

## BIOGRAPHICAL SKETCH 2025

NAME: MOFFITT, TERRIE EDITH

eRA COMMONS USER NAME (agency login): TMOFFITT

POSITION TITLE: Nannerl O. Keohane University Prof (Duke), Prof of Social Behaviour & Development (KCL)

### EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of North Carolina, Chapel Hill	BA	05/1977	Psychology
University of Southern California, Los Angeles	MA	05/1981	Experimental Psychology
University of Southern California, Los Angeles	PHD	05/1984	Clinical Psychology
UCLA School Medicine, Neuropsychiatric Inst.	Other training	06/1983	Clinical Internship Neuropsych.
UCLA School Medicine, Neuropsychiatric Inst.	Postdoctoral Fellow	12/1984	Beh. Neuroscience, Geriatrics

### A. PERSONAL STATEMENT

I am Associate Director of the Dunedin Longitudinal Study, which follows a 1972 birth cohort in New Zealand (references 1,2). I also co-founded the Environmental Risk Longitudinal Twin Study (E-Risk), which follows a 1994 birth cohort in the UK. In addition, I carry out longitudinal research using the nationwide administrative registers and electronic medical records in Denmark, New Zealand, and Norway. Longitudinal research is an inherently horizon-scanning enterprise, and thus I relish forward planning, anticipating new trends, and asking new questions. I am a licensed clinical psychologist, with specialization in neuropsychological assessment. My work is about as interdisciplinary as it gets; my team often generates discoveries when we make dataset combinations across previously unconnected disciplines I have a published record of collaboration with criminologists, economists, geneticists, epidemiologists, sociologists, demographers, gerontologists, statisticians, neuroscientists, medical scientists, even ophthalmologists and dentists. The resulting products make impact (**Google Scholar H-index of 225, March 2025**). My team has a good track record as first adopters of new research technologies; for example, we were among the first cohorts to collect DNA, in 1996, among the first cohorts to use retinal imaging, in 2009, among the first cohorts to assay the chronic inflammation biomarker SuPAR, in 2017, and the first cohort to use silicone wristbands to assess airborne toxic exposures, in 2023. I bring to projects expertise in longitudinal methods, developmental theory, clinical psychopathology, neuropsychological assessment, and genomics in behavioral science. I also draw on expertise from a broad network at Duke University that includes the Pepper Center for the Study of Aging, Duke-UNC Alzheimer Center, Center for Computational and Genomic Biology, Social Science Research Institute, DUPRI Population Research Institute, and CPHA Duke Center for Population Health and Aging, plus the University of Oslo PROMENTA center for mental health research, and King's College London's Centre for Social, Genetic, and Developmental Psychiatry Research at the Institute of Psychiatry. Since 2007 my team has turned to studying processes of aging in midlife (reference 3), and in 2015 we were the first worldwide to develop and publish the longitudinal approach to measuring the pace of biological aging. We have subsequently exported our DunedinPACE measure to more than 60 cohort studies in 16 countries. We emphasize representing our science accurately to the media, and we promote public understanding of science (see reference 4; and [www.altmetric.com](http://www.altmetric.com)). I have a track record of bringing in large-scale research projects on-time and on-budget. Over the past decade, I have provided data to over 100 senior investigators, at more than 50 Universities, in 14 countries. I also have an appetite for mentoring early-career scientists. I provide them with high-quality data with which they can develop independent ideas. I meet for 2 hours weekly with each graduate student or postdoc involved in my projects. I have trained 28 young scientists and have placed them in top-flight science leadership positions. They have won more than 45 prestigious early-career awards and fellowships. I received the 2019 Postdoctoral Mentor award from Duke University. We also welcome undergraduates; 11 of them have co-authored publications in the past 5 years, and all our undergrads have gone on to medical school or a PhD program. Web page with full publication list: [www.moffittcaspi.com](http://www.moffittcaspi.com). Publication lists: <https://www.ncbi.nlm.nih.gov/myncbi/terrie.moffitt.1/bibliography/public/>; <http://orcid.org/0000-0002-8589-6760>

1. Belsky, J, Moffitt, TE, Poulton, R, Caspi, A. *The Origins of You, How Childhood Shapes Later Life*. 2020 Harvard University Press.

