# *Can environmental influences explain discordance in neuroticism in MZ twin pairs?*

Published: 10-12-2010
Last updated: 04-05-2024

This study aims to identify the specific environmental influences that cause discordance in neuroticism scores in MZ twin pairs. We hypothesize that the development of high neuroticism is due to having experienced more severe and longer lasting...

| | |
|---|---|
| **Ethical review** | Approved WMO |
| **Status** | Recruiting |
| **Health condition type** | Personality disorders and disturbances in behaviour |
| **Study type** | Observational non invasive |

## Summary

### ID

NL-OMON34572

**Source**
ToetsingOnline

**Brief title**
On the environmental origins of neuroticism: a study in MZ twins

### Condition

- Personality disorders and disturbances in behaviour

**Synonym**
negative affectivity, neuroticism

**Research involving**
Human

### Sponsors and support

**Primary sponsor:** Universitair Medisch Centrum Groningen
**Source(s) of monetary or material Support:** Ministerie van OC&W

## Intervention

**Keyword:** Environment, Life events, MZ-twins, Neuroticism

## Outcome measures

### Primary outcome

Using a MZ co-twin design we want to predict neuroticism with environmental influences assesses as retrospective data tapping into physical and psychological trauma, life events, turning point experiences, and attachment to parents, friends, or romantic partner*s e.g.

### Secondary outcome

n.a.

# Study description

### Background summary

Neuroticism is an important predictor of psychopathology, in particular emotional (anxiety, depression) and somatization disorders. Genetic studies generally agree that about half of the variance explaining individual differences in personality is due to environmental factors. We aim to identify these environmental factors using a discordant MZ co-twin design. Because MZ twin pairs share all their genetic material and have been reared in the same family the method naturally controls for a wide range of potential confounding genetic and environ-mental factors that are shared by the twin pair. All phenotypic differences within a MZ twin pair that are not due to measurement error or random developmental processes must result from differences in environmental experience(s) specific to the individual twin.

### Study objective

This study aims to identify the specific environmental influences that cause discordance in neuroticism scores in MZ twin pairs. We hypothesize that the development of high neuroticism is due to having experienced more severe and longer lasting environmental adversities throughout life.
Potential causes of discordance are; physical or/and psychological trauma's or/and apparantly insignificant experiences which cumulate over time or trigger

a particular development that result in persistent changes in neuroticism.

### Study design

This explorative study will focus on MZ pairs discordant for neuroticism. The discordant co-twin design will be used, in which genetic and some environmental confounding is ex-cluded and differences in neuroticism scores are solely attributable to (nonshared) envi-ronmental influences (and measurement error and random processes). We will invite the MZ-twin pairs to come for a *twin research day* at the UMCG-hospital in Groningen. While the first twin has an interview for about 1,5 hour while the other twin has the time to fill out some questionnaires. After a break the roles will change. By the use of a (neuroticism-) discordant co-twin design we will examine and compare the environments experienced by each individual. We aim to do a retrospective cohort study, meaning that all the relevant events - life-events, diseases, accidents e.g., and subsequent development of elevated neuroticism, have already occurred in the past. We collect the data now, and establish the likelihood of developing high neuroticism if exposed to particular risk factors.

### Study burden and risks

The burden associated with the questionnaires and interviews is minimal. Short breaks will be inserted at the request of the participant, or if the experimenter feels it is necessary. The duration has been kept in at most 3, 5 hour (90 minutes interview, 90 minutes questionnaires and a debriefing of 20 minutes).

## Contacts

**Public**
Universitair Medisch Centrum Groningen

Hanzeplein 1
9713 GZ Groningen
NL
**Scientific**
Universitair Medisch Centrum Groningen

Hanzeplein 1
9713 GZ Groningen
NL

# Trial sites

## Listed location countries

Netherlands

# Eligibility criteria

**Age**
Adults (18-64 years)
Elderly (65 years and older)

## Inclusion criteria

- 18 years or older
- Monozygotic twins
- Being raised in the same family

## Exclusion criteria

- Not being a monozygotic twin.
- 1 SD (standard deviation) difference in neuroticism scores between both twins of a twin pair.
- Not being able to communicate in Dutch.
- When one twin of the pair refuses to participate

# Study design

## Design

| | |
|---|---|
| Study type: | Observational non invasive |
| Intervention model: | Other |
| Allocation: | Non-randomized controlled trial |
| Masking: | Open (masking not used) |
| Control: | Active |
| Primary purpose: | Basic science |

### Recruitment

NL

| | |
|---|---|
| Recruitment status: | Recruiting |
| Start date (anticipated): | 31-10-2011 |
| Enrollment: | 60 |
| Type: | Actual |

## Ethics review

Approved WMO

| | |
|---|---|
| Application type: | First submission |
| Review commission: | METC Universitair Medisch Centrum Groningen (Groningen) |

## Study registrations

### Followed up by the following (possibly more current) registration

No registrations found.

### Other (possibly less up-to-date) registrations in this register

No registrations found.

### In other registers

| Register | ID |
|---|---|
| CCMO | NL33055.042.10 |