

Empathy related brain activity in psychopathic-like adolescents

Published: 02-08-2012

Last updated: 01-05-2024

Objectives and Hypotheses: Objective 1: Social decision making in psychopathic-like adolescents A recent normal population study yielded at least two important findings with regard to social decision making in adolescence. First, when making an...

Ethical review	Approved WMO
Status	Recruiting
Health condition type	Other condition
Study type	Observational non invasive

Summary

ID

NL-OMON39060

Source

ToetsingOnline

Brief title

Neural mechanisms of empathy in psychopathic-like adolescents

Condition

- Other condition

Synonym

empathy deficits

Health condition

psychopathie - persoonlijkheidstoornis

Research involving

Human

Sponsors and support

Primary sponsor: Leids Universitair Medisch Centrum

Source(s) of monetary or material Support: LIBC starting grant Olivier Colins

Intervention

Keyword: brain circuitry, empathy, PCL:YV, psychopathy

Outcome measures

Primary outcome

Youth with conduct disorder with high (versus) low psychopathic traits as measured by means of the PCL:YV. fMRI data from the already approved study will allow to test our described earlier.

Secondary outcome

NA

Study description

Background summary

Concerning:

Request for approval for an add-on study in a subsample of youths that are recruited in the context of an already METC approved MRI study in healthy controls, youths with conduct disorder and youths with autism spectrum disorder (P12.063). Specifically, in the context of this add-on study, we will ask the youths with CD who participated to this already approved study, to be interviewed for approximately two hours.

This interview will be administered to assess psychopathic-like traits by means of an expert based assessment (the Psychopathy Checklist-Revised: Youth Version). Interviews will only be performed with youths who also give permission to review their institution files. This file study is a part of the expert based assessment as performed by means of the Psychopathy Checklist-Revised: Youth Version. By doing so, we will be able to assess psychopathic-traits in juvenile justice involved youths with the measure that is considered to be the golden standard to assess the construct of psychopathy in forensic settings.

Background:

Adolescents with high levels of psychopathic-like traits show features typically seen in adult psychopaths. In addition, the few available longitudinal studies on the topic suggest that psychopathic-like traits are relatively stable during the transition from adolescence to adulthood. One major concern of applying this construct to juveniles is that underlying traits (e.g. selfishness) may be part of normal development. Therefore, only a minority of children and adolescents with psychopathic-like traits will become tomorrow's psychopath. An intriguing issue that arises is how the reliability of the psychopathy construct in juveniles can be improved. The current proposal will address this question by integrating the study of social decision making and its neurobiological correlates in normal individuals into the study of psychopathic-like traits in adolescence. Humans do not only make social decisions that maximize self-interest, but they also account for the well-being of others. Recent neuroimaging studies have contributed substantially to this insight by identifying emotion-inducing and emotion-regulating brain regions that underlie social decision making. Given that psychopathic-like adolescents are considered to be extremely selfish and unemotional, it is expected that the functionality of the brain regions involved in social decision making is different from normal population adolescents. This hypothesis will be tested by examining brain circuitry in psychopathic-like adolescents during social decision making tasks suited for neuroimaging.

Theoretical framework:

Researchers have begun to investigate the psychological and neural correlates of social decisions using Game Theory. Game Theory is a collection of rigorous models attempting to understand and explain situations in which decision-makers must interact with one another. In general, the classical game theoretical prediction is that individuals are selfish and driven by their own financial interests. However, increasing evidence suggests that social decision making may not be entirely driven by self-interest, but by cooperation, altruism and preferences regarding the well-being of other individuals as well. Given the personality traits ascribed to psychopathic-like adolescents (e.g. extreme selfishness, uncooperativeness), it can be expected that psychopathic-like adolescents will differ from normal population adolescents in social decision making and specific brain circuitry being involved in social decision making. Put differently, it may be that psychopathic-like adolescents make social decisions in line with the classical game theoretical prediction.

Study objective

Objectives and Hypotheses:

Objective 1: Social decision making in psychopathic-like adolescents

A recent normal population study yielded at least two important findings with

regard to social decision making in adolescence. First, when making an offer, adolescents are most often driven by the desire to optimize self-gain, although they also prefer to offer something rather than nothing to the other. Second, adolescents are likely to reject an unfair offer, probably to punish the proposer for their miserable offer. Thus, despite selfishness is relatively normal in adolescence, adolescents already value social factors such as fairness and cooperation. Given the personality traits ascribed to in psychopathic-like adolescents (e.g. extreme selfishness), we generally expect in psychopathic-like adolescents to differ in social decision making relative to normal population adolescents. In specific, it is hypothesized that when being a proposer in an economic game, psychopathic-like adolescents will make more unfair offers than normal adolescents.