2. Moffitt TE, Caspi A, Rutter M, Silva PA. *Sex Differences in Antisocial Behaviour: Conduct Disorder, Delinquency, and Violence in the Dunedin Longitudinal Study*. Cambridge University Press; 2001.
3. Moffitt, TE. Behavioral and social research to accelerate the geroscience agenda. *Ageing Research Reviews*, 2020, 63, PMID: 32814128; PMCID: PMC7894048, DOI: 10.1016/j.arr.2020.101146
4. Predict My Future, an award-winning 4-episode documentary broadcast worldwide and now posted on Vimeo. The password for all episodes is *dlsdls*. <http://www.moffittcaspi.com/content/science-us>, <https://app.curiositystream.com/video/1268>. Episode 1 <https://vimeo.com/154272698>, Episode 2 <https://vimeo.com/154683264>, Episode 3 <https://vimeo.com/155352142>, Episode 4 <https://vimeo.com/153469638>.

**Ongoing and recently completed funded projects that I would like to highlight include:**

**Four training awards:**

NIA Diversity Supplement fellowship for Matt Hanna, supplement to R01AG032282, 2023-2025.

NIEHS postdoc fellowship for Dr. Aaron Reuben: Investigating neighborhood-environment contributions to midlife risk for dementia. 1F32ES034238, 2022-2025. My role is PI postdoc Advisor.

NIA Transition to Aging F99/K00 for Max Elliott: Training in lifespan behavioral, social, and neuroscience research connecting early-life cognitive decline to late-life AD/DR. 1F99AG068432, 2020-2025. My role is PI PhD advisor.

NIEHS NRSA PhD fellowship for Aaron Reuben: Evaluating neurodegenerative risk in midlife among individuals exposed to lead as children. 1F31ES029358, 2018-2022. My role was PI PhD Advisor.

**Six current research projects:**

UK-MRC MR/X021149/1 Phase 52 of the Dunedin Study, 2023-2028. Co-Principal Investigator with Avshalom Caspi.

UK-MRC MR/X010791/1 Phase 30 of the E-risk Twin Study, 2023-2025. I am a co-Investigator (and co-founder of the E-risk longitudinal study).

NIA R01AG032282 Aging in 1000 healthy adults: The Dunedin Study Phase 52. 2009-2027. Co-Principal Investigator with Avshalom Caspi.

NIA R01AG032282 SUPPLEMENT Methylation signatures of Aging in 1000 healthy adults. 2019-2020.

NIA R01AG032282 SUPPLEMENT Family history of Alzheimers and related dementias in Aging in 1000 healthy young adults. 2017-2020.

NIA NIA-2P30 AG034424-11 SUPPLEMENT, Chemical and Physical Exposures in the Dunedin Study, 2023-2025.

NIA R01AG073207 Validating a 3rd-generation methylation measure of accelerated aging: DunedinPACE. 2022-2026. Co-Principal Investigator with Avshalom Caspi.

NIA R01AG069939 Comprehensive portrait of long-term cannabis users: Are they ready for old age? 2020-2025. Principal Investigator

NIA R01AG049789 Neural signatures of healthy and unhealthy aging: The Dunedin Study. 2015-2027. Co-Principal Investigator with Ahmad Hariri.

