Introduction to Medical Psychology
Lecture 4: Personality

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https://youtu.be/k-AURZlh3Qc

Lecture video at above link.

Today: Personality

Personality: Why are people so different from each other?

Personality from a psychophysiological viewpoint:
→ *the Eysenck model*
Personality from a descriptive viewpoint:
→ *Big Five*

(Example) **Personality test**

Heritability of personality traits
Personality and health

“Personality”

Do you have siblings?

Are you similar in character/personality to your siblings?

“Personality”

Do you have siblings?

Are you similar in **character/personality** to your siblings?

What do these words mean…?

What is Personality

Let us try to define personality (and list our assumptions):

→ People have traits that constitute their personality.
→ Traits are *dispositions* to respond in certain ways.
→ Traits are *stable* over time and situations.

Factor Analysis

How can we describe personality?

1) Collect all personality-related words in a dictionary
   ("happy", "considerate", "mean", "angry", "nice", "ornery", "hateful")
   → There are 4500 in English (Allport and Odbert, 1936)

Factor Analysis

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Are there 4500 different types of personality?
(probably not)

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2) Reduce the number of descriptive dimensions!

Donald Trump is: "petty", "insecure", "vengeful", "mean"
Adolf Hitler is: "insecure", "mean", "angry"

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Donald Trump is: "petty", "insecure", "vengeful", "mean"
Adolf Hitler is: "insecure", "mean", "angry"
→ The words are correlated (share one word → share another)
→ **Factor analysis**

Factor Analysis

Let many people use personality descriptors to describe people.
→ Then, get the correlations between terms:

CORRELATIONS (toy data)	Risk-averse	Likes to talk to people	Has mood-swings often	Laid-back	Likes to travel
Risk-averse	1	-0.5	0.05	-0.1	-0.6
Likes to talk to people	-0.5	1	-0.02	0.2	0.5
Has mood-swings often	0.05	-0.02	1	-0.7	0.07
Laid-back	0.3	0.2	-0.7	1	0.2
Likes to travel	-0.6	0.5	0.07	0.2	1

Factor Analysis

Cluster 1: Likes risk, to talk to people, travel.
→ Find a name

CORRELATIONS (toy data)	Risk-averse	Likes to talk to people	Has mood-swings often	Laid-back	Likes to travel
Risk-averse	1	-0.5	0.05	-0.1	-0.6
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Has mood-swings often	0.05	-0.02	1	-0.7	0.07
Laid-back	0.3	0.2	-0.7	1	0.2
Likes to travel	-0.6	0.5	0.07	0.2	1

Factor Analysis

Cluster 2: Mood-swings, not laid-back.
→ Find a name

CORRELATIONS (toy data)	Risk-averse	Likes to talk to people	Has mood-swings often	Laid-back	Likes to travel
Risk-averse	1	-0.5	0.05	-0.1	-0.6
Likes to talk to people	-0.5	1	-0.02	0.2	0.5
Has mood-swings often	0.05	-0.02	1	-0.7	0.07
Laid-back	0.3	0.2	-0.7	1	0.2
Likes to travel	-0.6	0.5	0.07	0.2	1

Eysenck's personality model

Hans J. Eysenck (1916-1997) used factor analysis and identified:

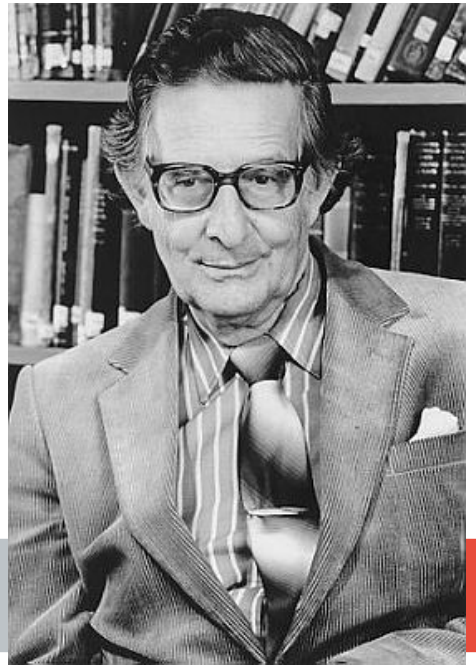
Three factors of personality:

Extraversion – Introversion

Neuroticism – Emotional stability

Psychoticism (weaker evidence)

Important: These factors are descriptive continua,
i.e., people are not either extravert or introvert,
but distributed along a continuous dimension.



