

Dunedin Multidisciplinary Health & Development Study



Concept Paper Form

Provisional Paper Title: Intergenerational impact of childhood self-control: Poor childhood self-control of parents, and poor health behaviours of their adolescent children – are they associated?
Proposing Authors: Sung Kyong Lee, Bob Hancox, Andrew Grav
Other contributors: Richie Poulton, Terrie Moffitt, Judith Sligo, Sandhya Ramrakha, Helena McAnally
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P.I. Sponsor: (if the proposing author is a student or colleague of an original PI) Bob Hancox
Today's Date: 26/2/2021

Objective of the study:

To investigate the intergenerational impact of childhood self-control. This study will examine the association between early childhood self-control of parents (Dunedin Study participants, hereafter called G2) and health behaviours of their 15 year old children (Next Generation Study participants, hereafter called G3).

Data analysis methods:

Directed Acyclic Graphs (DAGs) will be drawn prior to statistical data analysis to visually narrate hypothesised relationships between exposures, outcomes and covariates. All data analysis will be done using R. All analyses would be multivariate because they involve, in some cases, multiple rows of data for each G2 participant.

The following will be done: i) Firstly, the frequency distribution of G2's self-control composite scores from childhood will be examined to decide how it should be described and included in the regression models. The same will be done for four health behavioural outcome variables (tobacco use, cannabis use, alcohol use, leisure physical activity). All variables will be described using appropriate summary statistics. For example, means and standard deviations for approximately normally distributed continuous variables and counts and percentages for categorical variables. ii) Secondly, univariable analysis will examine correlations between the G2's childhood self-control composite scores and each of G3's four individual health behaviour outcomes. In the study of G2's early self-control's lifelong impact, G2's childhood self-control scores were continuous from one to five, with the score of one classified as low childhood self-control, while the score of five was classified as high childhood self-control (Moffitt, Poulton, & Caspi, 2013). iii) Thirdly, multivariable analyses – relationships between G2's childhood self-control composite scores and each of the above health outcomes of G3 will be modelled using the following:

- Tobacco: Current smoking status at age 15 for G2, Current smoking status as an adult at any age (Age 18 - 45 years) for G2, the mean pack years over the adult period (Age 18 - 45 years) for G2.
- Cannabis: Used cannabis (yes/no) at age 15 for G2, regular (once a week or more) smoking status as an adult at any age (Age 18 - 45 years) for G2, the mean joint years over the adult period (Age 18 - 45 years) for G2.
- Alcohol: Any alcohol use at age 15 for G2, alcohol dependency as an adult at any age (Age 18 - 45 years) for G2
- Physical activity: Leisure physical activity at age 15 for G2, standardised mean for physical activity as an adult (Age 18 - 45 years)
- Sex of the G2, sex of the G3, socioeconomic status (SES) of G3 at age 15, whether the G2 is a non-biological or biological parent of G3, living arrangement of G2 & G3 when G3 is aged 15 years.

The following factors will also be considered: sex of the G2, sex of the G3, socioeconomic status (SES) of G3 at age 15, whether the G2 is a non-biological or biological parent of G3, living arrangement of G2 & G3 when G3 is aged 15 years.

It should be noted that biological relationship and living arrangements of G2 & G3 are possible effect modifiers. It should be noted that G2 sex might be part of an effect modifier in conjunction with G3 sex, rather than just straightforward "adjustment". Appropriate regression models will be used, e.g. linear mixed models for continuous health variables. Standard model diagnostics will be employed and alternative strategies, including mixed quantile regression and log-transformations, investigated when appropriate.

Variables needed at which ages:

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G2's Childhood self-control averaged into a single composite score (Moffitt, et al, 2011: Supplementary information sheet).

G2 at age 15: alcohol use, tobacco use, cannabis use, leisure physical activity time,
G2 as adults (age 18,21,26,32,38 years): alcohol use, tobacco use, cannabis use, leisure physical activity time)

Other data: G2's sex,

Next Generation Study

G3 at age 15: alcohol use, tobacco use, cannabis use, leisure physical activity time.