**B. POSITIONS, SCIENTIFIC APPOINTMENTS, AND HONORS**

**Positions and Employment**

- 2024- Hebrew University of Jerusalem Faculty of Law Associate Fellow
- 2019 - PROMENTA Adjunct Professor of Psychology, University of Oslo, Norway
- 2022- Consulting Researcher, The Rockwool Foundation, Denmark
- 2010 - 2020 Board of Trustees, Nuffield Foundation, UK
- 2007 - Nannerl O. Keohane University Professor, Duke University
- 1997 - Professor, Social, Genetic, & Developmental Psychiatry Centre, Institute of Psychiatry, London
- 1991 - Associate Director, Dunedin Multidisciplinary Research Unit, University of Otago, New Zealand

1985 - 2007 Assistant-, Associate- (1989), Full-Professor (1993), University of Wisconsin, Madison

### **Other Current/Recent Experience and Professional Memberships**

- Board of Scientific Counselors, National Institute on Aging (2022-2025)
- Chair, Board on Behavioral, Cognitive, Sensory Sciences (BBCSS), National Academies of Sciences, Engineering, and Medicine (2021-2024)
- Chair, Health and Retirement Study Data Monitoring Board, Natl Inst on Aging (2021-2024)
- Chair, Jacobs Foundation Prize Jury, Switzerland (2015-2023)
- International Advisory Board, Bocconi University, Milan (2023-2027)
- National Advisory Council on Aging, US NIH (2017-2020)
- American Journal of Psychiatry Associate Editors Board
- Natl. Register of Health Service Providers #50256; NC Licensed Psychologist #4428

### **Honors (selected):**

2025 Honorary Doctorate, 100<sup>th</sup> anniversary of the Hebrew University of Jerusalem, June 2025  
2024 American Psychological Association Award for Lifetime Contribution to Psychology  
2024 #1 Psychologist in the USA, #3 worldwide, [Research.com](https://www.research.com)  
2023 MBE, Member of the Most Excellent Order of the British Empire, King Charles' Birthday honours  
2023 Elected Fellow of the American Academy of Arts and Sciences  
2023 #1 psychologist in the USA, #5 worldwide. <https://research.com/scientists-rankings/psychology>  
2023 #4 female scientist worldwide, reported in [Forbes](https://www.forbes.com). [Research.com](https://www.research.com)  
2022 New Zealand Royal Society Rutherford Medal to the Dunedin Study Team  
2022 The Grawemeyer Award in Psychology <http://grawemeyer.org/psychology/>  
2019 Postdoctoral Mentor Award, Duke University  
2018 Matilda White Riley Award from NIH OBSSR  
2018 Elected Fellow, National Academy of Medicine  
2017 Honorary Doctorate, Catholic University of Leuven, Belgium  
2016 Distinguished Career Research Award from American Psychological Assn.  
2016 Luminary Prize from the Avielle Foundation, [www.aviellfoundation.org](http://www.aviellfoundation.org)  
2014 Honorary Doctorate, Basel University, Switzerland  
2013 World's top 400 biomedical scientists, Boyack et al. *European J. of Clinical Investigation*  
2012 Top 10 Criminologists worldwide, Cohn & Farrington, Scholarly Influence in Criminology, NY: Nova.  
2010 Lady Davis Fellowship, Hebrew University, Jerusalem.  
2010 Ruane Prize for Outstanding Child and Adolescent Psychiatric Research, NARSAD  
2010 Jacobs Research Prize for Productive Youth Development, Klaus J. Jacobs Foundation, Switzerland  
2009 Elected Fellow, Association for Psychological Science  
2009 The Klaus-Grawe Prize for Research in Clinical Psychology, Klaus-Grawe Foundation  
2008 Elected Thorsten Sellin Fellow, American Academy of Political & Social Sciences  
2008 Rema Lapouse Award, American Public Health Association  
2008 Distinguished Scientific Contribution Award, ISSBD, Internatl. Soc. Study of Behavioral Development  
2007 The Stockholm Prize in Criminology, Sweden  
2006 Distinguished Research Award (Child-Adolescent Psychopathology), Am Psychol Assoc  
2005 Elected Fellow, both Academia Europaea, and American Psychopathological Association  
2004 Elected Fellow, British Academy  
2003 Elected Fellow, American Society of Criminology  
2003 Eleanor Maccoby Book Award, American Psychological Association  
2002 Wolfson Merit Award, The Royal Society  
1999 Elected Fellow, UK Academy of Medical Sciences  
1993 Award for Early Career Contribution to Psychology, American Psychological Association

