REPORT - NRSGH Travel grant in Norway

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COURSE: MF9580, Epidemiological Methods, Beyond the Basics
PLACE: UNIVERSITY OF OSLO
DATES: 11TH TO 15TH MARCH 2019

CONTENTS OF THE COURSE:
- Directed Acyclic Graphs, DAGs
- Modern designs in epidemiology.
- Multilevel analysis
- Multiple imputation
- Use of splines and handling non-linearity in regression models.

LEARNING METHODS:
The course was given in form of seminar embedded with group works and presentations. At the end of the course a take home exam was provided to be submitted in three weeks. It was advised to discuss with other members in the course for fully understanding of the concepts.

BENFITS:
- Causal graphs introduced Directed Acyclic Graphs (DAGs). DAGs are useful tools for understanding confounding, mediation and selection bias. A DAG analysis shows variables that should be adjusted for, and variables that should not be adjusted for.
- In the study design part, classic research designs were reviewed; cross sectional, cohort and case control. Focus was on more advanced designs such as nested case control, case cohort and cross over designs. Strengths and weaknesses of the different designs were discussed, and examples of the different designs presented.
- Multiple imputation: The lecture gave a short introduction to different missing-data mechanisms and how to handle missing data. The focus was on multiple imputation, describing the concept of the method, how to choose a suitable imputation model, statistical inference, and challenges.
- Continuous variables and Splines: Categorizing continuous variables in a regression leads to loss of power. Instead, non-linear effects can be handled by using splines. We were provided with Stata commands and examples of use.
- Multilevel models introduced studies that lead to hierarchical data, what problem this gives in the analysis, and how to solve them. Focus was more on the interpretation of results than on the technical aspects of multi-level analysis.

SATISFACTION:
- The course was very educative and was well organized in interactive nature. I would recommend the course for students with basic knowledge on epidemiology and statistics. Prior knowledge on regression analysis is key to fully understanding the concepts and use them appropriately on different epidemiological studies.