

Home exam – HEVAL5200

THE REPORT SHOULD INCLUDE YOUR CANDIDATE NUMBER and YOUR NAME

Save your document as a pdf-file

Do-file as an additional file, only ONE file should be uploaded.

Requirements – evaluation criteria

No more than 3000 words (Not including tables, Figures or Ref. list) – **include the word count**

The grading will be follow two main categories:

- The ability to write an academic text
 - Structure (understand what should be included in each section)
 - Content and interpretation (show understanding of the theory and application of methods)

The grading is weighted:

40% structure and 60% content

Deadline for final Hand-in: December 8th (Inspera)

The work with the home exam is individual and independent work.

CEA – alongside RCT

Datafile: **CUA_reduced.dta**

Hand in the do-file as a separate file (pdf-format)

You can use additional information from papers published on this study and other relevant literature.

You can read more about the study and definition of costs in the two papers on canvas:

Cost-Effectiveness analysis of Trauma Focused Cognitive Behavioural Therapy.pdf

Aas_HRQoL_PTSD.pdf

The evaluation is of a RCT for adolescent with post-traumatic stress disorder.

Population: Adolescent

Intervention: TF-CBT (Trauma focused cognitive Behavioural therapy)

Comparator: TAU (treatment as usual)

Outcome: HRQoL measured by 16D, costs (hours of therapy) and ICER

Time period: 22 months

Variable description

id	running number
age	age at inclusion
ethnicity	ethnicity – use tabulate to see the codes (1 is Norwegian)
h_tfcbt	Hours of tf-cbt treatment
h_total	Total hours of treatment (including tf-cbt)
h_lastreg	hours used for registration
h_coop	hour of cooperation
pp	visits to pedagogic service (0 = no, 1 = yes)
chcare	visit to children care (0 = no, 1 = yes)
nav	meeting with welfare services (0 = no, 1 = yes)
nurse	meeting with nurse (0 = no, 1 = yes)
other	other meetings (0 = no, 1 = yes)
gender	gender (1= girls and 2= boys)
D16SCOREb	Baseline score HRQoL instrument 16D
CPSST1	Baseline score disease specific instrument CPSS (see papers)
MFQT1	Baseline score disease specific instrument MFQ (see papers)
SCARED1	Baseline score disease specific instrument SCARED (see papers)
SDQb1_Total	Baseline score disease specific instrument SDQB (see papers)
Tesi_TOTAL	Total number of traumatic events
D16SCORE3m	16D at 3 months
D16SCORE7m	16D at 7 months
D16SCORE12m	16D at 12 months
D16SCORE22m	16D at 22 months
Intervention	Intervention group (0=TAU and 1=TF-CBT – intervention)

When coding continuous variables in groups, use the following categories:

Age: (<14, 14-15, 16+)

Ethnicity: Norwegian ==1, all other values "other"

Tesi: Group (1 trauma, 2 trauma, more than 2)

CPSST1: "<21", "21-27", "28-34", "35+"

MFQT1: "<26", "26-35", "36-45", "46+"

The report

The report should have the following sections (Introduction and background could be merged in one)

- Title
- Introduction
- Method (when presenting data, remember to define all data applied in the analysis, statistical analyses)
- Results
- Discussion
- References (select one system for referencing)
- Appendix
- R-code

The report 40%

Following the given structure

Tables and figures should be self-explanatory.

Evaluation of legends, table itself, footnote

No results in discussion

The report should have the following sections (Introduction and background could be merged in one)

- Title (name of author)
- Introduction (with background)
 - a. Objective
 - b. Short introduction to the topic
- Methods
 - a. PICO