Eysenck’s personality model

Three factors of personality:

Extraversion - examples:

sensation-seeking (wants something exciting), venturesome, lively, carefree, sociable, dominant, active, assertive

Neuroticism- examples:

tense, anxious, moody, emotional, irrational, low self-esteem, depressed, shy, feelings of guilt

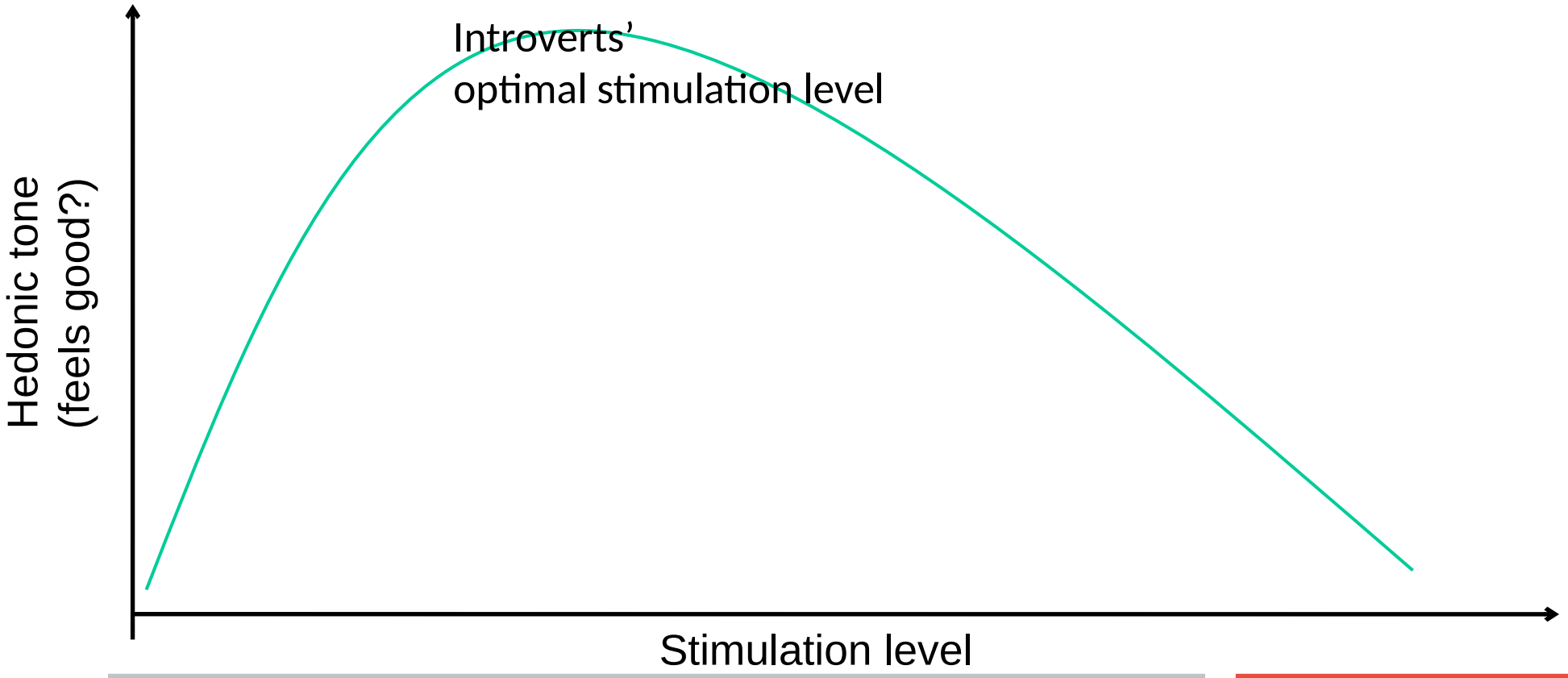
Psychoticism - examples:

Impulsive, aggressive, tough-minded, anti-social, cold, not empathetic, egocentric, creative

Eysenck's personality model: Underlying theory?

