
  - a) Rejected as erroneous
  - b) Identified as important
  - c) Tolerated with in analysis (Accommodating)
  - d) Incorporated into the analysis
- Techniques of 'robust' statistical methods for outlier management such as 'winsorization technique', transformation technique, 'Robust regression' (Huber regression or M-estimator), and data stratification
- Spss demonstration 'Identifying and Managing Missing Data and Outliers in Clinical and Health Sciences Research'

## Tentative

Time	Agenda	Speaker
14:00-14:15	Registration	
14:15-14:30	Welcoming Speech	Assoc. Prof. Dr. Chew Boon How Head, Clinical Research Unit (CRU) Hospital Sultan Abdul Aziz Shah, UPM
14:30-15:30	Identifying and Managing Missing Data in Clinical and Health Sciences Research	Prof. Dr. Karuthan A/L Chinna UCSI University
15:30-15:45	Tea Break	
15:45-16:30	Identifying and Managing Outliers in Clinical and Health Sciences Research	Prof. Dr. Karuthan A/L Chinna UCSI University
16:30-16:45	Summary	
16:45-17:00	Question & Answer	