Neurological correlates of the (un)willingness to reward cooperation and punish non-cooperation

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

Summary

ID

NL-OMON45373

Source ToetsingOnline

Brief title Punishment vs. reward

Condition

• Other condition

Synonym

N/A

Health condition

gezonde mensen

Research involving

Human

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Sponsors and support

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

Intervention

Keyword: Cooperation, fMRI, Punishment, Reward

Outcome measures

Primary outcome

The primary objective is to examine the neural correlates of punishing and rewarding others. We will examine whether we will find increased activation in brain regions associated with internal conflict during punishing non-cooperation than during rewarding cooperation.

Secondary outcome

An additional objective is to examine the impact of punishing and rewarding only mildly (non-)cooperative behavior compared to the impact of punishing and rewaring more severe (non-)cooperative behavior. We will thus include different types of (non-)cooperative behavior and compare brain and behavioral responses to these different types of behavior.

Study description

Background summary

People often use punishment and reward to get people to cooperate more (e.g., to show more proenvironmental behavior or to get people to obey laws). People are often more reluctant to punish non-cooperation than to reward cooperation. Given the willingness to restore justice, on the one hand, and the reluctance to inflict harm, on the other hand, indicates that there are not only psychological processes at play that foster sanctioning (e.g., anger and restoring justice), but also psychological processes that hamper sanctioning

(e.g., reluctance to harm). As such, it may very well be that people experience a *motivational conflict* when they punish others* non-cooperative behavior, but not when they reward others* cooperative behavior.

Study objective

In the current study we will examine this motivational conflict by studying brain regions associated with conflict when people punish and reward others. This is difficult (if not impossible) to study with behavioral measures. For this reason, we use fMRI to examine this internal conflict that people may experience. This way, we provide more insight in when and why people are reluctant to punish others' cooperative behavior.

Study design

The study uses an experimental design. Participants will be presented with cooperative and non-cooperative choices of unknown others, and participants objective is to either punish these others by taking away money, reward them by provinding them with money, or do nothing. We will measure brain activation using functional Magnetic Resonance Imaging (fMRI) while they are performing the task.

Study burden and risks

There are no risks associated with behavioral testing except the occasional possibility of some boredom or fatigue. Testing will stop if a subject displays frustration or appears tired.

There are no known risks associated with participating in an fMRI study. This is a noninvasive technique involving no catheterizations or introduction of exogenous tracers. Numerous human subjects have undergone magnetic resonance studies without apparent harmful consequences. Radiofrequency power levels and gradient switching times used in these studies are within the FDA approved ranges. Some people become claustrophobic while inside the scanner and in these cases the study will be terminated immediately at the subject's request. The only absolute contraindications to MRI studies are metal implants, intraocular metal and heart arrhythmia. Relative contraindications include pregnancy and claustrophobia. Subjects who may be pregnant, who may have metallic foreign bodies in the eyes or head, or who have cardiac pacemakers will be excluded because of potential contraindications of MRI in such subjects.

Although there is no direct benefit to the participants, the proposed research is expected to make a significant contribution to our understanding of the neural mechanisms underlying conflict and reward processing. Ultimately, this can be beneficial for various practical purposes, including the treatment of mood disorders which are associated with dysfunctional conflict and reward processing. In terms of scientific contribution, the study will be the first study to investigate the neural basis of interactions between reward and conflict processing. The importance of the benefits gained from this research far outweighs the minimal risks involved.

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

Adults between 18 and 25 years with no history of neurological disorders and no counterindications to MRI will be included in this study. All participants will be right-handed native Dutch speakers with normal vision or contact lenses.

Exclusion criteria

Potential participants will be prescreened for contraindications for fMRI, which include metal implants, heart arrhythmia, claustrophobia, and possible pregnancy (in females). They will additionally be prescreened for head trauma, history of neurological or psychiatric illness and/or use of psychotropic medications.

Study design

Design

Study type: Observational non invasive	
Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL	
Recruitment status:	Recruiting
Start date (anticipated):	14-04-2017
Enrollment:	0
Туре:	Actual

Ethics review

04-04-2017
First submission
METC Leiden-Den Haag-Delft (Leiden)

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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 CCMO **ID** NL60901.058.17