Hans J. Eysenck thought that physiological factors shape personality:

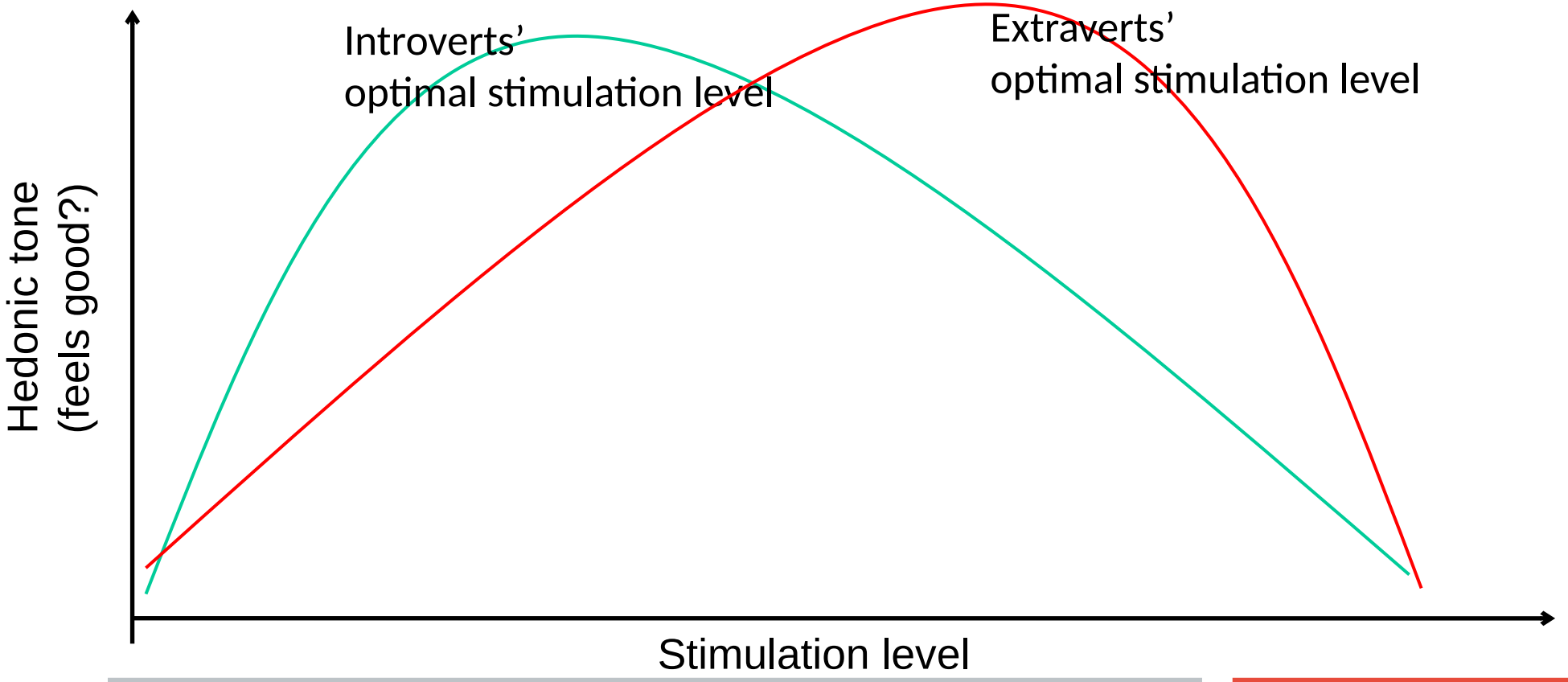
Introverts respond strongly to stimulation and therefore try to keep stimulation low (reading a book at home).



Eysenck's personality model: Underlying theory?

Hans J. Eysenck thought that physiological factors shape personality:

Extraverts respond weakly to stimulation and therefore try to keep stimulation high (bungee-jumping).



Big Five

Five **factors** of personality (Goldberg, 1981)

Extraversion

Emotional Stability (Neuroticism)

Openness

Agreeableness

Conscientiousness

Test: NEO-PI-R (Costa and McCrae, 1992)

