Tears and crying over the lifespan

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Primary Objective: -to examine the role of tears in the perception of crying over the lifespanSecondary Objective(s): -to examine the influence of viewing cute infant pictures on visual attention -to examine differences in the perception of adult,...

Ethical review	Approved WMO
Status	Pending
Health condition type	Age related factors
Study type	Observational non invasive

Summary

ID

NL-OMON41016

Source
ToetsingOnline

Brief title
Tears and crying over the lifespan

Condition

- Age related factors

Synonym
niet van toepassing

Research involving
Human

Sponsors and support

Primary sponsor: Universiteit Leiden
Source(s) of monetary or material Support: NWO vici

Intervention

Keyword: crying, emotions, fmri

Outcome measures

Primary outcome

Task-FMRI: change in activation of emotion (regulation) brain regions during

the

perception of infant and adult faces with and without tears.

Secondary outcome

The influence of child-rearing experiences and socio-emotional abilities on the

task-

induced changes in brain activation

Study description

Background summary

Emotional tears are uniquely human and play an important role in the communication of distress in adults. Several studies have shown that individuals are more willing to give emotional support and help a crying person when tears are present (Hendriks et al., 2008, Zeifman and Brown, 2011). Although tears are crucial for signalling distress and eliciting help, little research has been conducted on the function of emotional tears and the role of tears in the perception of facial expressions. Moreover, even less is known about the influence of tears on responses to crying infants and children. In the proposed study we aim at gaining insight into the role of tears in the perception of crying over the lifespan.

The infant cry is a signal of distress evolved to elicit parental proximity and caregiving (Bowlby, 1969/1982, Zeifman, 2001). It alerts the parent when the infant is in danger and gives information on the health condition of the child (Soltis, 2004). Although infants are able to produce emotional tears from the second or third month of life on (Haeringen, 2001), the effectiveness of an infant*s crying might be more dependent on the sound of the crying than on tears or facial cues of distress. This suggestion is supported by studies indicating that the acoustics of crying reflect the level of distress of the infant (for a review see Soltis, 2004) and by a study that showed that deaf parents do not respond appropriately to their infants' crying despite facial

expressions of distress (Lenneberg, Rebelsky, & Nichols, 1965).
In contrast to infant crying, adults cry softly or without sound and the crying episodes are merely comprised of eyes welling up with tears (Vingerhoets et al., 2000). Tears might therefore play a more important role in the perception of adult distress. Indeed, several studies have shown that facial expression of crying adults are more effective in communicating distress when there are tears present. For example, Balsters et al (2013) examined the influence of tears on the identification of sadness and the need for social support. They found that sadness was faster identified when tears were added to sad adult faces. Moreover, the perceived need for social support was greater when faces contained tears. Another study showed that individuals are more willing to give emotional support to and express less negative affect toward a crying person than a noncrying person (Hendriks, Croon, Vingerhoets, 2008). Thus, emotional tears serve as an important visual cue to communicate distress in adults, possibly in order to elicit empathy in others and to facilitate prosocial behaviour (Vingerhoets & Rottenberg, 2012).
To our knowledge, only one previous study examined the role of tears in the perception of both infant and adult crying. Zeifman and Brown (2011) explored whether the effect of emotional tears is similar in magnitude across the life span. In this study, photos of crying infants, young children, and adults, with tears digitally removed or added were rated by participants. The effect of tears on neural responses to crying was however not examined. Tears had a more profound effect on the interpretation of facial expression of distress in older criers compared with younger criers. The authors reasoned that infant crying is a predominantly acoustic signal that progresses to a more subtle visual signal over the course of development. Adults try to conceal their emotions, but subtle visual cues of distress such as tears are difficult to inhibit. The signal value of tears may therefore increase with age, since tears reveal honest information that is otherwise suppressed (Zeifman and Brown, 2011).
Although crying is woven through the life course, there is no developmental approach in the study of crying (Rottenberg & Vingerhoets, 2012). One of the reasons for the absence of a lifespan tradition is that research on crying is divided into a subfield that covers crying in infants and toddlers and another subfield that concerns crying in adults. Because these two subfields are disconnected and there is a lack of knowledge on crying behaviour throughout the life course, Rottenberg and Vingerhoets (2012) call for a developmental approach to crying. They stress the need for insight into the developmental aspects of crying behavior. In the proposed study, we aim at gaining more insight into the differences between crying of infants, children, and adults with functional magnetic resonance imaging (fMRI). We hope to fill the gap in knowledge of crying behaviour at different stages of human development.

Study objective

Primary Objective:

-to examine the role of tears in the perception of crying over the lifespan

Secondary Objective(s):
-to examine the influence of viewing cute infant pictures on visual attention
-to examine differences in the perception of adult, child, and infant crying
-to examine whether the presence emotional tears has more profound effect on neural activation in individuals with negative childhood experiences or with poor socio-emotional abilities.
- to examine whether the presence of tears on crying faces results in more approach behavior

Study design

Procedure
Questionnaires on childrearing experiences (CTQ: Dutch Childhood Trauma Questionnaire-Short Form), temperament, and socio emotional abilities will be administered to all volunteering students attending an introductory course in educational and child studies. A selection of 50 participants with well-distributed scores scores (ranging from low to high) on the CTQ will be invited for 1 laboratory session. Before scanning, the participants will complete some practice trials outside the scanner in order to become familiar with the task. Afterwards, they will be scanned while they are exposed to photos of crying adult faces, crying child faces, and crying infant faces with and without tears. Tears are digitally removed or added to the photographs. The photographs that will be presented to participants have been used in previous research (Zeifmand and Brown, 2011). The subjects will be asked to attend to the photos. A one-back memory test will be included to maintain participants* attention during the task (similar to Montoya et al., 2012). Participants will be presented with a question mark and a photo on a small proportion of the trials. The participant will be instructed to indicate whether the current photo is identical to the photo of the preceding trial. In a second task, participants will be presented pictures of cute infants and neutral pictures. After the presentation of ethe pictures, participants will be instructed to perform a visual search task in the scanner (participants will search a matrix for a designated digit). The experiment will be carried out using the 3T fMRI scanner at the LUMC. In total, the subject will be in the scanner for 50 minutes. A third task will be administered outside the scanner. Participants will be presented pictures of crying adults with and without tears. They are instructed to either approach the adult or to withdraw by using a joystick.

At the end of the experiment, subjects will receive a monetary reward for their participation in the experiment.

Study burden and risks

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. 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.

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

In order to be eligible to participate in this study, a subject must meet all of the following criteria: Healthy female subjects without children, 18-30 years old

Exclusion criteria

Potential participants will be prescreened for contra-indications for fMRI, which include metal implants, heart arrhythmia, claustrophobia, and possible pregnancy. They will additionally be prescreened for head trauma, drug or alcohol abuse and psychiatric disorder.

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):	01-10-2014
Enrollment:	50
Type:	Anticipated

Ethics review

Approved WMO

Date:	25-08-2014
Application type:	First submission
Review commission:	METC Leids Universitair Medisch Centrum (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	NL48693.058.14