# The roles of Attachment Style and Autonomy on Inter-Personal Distance and respons time in Virtual Reality in patients with persistent psychopathology.

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Examining inter-personal distance in Virtual Reality in patients with persisting psychopathology and a control group in order to assess the association with attachment styles. Differences in gender will also be examined. Primary research question...

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

## Summary

### ID

NL-OMON52959

**Source**
ToetsingOnline

**Brief title**
Attachment style and Autonomy in Virtual Reality

### Condition

- Personality disorders and disturbances in behaviour

**Synonym**
attachment, behavior in close relationships.

**Research involving**
Human

## Sponsors and support

**Primary sponsor:** Universiteit van Tilburg
**Source(s) of monetary or material Support:** Ministerie van OC&W

## Intervention

**Keyword:** Attachment style, Autonomy, Inter-Personal Distance, Virtual Reality

## Outcome measures

**Primary outcome**

8.1.a Main study parameter/endpoint

The dependent variables are virtual distance and reaction times. Virtual distance in meters will be collected through the Virtual Reality software. (Steenbakkers et al., 2019).

Reaction times will be collected through the Virtual Reality software. (Steenbakkers et al., 2019).

The independent variable is attachment style, specifically anxious attachment style and avoidant attachment style. The Dutch version of the Experiences in Close Relationships - Revised (ECR-R) consisting out of 36 items was used to measure these dimensions of insecure attachment styles (Fraley, Waller, Brennan, 2000; Sibley & Liu, 2004). Participants were asked to think about their close relationships, without focusing on a speciWc partner, and rate the extent to which each item accurately described their feelings in such relationships using a 7-point scale ranging from 1 (not at all) to 7 (very much). Eighteen items measured attachment-related anxiety (e.g., I worry about being abandoned) and 18 items measured avoidance (e.g., I prefer not to show a

partner how I feel deep down). The reliability and validity of the two subscales have been repeatedly demonstrated (e.g., Mikulincer & Shaver, 2007)

8.1.b Secondary study parameters/endpoints (if applicable)

Self reported anxiety was measured using a short and Dutch version of the State and Trait Anxiety Inventory (STAI) consisting out of 6 items using a 4 point scale ranging from *not at all* to *a lot* (Marteau & Bekker, 1992).

Skin conductance level will be measured (Boucsein, 2012; Dindo & Fowles, 2008; Bekedek & Kaernbach 2010) using two Ag-AgCl electrodes of approximately 1 $cm^2$ attached to the hand palm of the participant. The non-dominant hand of the participant will be used. Between the two electrodes a weak voltage of 0,5V will be applied. The participants cannot feel such a weak voltage. The difference in resistance between the two electrodes measured with the low voltage indicates changes in arousal. At the start of the task baseline skin conductance will be measured while the participants watches a photograph of a landscape. The VU-AMS platform (www.vu-ams.nl) was used to measure this physiological data.

Heartrate variability (HRV) will also be measured using the VU-AMS platform. Two Ag-AgCl elekctrodes of approximately 2 cm2 will be attached to both lower arms of the participants

**Secondary outcome**

8.1.c Other study parameters (if applicable)

Information about autonomy, emotion regulation, DSM-5 classification, age, sex, treatment method, previous treatments, and medication is also collected as they might be confounding variables.

Information about age, previous treatments, medication and DSM-5 classification will be collected from the patient*s medical file with their consent.

The Dutch version of the Autonomy-Connectedness Scale-30 (ACS-30) was used to measure autonomy (Bekker & Van Assen, 2006, 2008). This scale consists out of 30 items using a 7 point Likert-scale ranging from *completely disagree* to *completely agree*.,

The Dutch version of the Social Interaction Anxiety Scale (SIAS) was used to measure social anxiety (Mattick & Clarke, 1998). This scale consists out of 19 items using a 5 point scale ranging from *not at all* to *a lot*.

# Study description

**Background summary**

Rationale: Insecure attachment style is a major predicting factor in psychopathology, such as personality disorders. More insight in the attachment style of patients could help diagnosing and treating psychopathology. Currently there are few ways of measuring attachment style in adults. The most reliable option is the Adult Attachment Interview (AAI), which is time consuming and costly. Other questionnaires rely on self-report, which could be biased because of diminished reflective capabilities specifically within the population of patients with personality disorders. This study aims to explore the possibility for measuring more objectively behaviors related to attachment style, such as interpersonal distance and differences in reaction time due to attention shifts

influenced by attachment style.

**Study objective**

Examining inter-personal distance in Virtual Reality in patients with persisting psychopathology and a control group in order to assess the association with attachment styles. Differences in gender will also be examined.