- i. Population
 - ii. Intervention
 - iii. Comparator
 - iv. outcomes
 - b. Time horizon
 - c. Describe HRQoL, QALYs, other health measures, Costs (resources and unit costs)
 - d. Describe other data
- Statistical analysis
 - e. Testing for differences in background characteristics
 - f. Imputation – how it was conducted
 - g. Area under the curve – QALYs
 - h. Costs and regression, testing for optimal choice (specification, homoscedasticity and adj R squared)
 - i. Cost-effectiveness analysis – definitions of
 - i. ICER, NMB
 - ii. Bootstrap
 - iii. CEAC
 - iv. CEAF
 - v. Alternative methods (without imputation and Manca)
- Results
 - a. Answering all the sub-questions
 - b. Baseline characteristics
 - c. Table with HRQoL according to intervention
 - d. AUC – graph
 - e. Manca method
 - f. Regression – costs and predictions
 - g. CEA (results with uncertainty) + CEAC/CEAF
- Discussion
 - a. Main findings
 - b. Limitations
 - c. Conclusion
- References
- Appendix including R-code

Main objective:

1. Would you recommend introducing TF-CBT (trauma focused cognitive behavioural therapy) for adolescent with PTSD compared to treatment as usual (TAU)? The analysis is in a 22 months perspective. **This should be answered clearly in the report – in results and discussion**
 - a. Costs included is only related to hours of therapy, cooperation and registration
 - b. Unit cost of 1 hour of therapy and registration = NOK2,500 (**USE h_{total} and h_{lastreg}**)

- c. Unit cost of 1 hour of cooperation = NOK4,500 (**h_coop**)
- d. WTP = NOK 275,000
- e. Simplification - no discounting.
- f. Use imputation to replace missing values for 16D. When estimating, use the following variables:
 - i. Intervention, gender, age in groups, + ethnicity in groups, CPSST1 and 16D the period before in the regression (D16SCOREb for D16SCORE3m and so on). **Check if commented on in the exam – method section**
- g. Baseline analysis: Bootstrap with imputation (mean numbers, scatterplot, CEAC and CEAF). Discuss the findings. **ICER table, scatterplots, CEAC, CEAF (not for Manca – not expected here). OK if not all results are presented by figures, but they should be interpreted – TF-CBT is likely to be cost-effective based on these data.**

Compare the results (Bootstrap without imputation and Manca on full sample). Discuss the findings. **Include results (do not have to be a table) and interpretation of the findings. Does not change the recommendation**

2. Sub-questions and should be included in the report:

- a. Test for differences in background characteristics: age, gender, ethnicity, number of trauma (Tesi-total), 16D score at baseline, and the disease specific measures CPSS and MFQ at baseline. Consider whether to use age as a continuous or categorical variable - **Presentation of a nice table with the categories. Important to see if the candidates have reasonable grouping of continuous variables**

Estimate HRQoL at each observation point (baseline, 3, 7, 12 and 22) and test for differences. Estimate QALYs and present the graph for Area under the curve (use data with imputation). **Here the students should estimate HRQoL at each timepoint and test for differences (here it is OK if the students have done this with and/or without imputation. If students have both, that is great.**

The AUC should be with imputation
- b. Cost estimates – total costs defined by hours therapy, registration and cooperation.
 - i. Use regression methods (OLS, log-linear and glm) to test the effect of covariates: intervention, age, gender, ethnicity, number of trauma (tesi-total) and CPSST1 (choose if you want to use the variables as continuous or in groups.
 - I. Would you recommend applying an OLS, log-linear or GLM specification of the cost function? Discuss which, if any that could be recommended. Include a table that support your argument.

- II. In addition, include a table of the predicted mean costs for all the regressions compared with observed costs.
- III. Based on the preferred regression, present the results of the effect of the covariates on costs. Discuss the results.

Choice of specification should be addressed. Different tests and regression outcomes. Log linear the optimal choice, but accept those with a more theoretical argumentation of choosing GLM. Explain results from the regression with interpret findings.

Include predicted mean costs, predicted costs for log-linear should include smearing factor

- 3. For visits to pedagogic service (PP), visit to children care (chcare), meetings with welfare services (NAV), meeting with nurse (nurse) and other meetings (other) there are a lot of missing information. But, based on the reported numbers, does the use of these services indicate that TF-CBT is more costly or less costly than TAU. How would this influence your conclusion in 1?

Here expect a short discussion to understand which components support and not support the recommendation

In the result section, you would typically start with the sub-questions and end up with answering the main question.

The exam should include a written report with the R-code copied in the appendix.