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### C. CONTRIBUTIONS TO SCIENCE (in order from most recent in my career back to the earliest)

**Aging in young-to-midlife people, an opportunity for prevention.** I am now leading the Dunedin Study in the study of aging. To prevent onset of age-related diseases and physical and cognitive decline, interventions to slow human aging and extend health span must eventually be applied to people while they are still healthy, before organ damage sets in. Yet most human aging research examines older adults, many with chronic disease, and little is known about aging in healthy younger humans. This huge knowledge gap is a barrier to extending health span. We have put forward the case that gero-science should invest in researching processes of aging in young-to-midlife adults. We developed a measurement model of the pace of aging in a birth cohort by using repeated waves of biomarkers collected across the third to fifth decades to quantify the pace of coordinated physiological deterioration across multiple organ systems (e.g., pulmonary, periodontal, cardiovascular, renal, hepatic, metabolic, and immune function). Our findings showed that it is possible to quantify individual variation in the pace of aging in young adults age 45 who are still free of age-related diseases. Using our measurement of the pace of aging, we are pinpointing factors that slow or speed the pace of aging, and factors that characterize slow-aging young adults. We also compared 11 purported measures of aging (pace of aging, bioage, the leading genomic methylation clocks, telomeres), a comparison which revealed that these measures are virtually uncorrelated and therefore cannot all be measuring aging. We have developed a DNAmethylation version of the pace of aging, DunedinPACE, for use as an outcome measure in preventive clinical trials of anti-aging therapies and basic-science aging research. DunedinPACE predicts Alzheimer dementia in the ADNI and Framingham studies. **Impact:** DunedinPACE has been exported open-access to the research field, validated in more than 50 large international cohorts in more than 15 countries, having different ages, different ethnic ancestries (e.g., European white, African American, Native American, Hispanic American, Han Chinese) and in many clinical studies and intervention trials. It has been licensed to TruDiagnostic for commercial use in medical care.

a. Belsky DW, et al. and TE Moffitt. Quantification of biological aging in young adults. *PNAS Proceedings of the National Academy of Sciences*. 2015; 77:601-617. PMID: 26150497; PMCID: PMC4522793 DOI: 10.1073/pnas.1506264112

b. Moffitt TE, et al. The longitudinal study of aging in human young adults: Knowledge gaps and research agenda. *J of Gerontology: Biological Sciences and Medical Sciences*. 2017; 72:210-215. PMID:28087676; PMCID: PMC5233916 DOI: 10.1093/gerona/glw191

c. Elliott, M, et al. and TE Moffitt. Disparities in the pace of biological aging among midlife adults of the same chronological age: Implications for future frailty risk and policy. *Nature Aging, 2021*. PMID: 33796868 PMCID: PMC8009092 DOI: 10.1038/s43587-021-00044-4

d. Belsky DW, A Caspi, et al. and TE Moffitt (2022). DunedinPACE: Quantification of the pace of biological aging in humans through a blood test DNA methylation algorithm, *eLife*.

<https://medrxiv.org/cqi/content/short/2021.08.30.21262858v1>

e. Sugden, K et al. and TE Moffitt (2022). Association of Pace of Aging measured by blood-based DNA methylation with age related cognitive decline and dementia: ADNI and Framingham. *Neurology*.

**Vaccine resistance has roots in childhood.** In the 5-decade Dunedin Study we compared groups who differed in their intentions toward the COVID vaccine in the weeks before vaccines became available. We found that vaccine-resistant cohort members had histories of adverse childhood experiences that fostered mistrust of authority, early-life mental-health problems that fostered misinterpretation of health messages, and adolescent personality styles including tendencies to have extreme negative emotions, shut down mentally under stress, to value being a nonconformist, and to be fatalistic about health. Making matters worse, many vaccine-hesitant participants also had difficulty since childhood cognitively comprehending health information. We found that negative vaccine intentions are not short-term misunderstandings that can be readily cleared up by delivering more information to adults in the midst of a public-health crisis. Instead they are part of a person's lifelong psychological style of misinterpreting information and making bad decisions during stressful uncertain situations. The key contribution from our research is the appreciation that this style is laid down well before secondary school age. **Impact:** To prepare for pandemics of the future, education about viruses and vaccines in schools could give people pre-existing knowledge that prevents shut-down under emotional distress and enhances their capacity to hear health messages.