Objective 2: Neural correlates of social decision making in psychopathic-like adolescents

Several cognitive and affective processes are involved in social decision making. Studying social decision making therefore necessitates measurement and analysis at multiple and interacting levels. Interestingly, neuroimaging studies in normal population adults and adolescents have identified several brain regions that are involved in social decision making. First, when dealing with emotional and unpleasant aspects of social decision making (e.g. receiving an unfair offer), individuals show increased activation in emotion-inducing brain regions, such as the insula. The insula is implicated in negative emotional states such as disgust, suggesting that emotions influence social decision making. Second, when evaluating social decisions, individuals show activity in emotion-regulating brain regions, such as the dorsolateral prefrontal cortex (DLPFC) and the medial prefrontal cortex (MPFC). The DLPFC is a region involved in cognitive control processes. Importantly, if DLPFC activity is stronger than insula activity, than individuals can accept an emotionally aversive offer. Thus, emotions influencing social decision making can be overridden by cognitive control (e.g. accepting instead of rejecting an unfair offer). The MPFC is active when individuals refer to other and their own state of mind, or when there is a need to explain and predict the behavior of others by attributing independent mental states (e.g. thoughts, desires). The MPFC thus is important for integrating the perspectives of self and other. For reasons mentioned above, we have two hypotheses. First, psychopathic-like adolescents are less emotionally aroused when being confronted with social decision making that is arousing for most humans. Therefore, it is hypothesized that when proposing an unfair offer, psychopathic-like adolescents will show less insula activity than normal population adolescents. Second, psychopathic-like adolescents are manipulators, which require an ability of perspective taking. However, because they are only concerned about themselves, they may feel less need to consider the perspective of others. Therefore, we hypothesized that, while being a proposer, psychopathic-like adolescents will show less activity than normal population adolescents in the perspective taking

brain region (i.e. MPFC).

Study design

Previous research showed that almost all psychopathic-like adolescents meet criteria for Conduct Disorder. Recent theories as well as the upcoming DSM-5 suggest that the small subgroup of psychopathic-like adolescents can be identified in the broad and heterogeneous group of youths with Conduct Disorder (Frick, 2009; Frick and Moffitt, 2010). Given our already METC approved study (P12.063) also include youths with Conduct Disorder and an economical game during fMRI, we will ask all the youths with Conduct Disorder (approximately 50 youths) if they are willing to be interviewed with an assessment tool that taps personality traits (that is, the Psychopathy Checklist-Revised: Youth Version). For this add-on study, a new patient and/or parent information folder will be provided, and the interview will be performed by a trained interviewer (e.g., the applicant of the current amendment). The Psychopathy Checklist-Revised: Youth Version consists of an interview with the youth and a review of collateral information such as police files, by the expert. Only youths who give permission to review collateral information will be interviewed. The interview will last approximately two hours, and will take place after reviewing the collateral information. Confidentiality of the information will be ensured, and the youth will receive a compensation of 30 euros. This additional study will end when the already METC approved and on-going study ends (P12.063).

Study burden and risks

not applicable

Contacts

Public

Leids Universitair Medisch Centrum

Endegeesterstraatweg 27

Oegstgeest 2342AK

NL

Scientific

Leids Universitair Medisch Centrum

Endegeesterstraatweg 27

Oegstgeest 2342AK

NL

Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age

Adolescents (12-15 years)

Adolescents (16-17 years)

Adults (18-64 years)

Elderly (65 years and older)

Inclusion criteria

In the context of this add-on study, we will ask the youths with CD who participated in the already approved study (P12.063) to be interviewed for approximately two hours. Interviews will only be performed with youths who also give permission to review their institution files.

Exclusion criteria

No approval to review files (a necessity to perform the Psychopathy Checklist-Revised: Youth Version)

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): 20-12-2012
Enrollment: 50
Type: Actual

Ethics review

Approved WMO
Date: 02-08-2012
Application type: First submission
Review commission: METC Leiden-Den Haag-Delft (Leiden)
Approved WMO
Date: 27-05-2013
Application type: Amendment
Review commission: METC Leiden-Den Haag-Delft (Leiden)

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	NL39986.058.12