The Neural Basis and Predictors of Wellbeing during the transition from Adolescence to Adulthood

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

Summary

ID

NL-OMON51734

Source
ToetsingOnline

Brief title
Braintime 2.0

Condition

- Other condition

Synonym
N.A.

Health condition

Geen aandoening

Research involving
Human

Sponsors and support

Primary sponsor: Erasmus Universiteit Rotterdam
Source(s) of monetary or material Support: Spinoza prijs

Intervention

Keyword: Adolescence, Neuroscience, Wellbeing, Young adulthood

Outcome measures

Primary outcome

The neural basis of domain-specific aspects of wellbeing among adolescents and adults, and age-related changes in brain function and structure related to emotion and reward processing during adolescence and their associations with wellbeing during adulthood.

Secondary outcome

Not applicable

Study description

Background summary

Adolescence is well known for its rise in emotional reactivity, both in terms of frequency and intensity (Dahl, 2004; Duell et al., 2016). Traditionally, emotional reactivity has been linked to maladaptive adolescent behaviors such as alcohol and substance abuse, anxiety, and depression. Adolescence is also the time when most affective psychiatric disorders emerge (Paus, Keshavan, & Giedd, 2008). Together, these findings have led to the hypothesis that adolescence may be a sensitive period for negative developmental consequences. At the same time adolescence is also considered to be a period of resilience and flexibility (Crone & Dahl, 2012; Dahl, 2004). Recently, researchers have argued that the behavioural and neural changes in emotional reactivity also pose opportunities for positive development, such as increases in cooperation, sharing and helping (Telzer, 2016). Possibly, emotional reactivity results in negative or positive developmental trajectories depending on the environment in which adolescents grow up (Schriber & Guyer, 2015). It is currently unclear how this period of intensified emotional reactivity, resilience, and flexibility,

is associated with general wellbeing. In the present project, we aim to examine the neural basis of a novel adolescent wellbeing paradigm, which has been developed in co-creation with adolescents and young adults. In addition, we will investigate whether individual differences in structural brain development and heightened emotional reactivity across adolescence (i.e., ventral striatal activation in response to rewards to the self) predict better wellbeing during adulthood.

Study objective

The aim of the study is two-fold: (i) to test the neural basis of domain-specific aspects of wellbeing among adolescents and adults, and (ii) to examine how individual differences in neural emotional reactivity (based on previously acquired data) during adolescence contribute to optimal growth in terms of wellbeing during adulthood.

Study design

This study is a follow-up of the Braintime project, which took place at the Brain and Development Research Center at Leiden University and at the Leiden University Medical Center (approved by the Medical Ethics Committee at the Leiden University Medical Center; NL34234.058.10; P10.191). Braintime is a unique 12-year longitudinal study, with a two-year interval, that combines hormone data, neuroimaging, behavioral experiments, and questionnaires to study developmental changes from childhood to adolescents and eventually adulthood. Participants' ages ranged from 8 - 25 years when they first started in 2011 (N = 299). Insofar the Braintime project has had two additional waves, respectively in 2013 (N = 254) and 2015 (N = 243). In the present project, participants will perform computerised tasks related to reward processing and wellbeing. Neural activation will be measured using functional Magnetic Resonance Imaging (fMRI) while the participants are performing the tasks. Resting-state fMRI will be used to assess functional connectivity. We will use structural MRI and Diffusion Tensor Imaging (DTI) to measure underlying brain anatomical processes. In addition, we will measure social and cognitive functioning on a battery of questionnaires and tasks outside of the scanner. All measurements are non-invasive.

Study burden and risks

There are no known risks associated with participating in the proposed measurement. MRI is a non-invasive technique involving no catheterizations or introduction of exogenous tracers. Numerous children and adults have undergone magnetic resonance studies without apparent harmful consequences. Some people become claustrophobic while inside the magnet and in these cases the study will be terminated immediately at the subject's request. The only absolute contraindications to MRI studies are the presence of intracranial or

intraocular metal, or a pacemaker. 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 from this proposed research, there are greater benefits to society from the potential knowledge gained from this study. This knowledge will aid in our understanding of environmental and individual differences in typical development and how this might contribute to the onset of mental health problems.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)

Inclusion criteria

Native Dutch speaker

18 years or older

Exclusion criteria

Participants with contraindications for MRI, including metal implants, heart arrhythmia, and claustrophobia; and females who are pregnant.

Study design

Design

Study type: Observational non invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Other

Recruitment

NL

Recruitment status:	Pending
Start date (anticipated):	01-02-2023
Enrollment:	150
Type:	Anticipated

Ethics review

Approved WMO

Date:	05-12-2022
Application type:	First submission
Review commission:	METC Erasmus MC, Universitair Medisch Centrum Rotterdam (Rotterdam)

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	NL81454.078.22