School of Population and Public Health (SPPH), The University of British Columbia, Vancouver

OER for Teaching Advanced Epidemiological Methods

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Introduction

In response to the growing need for advanced methodological training among health researchers and trainees, our project introduces a comprehensive OER designed to bridge the gap between theoretical knowledge and practical application in epidemiology.

Project Summary

The SPPH 604 course, enhanced with a computational lab component, is at the forefront of our initiative, focusing on the implementation of advanced epidemiological methods using open-source data and software.

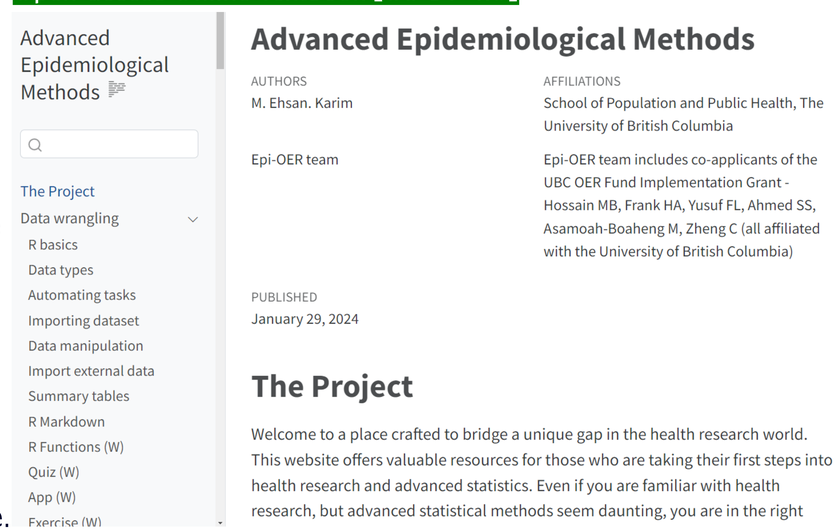
Goals and Objectives

1. Develop an Interactive Open Textbook: A core resource that combines epidemiological theory with hands-on statistical practice.
2. Incorporate Real-World Data Analysis: Using government repositories such as Statistics Canada and the US CDC to provide authentic learning experiences.
3. Facilitate Self-Paced Learning: Through formative quizzes and interactive modules, catering to diverse learning needs.

Methodology

Leveraging the R software, we guide learners from novice to proficient levels, enabling them to conduct reproducible research and communicate findings effectively. The curriculum spans ten core modules, covering topics from confounding adjustment to machine learning in causal inference.

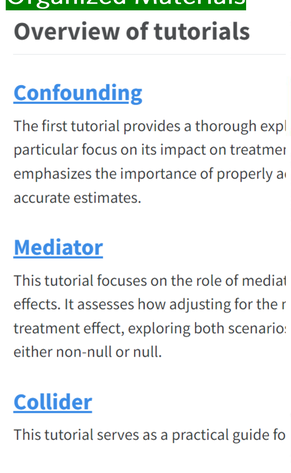
Open-access Online Textbook [CC-BY 4.0]



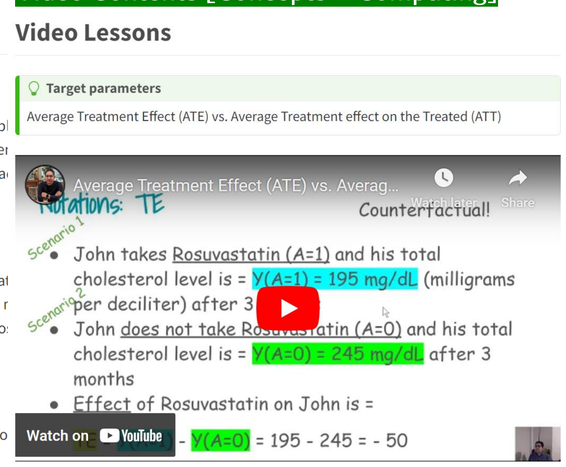
Core + Bonus Modules

Module	Topics.Indicators
1	R for Data Wrangling (W)
2	Accessing (A) Survey Data Resources
3	Crafting Analytic Data for Research Questions (Q)
4	Causal Roles (R)
5	Predictive (P) issues
6	Complex Survey Data (D) Analysis
7	Missing (M) Data Analysis
8	Propensity Score (S) Analysis
9	Machine Learning (L)
10	Intergrating Machine Learners in Causal (C) Inference
11	Non-binary Outcomes (N)
12	Longitudinal Analysis (T)
13	Mediation Analysis (I)
14	Scientific Writing Tools (G)

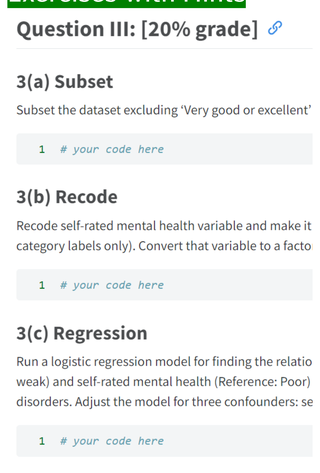
Organized Materials



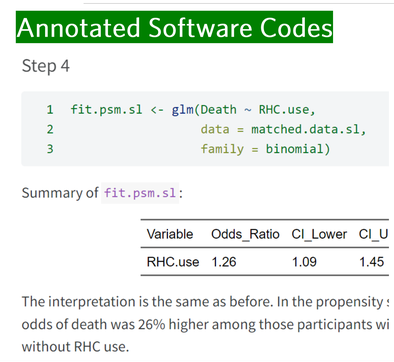
Video Contents [Concepts + Computing]



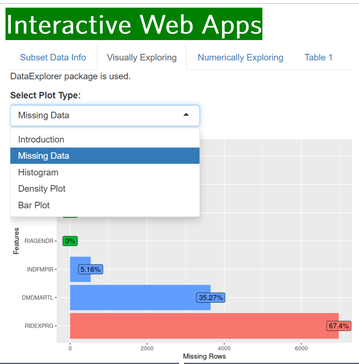
Exercises with Hints



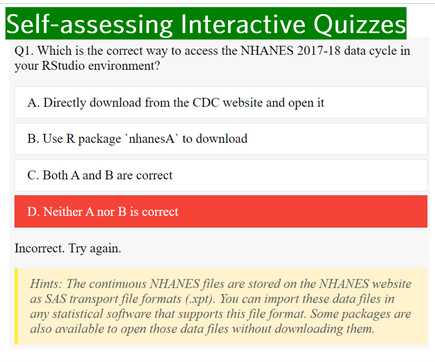
Annotated Software Codes



Interactive Web Apps



Self-assessing Interactive Quizzes



Impact & Accessibility

This OER initiative is set to revolutionize health research education by:

- Enhancing the quality and accessibility of methodological content.
- Promoting self-sufficiency among researchers with varying analytical expertise.
- Our resources will be openly shared through the UBC OER Catalogue, GitHub, and other digital platforms, ensuring widespread accessibility.
- The transition to OER significantly reduces reliance on traditional resources, leading to substantial cost savings and enhanced sustainability.

Evaluation Strategy

Feedback mechanisms are incorporated at every stage, from pilot testing with SPPH 604 students to broader community input.

Reference

- Karim M. E., Epi-OER team (2024). Advanced Epidemiological Methods . Retrieved from https://ehsanx.github.io/EpiMethods/ on January 07, 2024 .

Acknowledgement

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