

Pre-Analysis Plan

Adrien Bouguen and Bjorn Nilsen

1. Research Protocol

The randomization process will be conducted in October 2025: 800 selected hairdressers and 4000 clients will be randomized into either a treatment or control group. The randomization will be based on a re-randomization strategy that will insure that a pre-specified list of variables be well balanced before the beginning of the intervention. Before randomizing, the research team and the Bluemind foundation will (a) establish the hairdresser list (b) sample 5 clients per hairdresser (c) conduct a baseline survey.

a. Hairdresser sampling and baseline survey

- **Timeline:** July 2025- August 2025
- **List Preparation:**
 - The BlueMind Foundation will provide a list of 800 volunteer hairdressers along with a complementary list of approximately 200 substitutes.
 - The list will include:
 - Salon location,
 - Hairdresser's name, and
 - Contact information.
 - We conduct a baseline survey with the hairdresser. The hairdresser becomes part of survey if she agrees to be part of the experiment and answer the baseline survey.
 - If a hairdresser declines participation (i.e., answers "no" to survey questions A2a, b, c, and d), the survey company will try to find a substitute in the same salon. If no one in the salon accepts to be part of the experiment, the hairdresser will use the complementary list.

b. Client Sampling and baseline survey

- **Timeline:** In August 2025
- **Sample:** $800 \times 5 = 4000$ clients
- Clients will be sample during the baseline survey after having conducted the hairdresser questionnaire
- The five clients will be selected in the salon among clients who regularly attend the Salon. At the end of the hairdresser questionnaire, the surveyor will ask who are the five first clients of the day. If the Salon regularly function on appointment, we simply take the first five clients scheduled the day of the intervention. If the salon essentially works on walk-ins, we identify the 5 first walk-ins of the day.
- Before starting the client questionnaire, we ask three filtering question. We ask whether the client has every come to the salon and whether she plan to regularly come to the salon in the future. Last, we ask whether the client would agree to be part of the experimentation.

- If answer to the three question is yes, the client becomes part of the experiment and take the baseline survey either on site or at a later stage.

c. Randomization protocol

- Randomize approximately 800 hairdressers into treatment and control groups. The experiment has two treatment and one control branches:
 - **T1:** Basic HbH treatment which consists in training hairdressers in mental health during 3 days + follow-ups. 400 hairdressers will be assigned to this treatment branch
 - **T2:** Basic HbH + Circles: 200 hairdressers will additionally be offered the possibility to encourage her clients most in need for mental health to participate in the HbH “cercles”. These circles will regularly meet with “experienced” hairdressers, taken from the T2 group, to address mental health issues.
 - **C:** The control hairdresser will receive no intervention.
- The process will aim to balance key baseline variables predictive of:
 - Hairdressers’ performance in mitigating clients’ mental health issues.
 - Final mental health outcomes of the hairdressers themselves.
 - A few client variables averaged within hairdresser
- The re-randomization variables will include:
 - Hairdresser’s Socio-economic characteristics
 - Education (number of years of education)
 - Degree B8b
 - Age (B1)
 - Dummy “Situation matrimoniale” mariée [1] B2
 - Religion (dummy protestant)
 - Household size b9
 - Number of children b11b
 - Number of house equipment (B13)
 - Economic aspirations and satisfaction (C4)
 - Financial difficulty test G12a, b,c
 - Hair dressing working experience ([GL_1](#))
 - Hair dresser is her own boss (G2)
 - # of participation to social/community groups (G12)
 - Number of surveyed clients per hairdresser
 - Household Head (B10)
 - Married (B2)
 - Owner (B12a)
 - Togo national
 - Language used during interview
 - Respondant level of understanding (according to enumerator) H5
 - Hairdressers’ Mental health and socio-emotional tests
 - MSPSS (C2)
 - Locus of control question (C3)
 - WGIMS (G13)

- Score WHO-5 (C1)
 - GAD-7 score D1
 - **MHLS (D10)**
 - PHQ-9 D2
 - Number of mental problems D5a
 - Chronical disease score (E3a)
 - Health issue score (E3b)
 - ***DISABILITY ASSESSMENT SCALE (E4)***
 - Empowerment test (Echelle de responsabilisation) F2
 - Domestic violence Test score based on E7_freq, E8_freq, E9_freq, E10_freq
- The randomization will follow a re-randomization procedure:
 - Stratification variables with insufficient variation will be dropped.
 - Index with a Cronbach's alpha below 0.70 will be modified or excluded.
 - A re-randomization algorithm will run to achieve balanced over the listed stratification variables (defined as having no significant differences between groups at the 10% significance level).
 - The process will generate 1,000 randomizations, and we randomly selection one of the random draws, the 501th.
 - If convergence issues arise (i.e. achieving 1000 draws is too slow or impossible), variables will be iteratively removed to reach 1000 randomizations in a reasonable time (i.e. below 8 hours).
 - The randomization will occur in September 2025 after the baseline survey.

