Objective: To design an economic evaluation strategy for general health promotion projects.

Method: Identification of key parameters of behavioral health from neuroeconomic studies.

Results: The Frontal Power of Concentration (C) is a quadripartite executive integrator depending on four key parameters:
1) The Limbic system originating ambivalent emotions (L)
2) Volition in the Prefrontal Cortex (c) controlling cognitive prediction and emotions with a view on Frontopolar long term goals
3) Semantic memories in the Temporal lobe (R)
4) An intuitive visuospatial sketchpad in the Parietal lobe (I)

C aiming to minimize error between preferences and predictions is directly determined by the following equation including I as a stochastic knowledge component:

\[ C = \frac{Rc^2}{L} + \epsilon_1 \rightarrow 1 \]

Discussion: All of the parameters of C are object to improvement by training:
1. Cognitive predictions are improved by open-mindedness towards feedback (R)
2. The effect of emotional regrets is reinforced by an appropriate level of fitness (c, L).
3. Our imagination may be unfolded by in-depth-relaxation-procedures and visualization (I)

Conclusion: Economic evaluation of general public health should focus the subset of separate and integrated interventions that directly affect the parameters of Formula C in individuals.
Neuroeconomics, Behavioral Health Economics and Integrated Care

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Neuroimaging and Neuroeconomics

Neuroeconomics
i.e. fMRI of the
Ultimatum Game:
How much would
you offer another
person that
knows that if he
rejects your offer
you don’t get a
100€ reward?
Holistic Neuropsychology

Neuroeconomics as the decision science part of neuropsychology focusing how L4 integrates L2-3, especially.

This study aims to model L4 by a systematic literature review.

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L4 as quadripartite integrator

U controls Limbic emotions
A analyzes Limbic cognition served by R and I
FPC is our long-term memory
C integrates U, A and FPC by volitional focus
I-visuospatial path
Neuroeconomic Formula

For $C$ the Power of Concentration:

$$C = A/U + \varepsilon_1 \rightarrow 1$$

$$A = R^*c$$

$$U = L/c$$

$$C = R^*c^2/L + \varepsilon_1 \rightarrow 1$$

($\varepsilon_1$ as stochastic knowledge (Intuition))

**Behavioral Prediction Guide**

(Analysis of: $C = R^*c^2/L + \varepsilon_1 \rightarrow 1$)

**Ad $c$:** Is his/her cognitive style extroverted, risk aversive or conscientious?

**Ad $R$:** Is the knowledge sufficient for sustainable decision making?

**Ad $L$:** Is his/her usual judgement biased by an optimistic or pessimistic mood?

**Ad $\varepsilon_1$:** Stochastic knowledge (intuition) demanding an open minded interviewer

**Ex:** 1) Smoking 2) Insurance 3) WTP 4) IHC
Neuroeconomic key centers

Legend:
- RAS
- MLDS
- Intuitive pathway

Centres and their function:
1. Executive Integrator
   mPFC: Cognitive analysis
   OFC: Utility assessment
   PFC: Pending long-term reward
2. Cognition
   Cuneus/Parasplenius/Visual centre
   STS: Visuo-spatial sketchpad
   mPFC: Semantic recollection of episodic memory
3. Emotions
   Hyp: Endocrine homeostasis
   Thal: Sensory integration
   Hip: Episodic memory + pleasure
   Amy: Fear and rage
   Sen: Sexual attraction
   OT: Smell
   NAc: Output to Substantia Niagra
4. Instincts
   FR: Acute mobilization
   VT: Social ranking
   Cer: Walking balance

20 Neuroeconomic References

L1

L2

L3
- D'Esposito M. From cognitive to neural models of working memory. Phil Trans R Soc B 2007;362:761-772

L4