Neuroticism Extraversion Openness – Personality Inventory - revised

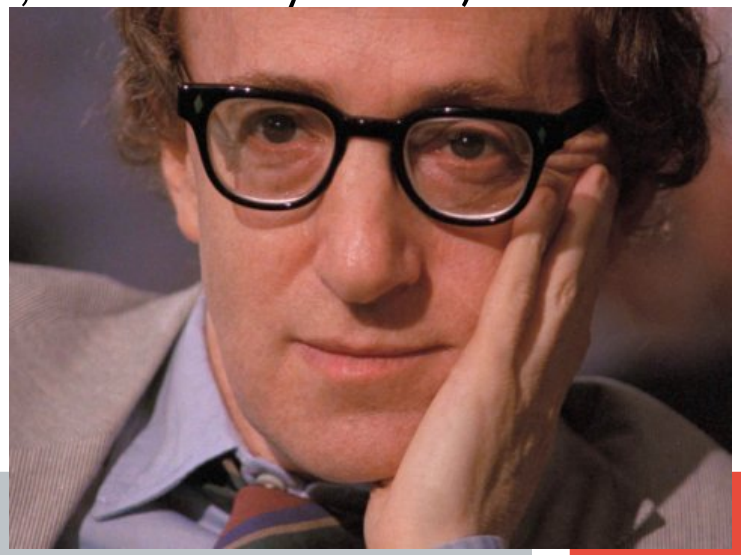
Big Five Subtraits
Extraversion & Emotional Stability

<u>Extraversion</u> (= Eysenck's Extraversion)

- Warmth
- Gregariousness
- Assertiveness
- Activity
- Excitement-seeking
- Positive emotions

<u>Emotional Stability</u> (or Neuroticism, similar to Eysenck's)

- Anxiety
- Angry hostility
- Depressions
- Self-consciousness
- Impulsiveness
- Vulnerability



Big Five Subtraits
Openness & Agreeableness

<u>Openness</u> (sometimes Intellect/Imagination)

- Fantasy
- Aesthetics
- Feelings
- Actions
- Ideas
- Values

<u>Agreeableness</u>

- Trust
- Straightforwardness
- Altruism
- Compliance
- Modesty
- Tender-mindedness

Big Five Subtraits
Conscientiousness

Conscientiousness

- Competence
- Order
- Dutifulness
- Achievement-striving
- Self-discipline
- Deliberation

Personality Test:
International personality item pool

Converting IPIP Item Responses to Scale Scores

Here is how to score IPIP scales:

For “+” keyed items
the response "Very Inaccurate" is assigned a value of 1,
"Moderately Inaccurate" a value of 2,
"Neither Inaccurate nor Accurate" a 3,
"Moderately Accurate" a 4,
and "Very Accurate" a value of 5.

For “-” keyed items
the response "Very Inaccurate" is assigned a value of 5,
"Moderately Inaccurate" a value of 4,
"Neither Inaccurate nor Accurate" a 3,
"Moderately Accurate" a 2,
and "Very Accurate" a value of 1.

Once numbers are assigned for all of the items in the scale, just sum all the values to obtain a total scale score.

Personality Test:
International personality item pool

For example:

	Very inaccurate	Moderately inaccurate	Neither	Moderately Accurate	Very Accurate	
6. Don't talk a lot	X	o	o	o	o	(1-)

-> +5 points for 1: Extraversion

11. Feel comfortable around people	o	o	o	X	o	(1+)

-> +4 points for 1: Extraversion

IPIP Factors

1) Extraversion

"Talk to many people at a party" vs. "have little to say"

2) Agreeableness

"Soft heart" vs. "not interested in others"

3) Conscientiousness

"Exacting in my work" vs. "make a mess"

4) Emotional Stability

"Relaxed most of the time" vs. "get upset easily"

5) Intellect/Imagination

"Full of ideas" vs. "no good imagination"

