

## Concept Paper Template Dunedin May 2018

**Provisional Paper Title:** The ebb and flow of psychiatric disorders across the life course

**Proposing Author:** Avshalom Caspi and Teri Moffitt

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**P.I. Sponsor:**

(if the proposing author is a student or colleague of an original PI)

**Today's Date:** October 16, 2018

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Please describe your proposal in 2-3 pages with sufficient detail for helpful review.

### **Objective of the study:**

The goal of this paper is to bring together data from the longest and most detailed longitudinal study of mental health ever carried out: the Dunedin study. We will provide descriptive information about the onset, persistence, remission, and co-occurrence of disorders, from age 11 years to age 45 years. The paper is both a distillation of what we already have learned about mental health in the Dunedin Study—but have never presented in a single report—with tests about how this is linked to accelerated aging. It will also offer engaging visualization. The new data will document that disorder tends to affect almost everyone at some point their lives, but among the most affected it begins early, persists thereafter, and over time is seldom true to type. Instead, people experience different kinds of disorder over the life course, suggesting a hydraulic process where personal liability to disorder is expressed in changing symptom constellations at different points in time.

### **Data analysis methods:**

Most of the analysis will be in the form of descriptive statistics and visualizations.

### **The natural history of mental disorders**

We will begin charting the natural history of mental disorders in the Dunedin cohort by showing the figure I showed at the Dunedin Study retreat. The purpose is to show that: (a) most people will develop their first disorder as teenagers; (b) early onset is associated with greater risk of developing comorbid and persistent disorders; and (c) almost everyone will eventually present with a diagnosable disorder. From here will go on to provide answers to the following questions:

#### **How many people experience mental disorder in the first half of the life course?**

We will chart the disorders, phase by phase, and compare these rates to other studies' rates.

## **At what age do most people experience their first disorder?**

We will chart age-of-onset curves.

## **How common is it to experience multiple different kinds of disorders?**

We will provide evidence about concurrent, sequential, and lifetime comorbidity.

## **Does anyone have just one exclusive diagnosis?**

We will examine whether such a thing as a pure disorder exists.

## **The ebb and flow of psychiatric disorders across the life course.**

We will generate a Sankey diagram to depict the movement of Dunedin cohort members in and out and across different psychiatric conditions over time.

## **The p-factor**

We will note how the lifetime data point us in the direction of a general factor of psychopathology, the p-factor (or at least away from the likelihood that people are characterized by distinct disorders that breed true). Here we will extend the statistical work reported in Caspi et al. 2014, to model the p-factor to age 45.

## **The origins and sequelae of psychopathology**

We will use our longitudinal data to test the links between early childhood brain health and 'p', and between 'p' and aging outcomes (cognitive decline from childhood to midlife; older brain age from the imaging project; accelerated Pace of Aging).

## **Variables needed at which ages:**

1. Mental health diagnoses from age 11 to age 45
2. Constructing an updated p-factor variable, using data up to age 45 years
3. Childhood predictors: brain health and childhood iq
4. Midlife outcomes: brain age, Pace of Aging (or Biological Age), iq (as well as iq change from childhood).

## **Significance of the Study (for theory, research methods or clinical practice):**

We hope that this new evidence from the longest and most detailed longitudinal

study of mental health will compel readers to consider current practices related to nosology, research strategies in etiology and drug development, health-care delivery, professional training. It will also increase public understanding and awareness of mental illness.

## Data Security Agreement

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Today's Date	October 16, 2018

**Please keep one copy for your records and return one to the PI Sponsor**

Please initial your agreement

x	I am current on Human Subjects Training (CITI ( <a href="http://www.citiprogram.org">www.citiprogram.org</a> ) or equivalent)
x	My project is covered by Duke or Otago ethics committee OR I have /will obtain ethical approval from my home institution.
x	I will treat all data as "restricted" and store in a secure fashion. My computer or laptop is: a) encrypted (recommended programs are FileVault2 for Macs, and Bitlocker for Windows machines) b) password-protected c) configured to lock-out after 15 minutes of inactivity AND d) has an antivirus client installed as well as being patched regularly.
x	I will not "sync" the data to a mobile device.
x	In the event that my laptop with data on it is lost, stolen or hacked, I will immediately contact Professor Moffitt or Caspi. (919-684-6758, <a href="mailto:tem11@duke.edu">tem11@duke.edu</a> , <a href="mailto:ac115@duke.edu">ac115@duke.edu</a> )
x	I will not share the data with anyone, including my students or other collaborators not specifically listed on this concept paper.
x	I will not post data online or submit the data file to a journal for them to post.  <i>Some journals are now requesting the data file as part of the manuscript submission process. The Dunedin Study Members have not given informed consent for unrestricted open access, so we have a managed-access process. Speak to Terrie or Avshalom for strategies for achieving compliance with data-sharing policies of journals.</i>
x	I will delete all data files from my computer after the project is complete. Collaborators and trainees may not take a data file away from the office.  The data remains the property of the Study and cannot be used for further analyses without an approved concept paper for new analyses.

Signature: \_\_\_\_\_ **a. Caspi** \_\_\_\_\_ **t. moffitt** \_\_\_\_\_

**CONCEPT PAPER RESPONSE FORM**

**A**

Provisional Paper Title	The ebb and flow of psychiatric disorders across the life course
Proposing Author	Avshalom Caspi and Teri Moffitt
Other Contributors	Duke: Renate Houts, HonaLee Harrington, Jasmin Wertz, Leah Richmond-Rakerd, Line Rasmussen, Aaron Reuben, Max Elliott Dunedin: Richie Poulton, Sandhya Ramrakha, Sean Hogan, Antony Ambler, Broadbent, Hancox, Thomson In addition: If using any imaging variables: Hariri, Knodt
Potential Journals	Science, Nat Hum Behaviour, Clinical Psychological Science
Today's Date	October 16, 2018
Intended Submission Date	May 2019

***Please keep one copy for your records and return one to the proposing author***

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

<input type="checkbox"/>	Approved
<input type="checkbox"/>	Not Approved
<input type="checkbox"/>	Let's discuss, I have concerns

Comments:

Please check your contribution(s) for authorship:

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

**Signature:**

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