

New social science phenotypes in the Rotterdam Study

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Background

- Rotterdam Study is one of the best published datasets in medicine
 - Prospective cohort of elderly Dutch Caucasians
 - Since 1990 in Rotterdam (Ommord)
 - N ~ 15,000
 - GWAS data and wide variety of high quality medical phenotypes available
 - One of the core and founding cohorts of the CHARGE consortium
- New data collection round starting in Nov 2011
 - Youngest cohort (>45 years)
 - 1-2 years for home interviews and tests at medical center

Goal

- Include additional social science variables
 - That may be helpful in predicting disease or longevity
 - That are also of interest to social scientists
- Parameters:
 - Maximum six new questions
 - Maximize overlap with other genotyped cohorts (STR, HRS, WLS)
 - Questions must be easy enough and natural for the respondents
- Economic preferences
- Attitudes and cognitive styles
 - Ideally, we want measures that are conceptually distinct from ability, health or social status

Choices for the Rotterdam Study

- Risk preferences
 - Moderately heritable ($h^2 \sim 0.30$): Cesarini et al. 2009a, Beauchamp et al. 2011, Zhong et al. 2009
 - Related to e.g. occupational choice, smoking, investment decisions: Barsky et al. 1997
- Optimism
 - Moderately heritable ($h^2 \sim 0.20$): Plomin et al. 1992, Cesarini et al. 2009b
 - Unrealistic optimism undermines interest in risk reduction (Weinstein 1982)
- Time discounting (patience)
 - Moderately heritable ($h^2 \sim 0.40$): Anokhin et al. 2011
 - Related to e.g. alcoholism, substance use, ADHD: Vuchinich and Simpson 1999, Barkley et al. 2001

Risk preferences

1. "How do you see yourself: are you generally a person that is fully prepared to take risks or do you try to avoid taking risks? Please tick on the scale below, where the value 0 means "not at all willing to take risks" and the value 10 means "fully prepared to take risks".
2. "Imagine the following hypothetical situation. You are the sole provider of your household and you have the choice between two equally good jobs. The incomes I will mention should be considered as net income (after all taxes and social security).
Job A will with certainty give you EUR 2,800 per month for the rest of your life.
Job B will give you a 50-50 chance of EUR 5,600 per month for the rest of your life, and a 50-50 chance of EUR 2,240 per month for the rest of your life. Which job do you choose?"
→ two additional questions with different EUR values

Optimism

1. “How many summer days (no rain and highest temperature of over 25°C) do you think we will have in Rotterdam in the August of NEXT year? What is your best guess?”
2. “On a scale from 0 to 10, how strongly would you agree with the statement that you are always optimistic about your future?”
3. “What do you think are the chances that the Dutch economy will experience a major recession sometime during the next 10 years? With major recession I mean a significant decline in economic activity spread across the economy and a major rise in unemployment.”

Impossible Little chance Even chance Good chance Certain
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Time preferences (patience)

1. I am going to ask you three hypothetical questions now. The money amounts I will mention will be without any risk involved and should be considered as net income (after all taxes and social security).

Would you rather have (i) 1000 EUR now or (p) 1050 EUR in a month from now?

→ Two follow-up questions of similar type with different money amounts, depending on the answer we got

Lessons learnt

- Harmonization is challenging, but necessary
 - “No questions relating to the stock market in the Netherlands”
- Calibration and fine tuning after first 20 interviews may be necessary
- Some already existing measures are
 - Good, but too long or too difficult
 - Not precise enough or confounded