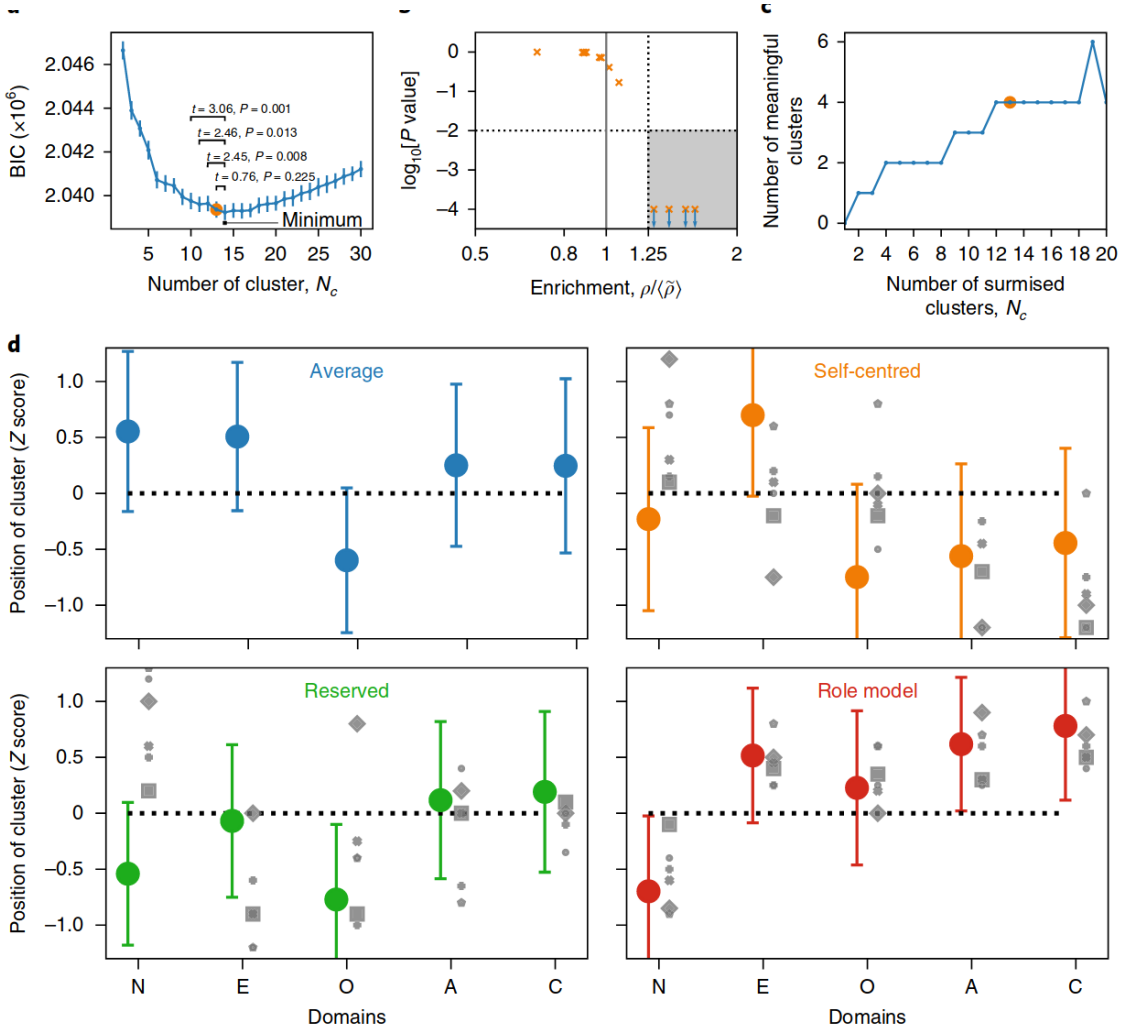
nature human behaviour

LETTERS

https://doi.org/10.1038/s41562-018-0419-z

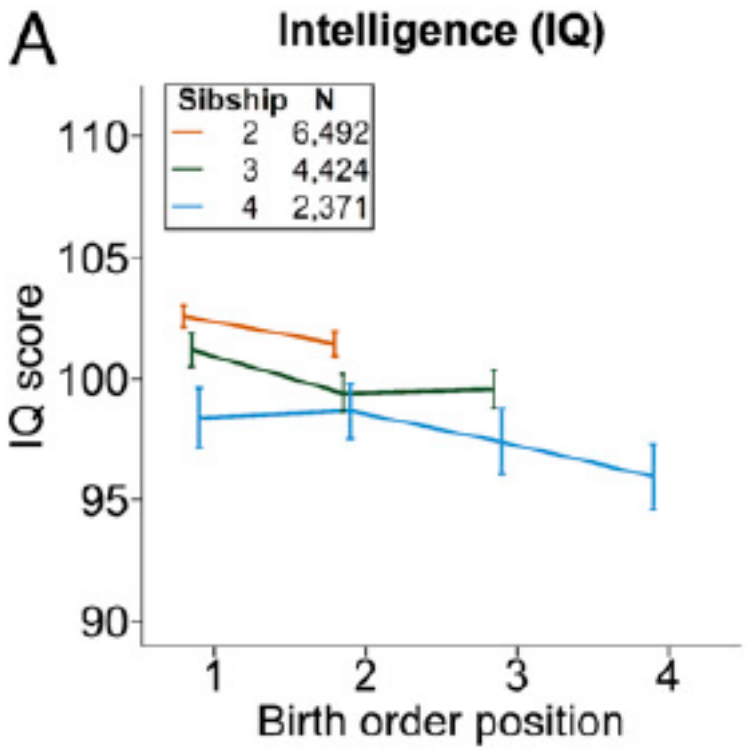
A robust data-driven approach identifies four personality types across four large data sets