Primary research question and hypotheses: 1.1. Does attachment style relate to interpersonal distance in a Distance Closeness Paradigm in Virtual Reality?
• a. Individuals with a higher score on an avoidant attachment style, keep more distance towards others (in this case; the avatar in Virtual Reality), compared with securely and anxiously attached individuals. There is a positive correlation between avoidant attachment style and interpersonal distance.
• b. Individuals with a higher score on an anxious attachment style, keep less distance towards others (in this case the avatar in Virtual Reality), compared with securely and avoidantly attached individuals. There is a negative correlation between avoidant attachment style and interpersonal distance.
Secondary hypotheses:
• 1.2. Individuals with a higher score on an avoidant attachment style, have an increased skin conductance level and increased heartrate variability, but do not report increased anxiety.
• 1.3. Individuals with a higher score on anxious attachment style, have an increased skin conductance level and increased heartrate variability and report higher anxiety levels.
• 1.4. No differences are expected between male and female participants.
• 1.5 The control group is expected to have generally lower scores then the patient population, although no differences in correlations are expected.
• 1.6 There is a positive correlation between an avoidant attachment style and autonomy.
• 1.7 There is a negative correlation between anxious attachment style and autonomy.

Primary research question and hypotheses 2.2: Is the relation between attachment style and interpersonal distance mediated (strengthened) when using positive attachment priming?
• a. Individuals with a higher score on an avoidant attachment style, keep less distance towards others (in this case; the avatar in Virtual Reality) in the priming condition when compared with the control condition.
• b. Individuals with a higher score on an anxious attachment style, keep more distance towards others (in this case the avatar in Virtual Reality) in the priming condition when compared with the control condition.
• c. The same correlations are expected for the control group, although lower differences are expected compared to the patient population.

Examining reaction time in an attention task, while patients are exposed to different facial expressions and tasks to increase the cognitive load (remembering a 7 digit number) in Virtual Reality in order to assess the association between reaction time and attachment style.

Primary research question and hypotheses 3: Does attachment style relate to reaction time from insecure attached patients due to changes in attention?
• a. Avoidantly attached patients will have an increased reaction time when an avatar is present in the same visual area as the target, but a decreased reaction time for targets presented away from the avatar because of a disengaging attachment style which results in avoiding the avatar, when compared with securely and anxiously attached individuals.
• b. Anxiously attached patients will have a decreased reaction time when an avatar is present in the same visual area as the target, but an increased reaction time for targets presented away from the avatar because of an engaging attachment style which results in a focus on the avatar, when compared with securely and avoidantly attached individuals.
• c. Securely attached patients will have no difference in reaction time between the two target presentation locations, no matter the location of the avatar, when compared to anxiously and avoidantly attached individuals.

Secondary hypotheses: Cognitive load influences reaction time.
• 3.2. For avoidantly attached patients: The negative effect on reaction time when an avatar is present in the same area as the target is negated by a high cognitive load. The reaction time normalises towards reaction times of securely attached individuals (restores to the values in the control condition in which no avatar is present).
• 3.3. For anxiously attached patients: The positive effect on reaction time when an avatar is present in the same area as the target is negated by a high cognitive load. The reaction time normalises towards reaction times of securely attached individuals (restores to the values in the control condition in which no avatar is present).
• 3.4. For securely attached individuals: no changes are expected.
• 3.5. The same correlations are expected for the control group, although lower differences are expected compared to the patient population.
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**Study design**

The current study has a between-groups and within-subject design comparing the interpersonal distance between both sexes. Furthermore, reaction time is measured multiple times within a subject. Patients complete online questionnaires at home and participate in a social task in Virtual Reality at a location of GGZ Breburg.

The full procedure and measurements are described in the Methods section.

**Study burden and risks**

Risks are non existent.

# Contacts

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# Trial sites

## Listed location countries

Netherlands

# Eligibility criteria

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

## Inclusion criteria

Inclusion criteria
In order to be eligible to participate in this study, a subject must meet all of the following criteria:
• DSM-5 classification for personality disorder, eating disorder, depression and/or anxiety.

• Age of 18+.

### Exclusion criteria

Exclusion criteria
A potential subject who meets any of the following criteria will be excluded from participation in this study:
• A currenct psychotic episode
• Under influence of a substance or medicine influencing judgement, hallucinations or the senses.
• Mental retardation.
• Insufficient Dutch language skills.
• Blindness or very poor eye sight.
• Autism.
• PTSD type 1.
- Social anxiety
- Score of >34 on SIAS questionnaire

## Study design

### Design

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

### Recruitment

NL

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| Recruitment status: | Recruiting |
| Start date (anticipated): | 13-03-2020 |
| Enrollment: | 128 |
| Type: | Actual |

# Ethics review

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| Approved WMO Date: | 08-08-2019 |
| Application type: | First submission |
| Review commission: | METC Brabant (Tilburg) |
| Approved WMO Date: | 17-02-2020 |
| Application type: | Amendment |
| Review commission: | METC Brabant (Tilburg) |
| Approved WMO Date: | 14-12-2021 |
| Application type: | Amendment |
| Review commission: | METC Brabant (Tilburg) |
| Approved WMO Date: | 31-10-2022 |
| Application type: | Amendment |
| Review commission: | METC Brabant (Tilburg) |

# 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 | NL70182.028.19 |