- a. Moffitt TE et al. (2022) Deep-seated psychological histories of COVID-19 vaccine hesitance and resistance, *PNAS-Nexus*, <https://academic.oup.com/pnasnexus/advance-article/doi/10.1093/pnasnexus/pgac034/6553423>
- b. Poulton, R, Moffitt, TE, Caspi, A. (2022). Vaccine resistance has its roots in negative childhood experiences. *The Conversation*. <https://theconversation.com/vaccine-resistance-has-its-roots-in-negative-childhood-experiences-a-major-study-finds-180114>

**Early-life psychiatric disorder is a precursor to older adults' physical and neurodegenerative diseases.**

Mental disorders peak in prevalence and incidence during adolescence and young adulthood. In contrast, physical and neurodegenerative diseases peak in prevalence and incidence in late life. We showed the same people tend to have mental disorders when young and physical diseases when old. This points out that young people's mental health is an important intervention target for preventing physical diseases. **Impact:** Major published policy statements on the leading risk factors for Alzheimers and for physical disease comorbidity all ignored mental health as recently at 2020. That is now changing.

- a. Moffitt TE, Caspi A. Psychiatry's opportunity to prevent the rising burden of age-related disease. *JAMA-Psychiatry*. 2019. PMID: 30916735 PMCID: PMC8327353 DOI: 10.1001/jamapsychiatry.2019.0037
- b. Richmond-Rakerd LS, et al. and Moffitt TE. Longitudinal associations of mental disorders with physical diseases and mortality among 2.3 million New Zealand Citizens. *JAMA-Network Open* 2021. PMID:33439264; PMCID: PMC7807295, DOI: 10.1001/jamanetworkopen.2020.33448
- c. Wertz J, et al., and Moffitt TE. Association of history of psychopathology with accelerated aging at midlife. *JAMA-Psychiatry* 2021. PMID: 33595619 PMCID: PMC7890535 DOI: 10.1001/jamapsychiatry.2020.4626
- d. Richmond-Rakerd LS, et al. & Moffitt TE. Longitudinal association between mental disorders and dementias in a 30-year analysis of 1.7 million citizens. 2022, *JAMA-Psychiatry*.
- e. Hanna, M. et al. & Moffitt, TE. (in review). Mental Disorder and Physical Disease in Primary Care Patients: A Nationwide Register Study of Norwegian Citizens.

**We introduced the fields of aging and human development to SuPAR, a new measure of accumulated chronic inflammation** (Soluble Urokinase Plasminogen Activator Receptor). This cumulative and stable new measure of systemic inflammation has several advantages over CRP and IL-6, which are acute inflammatory measures which fluctuate. **Impact:** A large number of studies are now assaying suPAR, including studies in the NIA-funded Stress Network, NIA-funded Reversibility Network, and the NIA HRS.

- a. Rasmussen, LJH, et al. and TE Moffitt. Association between elevated suPAR, a new biomarker of chronic inflammation, and accelerated aging. *Journal of Gerontology, Medical Sciences*, 2020. PMID: 32766674 PMCID: PMC7812430 DOI: 10.1093/gerona/glaa178
- b. Rasmussen LJH, et al. & A Caspi. Association of adverse experiences and exposure to violence in childhood and adolescence with inflammatory burden in young people. *JAMA Pediatrics*, 2019 PMID: 31682707 PMCID: PMC6830440 DOI: 10.1001/jamapediatrics.2019.3875
- c. Rasmussen, LJH, et al. & Caspi, A. Cumulative childhood risk is associated with a new measure of chronic inflammation in adulthood. *J of Child Psychology and Psychiatry*, 2019 PMID: 29741788 PMCID: PMC6342676 DOI: 10.1111/jcpp.12928
- d. Bourassa, K.J.\*, Rasmussen, L.J.H.\*, et al. & Caspi, A. Linking stressful life events and chronic inflammation using suPAR. *Brain, Behavior and Immunity*. In press.
- e. Dowsett, Joseph et al. Eleven genomic loci affect plasma levels of chronic inflammation marker soluble urokinase plasminogen activator receptor. *Communications Biology* 2021 PMID: 34079037 PMCID: PMC8172928 DOI: 10.1038/s42003-021-02144-8