Martin Gerlach[1], Beatrice Farb[1], William Revelle[2] and Luís A. Nunes Amaral[1,3,4,5*]



Birth order and Personality

Birth-order is often described to have an influence on personality.
For example, first-borns are supposed to be less agreeable, because they are stronger than their siblings.

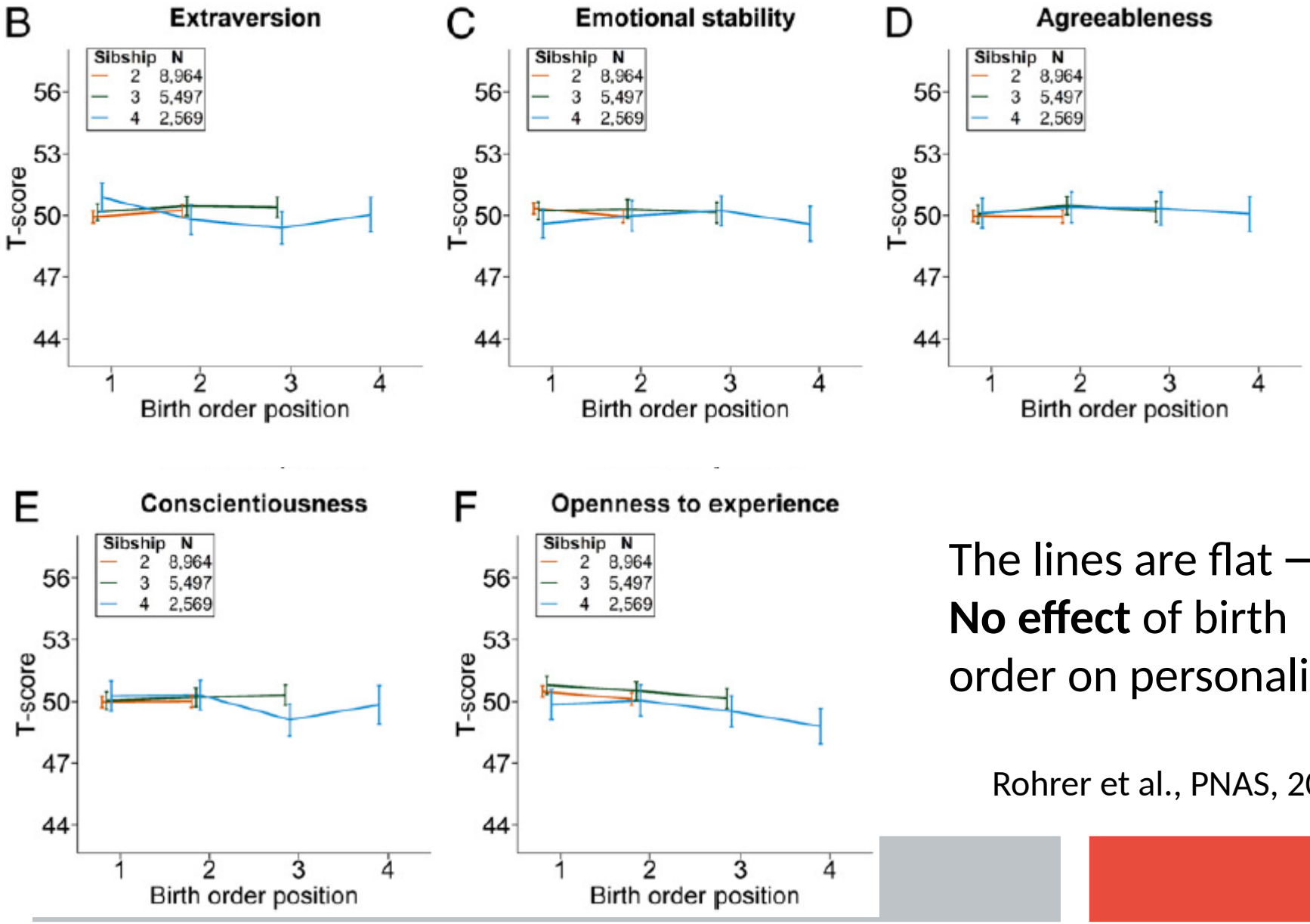


IQ: Yes, there was a significant effect → earlier-borns are more intelligent

Possible reason: first-borns serve as teachers for their siblings.