Other data: G3's sex, G3's socio-economic status (age 15), G2's living arrangement with G3 when G3 is age 15, G2&G3's relationship status (ie. if G2 is a biological or a non-biological parent of G3).

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

Self-control is a complex, umbrella term, whose definition has somewhat evolved over time (Walker & Bright, 2009). Initially, self-control was recognized within the sphere of behavioural psychology as an important concept for mental health, for better understanding deviant behaviours (Woessner & Schneider, 2013). Over recent years, there has been a growing interest in the concept of self-control from various disciplines spanning neuroscience, behavioural genetics, criminology and public health research (Moffitt et al, 2011). The reason for this growing interest in self-control is due to the recognition that childhood self-control may have the capacity to influence behaviour of people as adults including criminal behaviours (Moffitt et al, 2013). If childhood self-control is a malleable, teachable determinant of people's behaviours which impact various aspects of their adult life, including people's health, wealth and avoiding crime, then policies aiming to enhance it could have many benefits (Moffitt et al, 2013). Literature suggests that a gradient of poor childhood self-control can predict adult substance dependence and adult criminal convictions (Moffitt et al, 2011). The intergenerational model of risk transmission proposes that psychosocial problems during early childhood can often impact individuals during their life time, but can also further jeopardise the lives of the next generation (Caspi, 1993; Caspi & Elder, 1988). However, little is known about the intergenerational impact of self-control.

The most recent study of the long term impact of early self-control on adolescent and adult health behaviours comes from the Dunedin Multidisciplinary Health and Development Study (DMHDS). The study did not examine the potential impact of an individual's childhood self-control on the next generation (Moffitt, et al, 2011).

Adolescence is a pivotal, transitional period often associated with the beginning of risk taking behaviours. Studies have shown that harmful health behaviours such as smoking and binge drinking commenced during adolescence often become a habit which lasts a life time (Johnson, et al 2011). Little is known about how, and even if, a parent's childhood self-control has an impact on the health behaviours of the next generation in their adolescence. This is particularly the case in an era of increasingly complex family living arrangements, The DMHDS and the NGS are uniquely placed to investigate the intergenerational impact of self-control across two generations. The findings will provide interesting and invaluable insights to researchers across criminology, public health service planning, and mental health service support, as well as the public education sector.

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Data Security Agreement

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1 st Author	Sung Kyong Lee
Today's Date	26/2/2021

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

Please initial your agreement: (customize as necessary)

<input type="checkbox"/>	I am current on Human Subjects Training [CITI www.citiprogram.org] or equivalent.
<input checked="" type="checkbox"/>	My project is covered by the Dunedin Study's ethics approval OR I have /will obtain ethical approval from my home institution (please specify).
<input checked="" type="checkbox"/>	I will treat all data as "restricted" and store in a secure fashion. My computer or laptop is: <ul style="list-style-type: none"> • encrypted (recommended programs are FileVault2 for Macs, and Bitlocker for Windows machines) • password-protected • configured to lock-out after 15 minutes of inactivity AND • has an antivirus client installed as well as being patched regularly.
<input checked="" type="checkbox"/>	I will not "sync" the data to a mobile device.
<input checked="" type="checkbox"/>	In the event that my laptop with data on it is lost, stolen or hacked, I will immediately contact my PI Sponsor or Study Director, Richie Poulton (richie.poulton@otago.ac.nz).
<input checked="" type="checkbox"/>	I will not share the data with anyone, including my students or other collaborators not specifically listed on this concept paper.
<input checked="" type="checkbox"/>	I will not post data online or submit the data file to a journal for them to post. <p><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 your PI Sponsor or Richie Poulton for strategies for achieving compliance with data-sharing policies of journals.</i></p>
<input checked="" type="checkbox"/>	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. <p>The data remains the property of the Study and cannot be used for further analyses without an approved concept paper for new analyses.</p>

Signature: 

CONCEPT PAPER RESPONSE FORM

A To be completed by the proposing author:

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Potential Journals	Journal of Adolescence, Pediatrics, or similar
Today's Date	26/2/2021
Intended Submission Date	26/2/2021 August 2021

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

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:

<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

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