**Exposure to toxic lead during childhood is a source of poor brain health.** The neurotoxin lead was added to paint and to automotive gasoline from the 1960's to the 1990's, a period that coincided with the childhood of the Dunedin cohort members, many of whom when tested at age 11 showed blood lead levels that far exceeded today's level of clinical concern. We reported that exposure to lead before lead additives were banned from paint and gasoline is a source of compromised brain-structure integrity, cognitive decline, and mental health problems in the baby-boomer generation. In other studies, lead exposure is completely confounded with low social class, which has made causal inference highly problematic. In contrast, in the Dunedin cohort, age-11 blood lead levels were wholly un-related to family social class, which makes clear that outcomes follow from lead exposure, not poverty. **Impact:** For this reason, this set of our papers has had very high policy impact. American cities have cited our publications as justification for government funding to

replace their water-delivery systems, e.g., in 2021 Newark, New Jersey replaced its public water system based on our findings of long-term adult sequelae of childhood lead exposure.

**a.** Reuben, A, et al. and Moffitt TE. Association of childhood blood-lead levels with cognitive function and socioeconomic status at age 38 years and with IQ change and socioeconomic mobility between childhood and adulthood. *JAMA*, 2017 PMID: 28350927 PMCID: PMC5490376 DOI: 10.1001/jama.2017.1712

**b.** Reuben, A, et al. Moffitt, TE, & Caspi, A. Association of childhood lead exposure with adult personality traits and lifelong mental health. *JAMA-Psychiatry*, 2019 PMID: 30673063 PMCID: PMC6450277 DOI: 10.1001/jamapsychiatry.2018.4192

**c.** Reuben, A, et al. & Moffitt TE. Association of childhood lead exposure with MRI measurements of structural brain integrity in midlife. *JAMA*, 2020 PMID: 33201203 PMCID: PMC7672511 DOI: 10.1001/jama.2020.19998

**The importance of self-control for health, wealth, life success, and healthy aging.** One of our projects that has attracted the most attention from policy makers is about the importance of self-control skills mastered in childhood for success in all aspects of adult life. We reported that childhood self-control is more important than socioeconomic status (SES) or IQ for adults' physical health, addiction, crime, suicidality, wealth, life satisfaction, and parenting of the next generation. We showed in the Dunedin cohort that these poor outcomes cluster in the same small segment of the population, and in 2020 we replicated this in national registers totaling N=4 million people in New Zealand and Denmark. Our work on impulse-control goes back to a series of our highly-cited papers in the 1990's on the role of self-control in antisocial development. **Impact:** The findings have been viewed by governments as lending support to the movement for quality early-childhood education, and the policy of a Universal Basic Income for adults unable to meet their own needs without government support. In 2021 the Wellcome Trust's funded a £45-million research programme based on our findings, called LEAP 1kD. It involves 10 teams from high-income and low-to-middle-income countries, which aims to develop knowledge to improve population self-control during the first 1000 days of life.

