

**ENVIRONMENTAL-RISK (E-RISK) LONGITUDINAL TWIN STUDY  
CONCEPT PAPER FORM**

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Provisional Paper Title: Social cognition (Theory of Mind) and the effect on mental health in adolescence and early adulthood: a nationally representative twin birth cohort

Date: 16/Jan/ 2017

Objective of the study and its significance:

Theory of Mind (ToM) is a set of cognitive skills that allow the understanding and prediction of other people's behaviours based on their mental states (e.g. beliefs). These skills are important for the development of healthy social relationships from an early age.

Poor ToM has been associated with several serious psychiatric disorders, such as autism and borderline personality disorder. Furthermore, retrospective cross-sectional studies or case-control follow-ups indicate that deficits in ToM may be observed not only after the onset of disorders, but also at a preclinical stage. However, it is still unknown whether poor childhood ToM predicts later mental health problems. Additionally, no studies have determined the role of ToM in the long-term effect of childhood maltreatment on mental health problems in adolescence and early adulthood. Because previous research has found a link among ToM and individual differences such as IQ, family environment (e.g. parental SES) and genetic risk factors (e.g. family history), these factors should be controlled for when examining the relationship between ToM and later mental health problems. Therefore, we will investigate the longitudinal associations between ToM in early life and psychopathology in adolescence and adulthood in a prospective population-based cohort study. If the results of this study reveal that early ToM skills have an important role within mental health problems later in life, ToM may be an important target of psychopathology prevention.

Statistical analyses:

First, I will examine the associations between age-5 ToM with internalizing and externalizing problems, general psychopathology ("little p"), and individual DSM diagnoses (e.g. depression, conduct disorder, substance abuse) in early adulthood (age 18), controlling for IQ and SES. Second, I will test the longitudinal associations with psychopathology and borderline personality disorder traits at adolescence (age 12), controlling for IQ and SES. Third, I will test if ToM MODERATES the relationship between maltreatment in early childhood and psychopathology in adolescence and early adulthood, controlling for IQ and SES. Fifth, I will test whether the associations between ToM and psychopathology are

environmentally driven by correlating twins' difference scores on ToM with difference scores on psychopathology problems at ages 5, 12 and 18.

Variables Needed at Which Ages (names and labels):

Study:E-Risk

[Phase 5]

- FAMILYID [D] Unique family identifier Primary Family Level ID
- ATWINID [D] Twin A ID (ex chkdig) Primary Elder Twin ID
- BTWINID [D] Twin B ID (ex chkdig) Primary Younger Twin ID
- RISKS [D][F] Sample Groups
  - RORDERP5
- SAMPSEX [D][F] Sex of Twins: In sample
- ZYGOSITY [D][F] Zygosity
- SESWQ35 [D][F][M] Social Class Composite

- .IQE5 [D][F] Pro-rated IQ score - Elder
- .IQY5 [D][F] Pro-rated IQ score – Younger

- .TOMTOTE5 [D][F][M] TOM total score (elder)
- .TOMTOTY5 [D][F] TOM total score (younger)

[Phase5-12]

A count of polyvictimisation from 5 to 12.

[Phase 12]

THE BORDERLINE PERSONALITY DISORDER SYMPTOM SCALE

[Phase 18]

- Conduct problems (symptom scale and diagnosis)
- Depression (symptoms scale and diagnosis)
- Substance abuse (symptoms scale and diagnosis)
- Little p 18
- Externlaising 18
- Internalizing 18

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## Data Security Agreement

Provisional Paper Title	Social cognition (Theory of Mind) and the effect on mental health in adolescence and early adulthood: a nationally representative twin birth cohort
Proposing Author	Kibby McMahon, BA
Today's Date	16/Jan/ 2017

***Please keep one copy for your records***

(Please initial your agreement)

- KM I am current on Human Subjects Training (CITI ([www.citiprogram.org](http://www.citiprogram.org)) or training in human subject protection through my post or courses.
- KM My project is covered by Duke or King's IRB OR I have /will obtain IRB approval from my home institution.
- KM I will treat all data as "restricted" and store in a secure fashion.
- KM I will not share the data with anyone, including students or other collaborators not specifically listed on this concept paper.
- KM I will not post data online or submit the data file to a journal for them to post. Some journals are now requesting the data file as part of the manuscript submission process. The E-Risk Study cannot be shared because the Study Members have not given informed consent for unrestricted open access. Speak to Terrie or Avshalom for strategies for dealing with data sharing requests from Journals.
- KM Before submitting my paper to a journal, I will submit my draft manuscript and scripts for data checking, and my draft manuscript for co-author mock review, allowing three weeks.
- KM I will submit analysis scripts and new variable documentation to project data manager after manuscript gets accepted for publication.
- KM I will return all data files to the Data Manager after the project is complete. Collaborators and graduates of DPPP may not take a data file away from the DPPP office. The data remains the property of the Study and cannot be used for further analyses without express, written permission.
- KM I will ensure geographical location information, including postcodes or geographical coordinates for the E-Risk study member's homes or schools, is never combined or stored with any other E-Risk data (family or twin-level data)

Signature: ..... \_

*Katherine (Kibby) McMahon*

## CONCEPT PAPER RESPONSE FORM

### A. To be completed by the proposing author

Proposing Author: Kibby McMahon, BA

KM I have read the E-Risk data-sharing policy guidelines and agree to follow them

Provisional Paper Title: Social cognition (Theory of Mind) and the effect on mental health in adolescence and early adulthood: a nationally representative twin birth cohort

Potential co-authors: Dr Louise Arseneault, Prof. Avshalom Caspi, Prof. Terrie E. Moffitt

Potential Journals:

Intended Submission Date (month/year):

***Please keep one copy for your records and return one to Louise (louise.arseneault@kcl.ac.uk)***

### B. To be completed by potential co-authors:

Approved     Not Approved     Let's discuss, I have concerns

Comments:

Please check your contribution(s) for authorship:

- Conceptualizing and designing the longitudinal study
- Conceptualizing and collecting one or more variables
- Data collection
- Conceptualizing and designing this specific paper project
- Statistical analyses
- Writing
- Reviewing manuscript drafts
- Final approval before submission for publication
- Acknowledgment only, I will not be a co-author

**Signature:** .....