d. Training Phase

- **Timeline:** October 2025
- **Procedure:**
 - Treatment group hairdressers will be invited to attend the training program.
 - Hairdressers who do not attend will be considered “never-takers” and will still be tracked throughout the study.

e. Circle Phase

- **Timeline:** April 2025
- **Procedure:**
 - Hairdressers placed in the treatment T2 will be recontacted and asked to provide a list of clients (among the 5 identified at baseline) who could benefit from a circle i.e. clients identified as in particular need for mental health aid.
 - The clients on the list will be imitated to participate in HbH circles
 - The circles will be conducted between May and July 2026.

f. Follow-up surveys

- **Timeline:** August 2026 and August 2027
- **Sample:** Hairdressers and clients in treatment and control groups.

- The survey will include the quasi same module than the one administered at baseline to which we will add a compliance module to assess participation in the training and to the circles.

2. Specification

The main ITT specification

$$Y_{ij} = \alpha + \beta_1 T_j + \beta_2 T2_j + \gamma' X_{ij} + \nu_j + \varepsilon_{ij}$$

where i indexes clients and j hairdressers where T is an indicator of any treatment and T2 takes one if in T2 and 0 otherwise. β_1 measure the impact of T1 versus control while T2 measures the impact of T2 versus T1. We will also test $\beta_1 + \beta_2 = 0$ which captures the difference between T2 and Control. Finally, we may be interested in :

$$Y_{ij} = \alpha + \beta_3 T_j + \gamma' W_{ij} + \nu_j + \varepsilon_{ij}$$

Where β_3 measures the impact of any treatment on mental health.

Control set X_{ij} and W include baseline variables:

- Selected via double-LASSO from:
 - All variables used in re-randomisation (Section 1c);
 - Baseline values of the outcome variables;
 - Any variable unbalanced at baseline ($p < 0.10$);
 - Variables with high unconditional correlation ($|\rho| > 0.30$) with the outcome.
- Squares and pairwise interactions are added
- highly collinear ($|\rho| > 0.90$) predictors are dropped.

3. Outcomes

a. First stage

Our main first stage variable will be whether the hair dresser received a certificate from the blue mind foundation. This information will be provided by the blue mind foundation and confirmed during the first hair dresser follow-up questionnaire (have you been certified by the BlueMind foundation). The first stage analysis will also rely on the attendance data collected during the circles.

Other more fined tune outcomes, collected from the hairdressers or the client themselves, may be used to better qualify the treatment intervention

- Number of days attended training/circle,
- Number of hours attended training/circle
- Number of times the hairdresser used the online support

b. Intermediary outcomes

We measure here the intensity and the quality of the interactions between the hair dresser and the clients as measured in the first follow-up.

- How many times did you talk with the hair dresser about mental health
- How effective was it? What advise did she give you?

We will also measure how many times the clients and hair dresser seek care and to whom.

c. Final outcomes

a. Hair dresser economic activity

Outcomes	Variable code
Number of hours worked as a hair dresser	G10a G10b
Income from hair salon/Overall income	C8
Number of clients	C5
Service duration	C6
% of hair dressing in overall income	C4b C4c

Kling Index of economic activity using a standardized version of all above items, summed up and re-standardized.

b. Hair dresser/client economic situation and aspirations

Outcomes	Variable code
Better housing	B16
# of house equipment	B17
Perceived wealth	B18
Aspiration test	E1
Financial difficulty test	E1k, E1l, E1m
Empowerment	F2
WGIMS TEST (Professional motivation test)	G13

c. Hairdresser /clients Mental Health outcomes

Outcomes	Variable code
WHO5	
MSPSS	
Locus	
GAD7	
PHQ-9	
PCL-C	
SCOFF	
WHODAS 2.0	

MHLS	
Self-reported mental health issues	D5a
Whether they seek medical care	D6a
Whether they took medication	D7a
Whether they talked to someone else	D8
Why they did not seek medical care	D9
Domestic violence test	F3a

d. Physical Health

Outcomes	Variable code
Chronical physical health issues	E3a
recent health issues.	E3b

4. Heterogeneity

Based on the GRF using the list of baseline outcomes listed in 1.c and the depression scale as the outcome. Heterogeneity will be conducted both using client and hair dressers outcomes.

5. Multi-hypothesis testing

Anderson FDR sur les indexes