**a.** Moffitt TE, et al. A gradient of childhood self-control predicts health, wealth, and public safety. *PNAS Proc Natl Acad Sci U S A*. 2011; 108(7):2693-2698. PMID: 21262822; PMCID: PMC3041102 DOI: 10.1073/pnas.1010076108

**b.** Caspi A, et al. and Moffitt TE. Childhood forecasting of a small segment of the population with large economic burden. *Nature Human Behaviour*. 2016; 1, 0005. PMID: 28706997; PMCID: PMC5505663 DOI: 10.1038/s41562-016-0005

**c.** Richmond-Rakerd LS, et al. and Moffitt TE. Clustering of health, crime and social-welfare inequality in 4 million citizens from 2 nations. *Nature Human Behaviour*. 2020. PMID: 31959926; PMCID: PMC7082196; DOI:10.1038/s41562-019-0810-4

**d.** Richmond-Rakerd LS., et al. and Moffitt TE. Childhood self-control forecasts the pace of midlife aging and preparedness for old age. *PNAS Proc Natl Acad Sci USA*. 2021. PMID:33397808; PMCID:PMC7826388 DOI: 10.1073/pnas.2010211118

**Discoveries about mental disorder in the life course.** We were the first to report, in 2003, that over half of adult patients with psychiatric disorder have their first diagnosable disorder before age 15 (and 75% before age 18), suggesting that most of the burden of adult mental disorder could be prevented by effective treatment of young people. We were also first to report, in 1998, that the underlying structure of adult DSM mental disorders comprises two factors, internalizing and externalizing. Continuing our work on the structure of psychopathology, we have confirmed that all adult psychiatric symptoms fit onto a single dimension of severity with symptoms of thought disorder at the extreme end, "p". We also initially reported that the lifetime prevalence of anxiety, depression, and substance dependence is at least double what the mental-health community has been led to believe by retrospective surveys. People markedly underreport the amount of mental illness they've suffered when they recall their history in interviews years after the fact. We demonstrated this by repeatedly assessing for mental disorders while following cohorts forward. These findings have all been replicated multiple times. Most recently we showed that, when followed for 4 decades, people shift disorders across families (internalising, externalizing, or thought disorders), which means it is not sensible practice to study one disorder at a time. **Impact:** At the least, our finding that most of us will experience an episode of mental disorder if we live long enough should reduce stigma against mental illness.

**a.** Krueger RF, Caspi A, Moffitt TE, Silva PA. The structure and stability of common mental disorders (DSM-III-R). *Journal of Abnormal Psychology*. 1998 May;107(2):216-227. PMID: 9604551

**b.** Caspi A, et al. and Moffitt, TE. The p factor: One general psychopathology factor in the structure of psychiatric disorders? *Clin Psychol Sci*. 2014 Mar; 2(2):119-137. PMID: 25360393; PMCID: PMC4209412

DOI: 10.1177/2167702613497

c. Caspi A, Moffitt, TE All for one and one for all: Mental disorders in one dimension. *American Journal of Psychiatry*. 2018; 175:831-844. PMID:29621902; PMCID: PMC6120790; DOI:10.1176/appi.ajp.2018.17121383

d. Caspi A. et al. and Moffitt, TE. Longitudinal assessment of mental disorders and comorbidities across four decades among participants in the Dunedin birth cohort Study. *JAMA-Network Open*. 2020. PMID:32315069; PMCID: PMC7175086; DOI: 10.1001/jamanetworkopen.2020.3221

e. Kessing, LV et al. & Moffitt TE. (2023). What is normalcy? Lifetime incidence and socio-economic implications of a mental illness diagnosis: A nationwide population-based cohort study in Denmark. *JAMA-Psychiatry*

f. Caspi, A. Houts, RM, Moffitt TE, et al. (in press). High volume of mental-health conditions in primary care: Nationwide analysis of 350 million patient encounters in Norway. *Nature Mental Health*

**Cannabis users have both healthy and unhealthy outcomes.** Cannabis is the most widely used illicit drug in the world and is soon to be a legal recreational drug in many parts of the world. Research is necessary to inform cannabis policy. We were among the first to report that young cannabis users had elevated risk for later psychosis (a risk that depends on genotype). We showed that cannabis users who began using as teens and continued as adults showed declines on cognitive tests given in childhood and again in midlife--culminating in a loss of 8 IQ points--and ended up in lower-prestige occupations than their parents. Importantly, harm is clearest for long-term daily cannabis smokers; we did not detect harmful effects in recreational users. Of interest, long-term cannabis users (unlike, for example, tobacco smokers or individuals who abuse alcohol) stay physically healthy and do not develop health problems, with the notable exception of gum disease.