Rohrer et al., PNAS, 2015

Birth order and personality



The lines are flat → **No effect** of birth order on personality!

Rohrer et al., PNAS, 2015

Genes and personality

Twin studies are helpful for estimating the heritability of personality.
Monozygotic twins (MZ) should share 100% of genes, dizygotic twins (DZ) 50%.
Now we can look at their correlations of the different personality dimensions and estimate heritability: percentage of variance explained by genetic variation.

$$h^2=2(r(MZ)-r(DZ))$$

Dimension	Correlation r(MZ)	Correlation r(DZ)	Heritability	Other studies
Extraversion	0.56	0.28	56%	49 – 56%
Neuroticism	0.53	0.13	80%	42 – 52%
Agreeableness	0.42	0.19	46%	33 – 42%
Conscientiousness	0.54	0.18	72%	48 – 53%
Openness	0.54	0.35	38%	51 – 58%

Riemann et al., 1997
1000 German and Polish twins

USA and Canadian
twin studies

Personality and Health

In the 1950s, two cardiologists (Friedman and Rosenman, 1959) were looking for risk factors of cardiovascular disease (e.g., heart attack). They identified a typical personality with more risk to develop cardiovascular disease.

Type A:

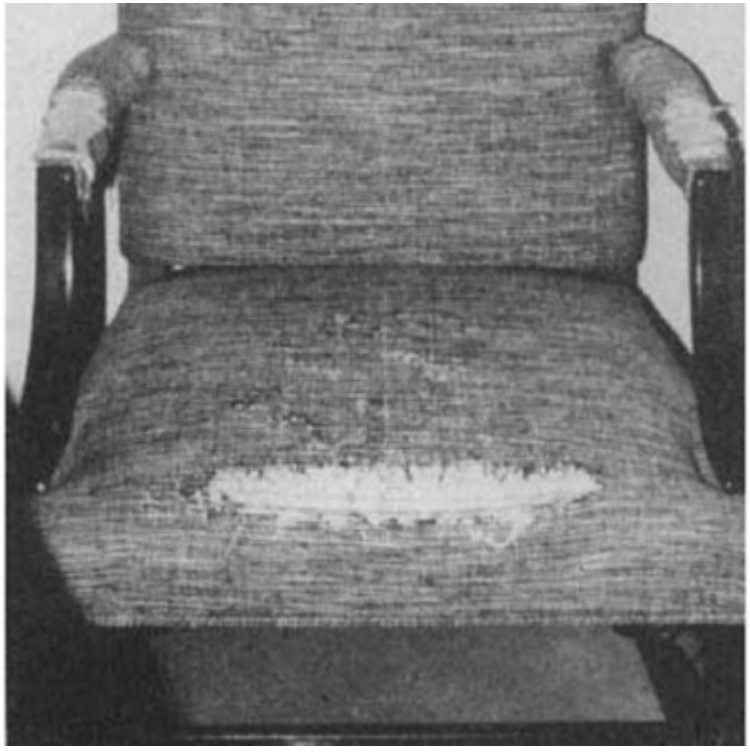
driven to achieve, competitive hostile, alert, dislikes time-wasting

Type B:

relaxed, unhurried, less interested in competition

Measurement with structured interview (provocative and challenging) or self-report questionnaire.

Chair from Friedman and Rosenman's practice



Personality and Health

First reports showed evidence in favor of a link between Type A personality and cardiovascular disease (Rosenman et al., 1964), but follow-up studies (Ragland and Brand, 1988) and later studies (e.g., Johnston et al., 1987) could not reproduce this.

Blood pressure, cholesterol, smoking and age were main risk factors.

However, further meta-analytic studies suggested **hostility / anger** as a risk factor for coronary heart disease (Chida and Steptoe, 2009).

Possible explanation: Stronger sympathetic stress-response when hostile people are provoked -> **blood pressure** gets higher during **stress response** compared to non-hostile people (Sapolsky, 2004).

Summary: Personality

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