**IMPACT:** Our work has provided a nuanced portrait of the sequelae of long-term cannabis use. It is also a model of objective science, measured interpretation, and responsible and clear science communication. Our findings have featured prominently in public drug-policy debates.

a. Arseneault L, et al and Moffitt TE Cannabis use in adolescence and risk for adult psychosis: Longitudinal prospective study. 2002. *British Medical Journal* Nov 23;325(7374):1212-3

b. Meier MH, et al and Moffitt TE Associations between cannabis use and physical health problems in early midlife: A longitudinal comparison of persistent cannabis versus tobacco users. 2016 *JAMA Psychiatry* 73: 731-740

c. Cerda M, Moffitt TE, et al. Persistent cannabis dependence and alcohol dependence represent risks for midlife economic and social problems: A longitudinal cohort study. 2016. *Clinical Psychological Science* 4: 1028-1046

d. Meier MH, et al and Moffitt TE. Persistent cannabis users show neuropsychological decline from childhood to midlife. 2012 *Proceedings of the National Academy of Sciences* 109:2657-2664

e. Thomson, WM, et al & Moffitt, TE (2008). Cannabis smoking and periodontal disease. *JAMA* 299, 525-531.

f. Meier, Madeline H, et al and TE. Moffitt (2022). Long-term Cannabis Users Show Lower Cognitive Reserves and Smaller Hippocampal Volume in Midlife. *Am J Psychiatry*

g. Meier, Madeline H., et al and TE. Moffitt (2022). Long-term Cannabis Users' Preparedness for Healthy Aging: A Population-Representative Longitudinal Study. *Lancet Healthy Longevity*

h. Knodt, A.R., et al and Moffitt, T.E. (2022). Diminished structural brain integrity in long-term cannabis users reflects a history of polysubstance use. *Biological Psychiatry*.

**Life-course persistent versus adolescence-limited antisocial behavior.** In a 1993 theoretical paper, now cited over 10,000 times, I proposed that young people engaging in antisocial behaviors can be characterized in a taxonomy of two distinct types: One type of antisocial behavior is called "life-course persistent" (LCP). It is a neurodevelopmental disorder afflicting primarily males, with very low prevalence in the population, genetic predisposition, adverse family environment, early childhood onset, and persistence of violent offending into midlife. The other type is called "adolescence limited" (AL). It affects females as well as males, is common, limited mainly to the adolescent developmental stage, and emerges in the context of peer social relationships. This developmental taxonomy has had wide ranging influence in psychology, criminology, psychiatry, neuroscience, and the law. **Impact:** This taxonomy has been codified in the DSM diagnosis of conduct disorder, cited in three US Supreme Court decisions, cited as the basis for the 2016 reform of UK Home Office juvenile justice policy, and it won the prestigious 2007 Stockholm Prize and 2022 Grawemeyer Prize for research that has made high impact on society. The worldwide policy impact of this work was recognized with the 2018 'Juvenile Justice Without Borders' International Award from the International Juvenile Justice Observatory (IJJO) for improving the lives of young people in conflict with the law.

a. Moffitt TE. "Life-course-persistent" and "adolescence-limited" antisocial behavior: A developmental taxonomy. *Psychological Review*. 1993; 100:674-701.

- b.** Moffitt TE Male antisocial behavior in adolescence and beyond. *Nature Human Behaviour*. 2018; 2:177-186. PMID:30271880; PMCID: PMC6157602 DOI 10.1038/s41562-018-0309-4
- c.** Wertz, J, et al. and Moffitt TE. Genetics and crime: Integrating new genomic discoveries into psychological research about antisocial behavior: Replicated evidence from two birth cohorts. *Psychological Science*. 2018; 29:791-803. PMID: 29513605; PMCID: PMC5945301; DOI:10.1177/0956797617744542
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