# DUNEDIN STUDY CONCEPT PAPER

**Provisional Paper Title:** How Do People Form Perceptions of Arrest Risk?: A Prospective Longitudinal Study

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Please describe your proposal in 2-3 pages with sufficient detail for helpful review by addressing all areas outlined below.

## Objective of the study:

Criminologists hypothesize that crime is the result of a rational decision-making process (Apel & Nagin, 2017; Pickett & Roche, 2016). When deciding to commit a crime, it is assumed that a would-be offender knows the risks of getting caught and she weighs those risks against the anticipated rewards (Paternoster, 2010). This is the central hypothesis for rational choice theory: crime will occur when the anticipated rewards outweigh the anticipated risks.

Rational choice theory, like any theory, is built upon several key assumptions (Apel & Nagin, 2017; Paternoster, 2010). We will test one of those assumptions with the current study. Specifically, rational choice theory assumes a would-be offender has an accurate perception of the *risks* of crime. The risks of crime include things like the risk of getting arrested, the risk of getting hurt while engaging in the crime, the risk of losing valued friendships and loved ones if exposed as having committed the crime, and the risk of losing a job if arrested.

What this means is that *perception of risk* is central to the decision-making calculus. The decision-making calculus can be expressed algebraically as:

$$G - [p_a \, p_{s|a} \, S - C] > K$$

where $G$ represents the expected gains from crime, $S$ is the total sanction cost, and $C$ represents all other perceived costs. Note that $S$ is scaled by $p_a$ and $p_{s|a}$. These components capture the perceived risk of getting caught ($p_a$) and the perceived risk of sanction after getting caught ($p_{s|a}$).

According the Nagin et al. (2015), a crime is expected to occur if the gains outweigh the costs (technically, Nagin and colleagues say the gains minus the costs must exceed an arbitrary threshold, $K$, but this is secondary to our focus and can be safely ignored).

The point to note here is that *perceptions* form the central foundation for rational decision making. Yet, to date, criminologists have given little attention to the sources of variation in those perceptions. Basic questions like "how do people form perceptions of arrest risk" remain unanswered.

Thus, in the present study, we will assess whether childhood factors explain variation in adolescent perceptions of arrest risk. Our focus will be on indicators of childhood cognitive and behavioral development (e.g., IQ, self-regulation, and problem behaviors) and indicators of childhood social risk factors (e.g., low SES, parent history of antisocial behavior, and Rutter's Malaise inventory).

Two prior studies drew on data from the Dunedin Longitudinal Study to test hypotheses concerning perceptions of arrest risk. First, Wright and colleagues (2004) assessed the relationship between perceptions of arrest risk and self-control in the criminal decision-making calculus. These scholars found that perceptions of arrest risk were stronger predictors of delinquency for people with the lowest levels of self-control. Second, Barnes et al. (2024) assessed the longitudinal development of perceptions of arrest risk among Dunedin Study participants. They found that perceptions of arrest risk were relatively stable among the population over the 20-year span between age 18 and age 38. They also reported that perception of arrest risk was not formed for individual crimes, but instead is more "trait-like" in that people have a general baseline value for their perceptions.

Neither of the two prior studies explored the role of childhood factors in shaping perceptions of arrest risk. Thus, the present project will extend the work in this area by addressing the following research question:

> *Are developmental factors from childhood linked to variation in perceptions of arrest risk in adolescence?*

## Data analysis methods[1]:

We propose to use data from phases 3, 5, 7, 9, 11, and 18 of the Dunedin Multidisciplinary Health and Development Study (Dunedin Longitudinal Study). We describe the measures we propose to use in the next section.

The analysis will unfold in three steps. First, we will observe age-specific descriptive statistics for all of the variables included in the analysis.

Second, we will assess for bivariate associations between all of the study variables with bivariate statistical analysis such as correlation ($r$) and chi-square ($X^2$).

[1] A key concern for the Dunedin Study is superficial analyses of data that simply identify differences or deficits between ethnic groups or other communities where inequities exist (e.g. persons with disabilities, Pasifika peoples, members of migrant and SOGIESC (Sexual Orientation, Gender Identify and Expression and Sexual Characteristics) communities). The cumulative effect of these types of studies is stigmatising and not of benefit. Any research that identifies differences must (a) incorporate information on the broader context (e.g. historical or political factors); (b) where possible undertake additional analyses to examine the source of the difference/s, and (c) include policy recommendations for its resolution.

Third, we will employ OLS regression to assess whether the key predictors explain variation in the perceived arrest risk measure from Phase 18 (see Table 1). We will enter the predictor variables into the regression models in a block stepwise fashion. Model 1 will include sex as the only predictor. Model 2 will include sex but will add the cognitive/behavioral performance predictor variables (see next section). Model 3 will include sex and the social factors. Finally Model 4 will include all predictor variables in the model simultaneously.

All analyses will be conducted in *Stata* (StataCorp, 2023). We will rely on two-tailed *p*-values ($p<0.01$) for statistical significance testing. We are also mindful of substantive effect size and, therefore, will provide substantive benchmarks as a way to gauge the practical impact of the results (Funder & Ozer, 2019).

**Table 1:** Regression Analysis Plan

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|
| **Research Question** | Are developmental factors from childhood linked to variation in perceptions of arrest risk in adolescence? | | | |
| **DV** | Perceptions of Arrest Risk (Phase 18) | Perceptions of Arrest Risk (Phase 18) | Perceptions of Arrest Risk (Phase 18) | Perceptions of Arrest Risk (Phase 18) |
| **Key Predictor Variables** | — | Cognitive/Behavioral Factors | Social Factors | Cognitive/Behavioral Factors<br>Social Factors |
| **Covariate(s)** | Sex | Sex | Sex | Sex |
| **Model Type** | OLS Regression | OLS Regression | OLS Regression | OLS Regression |

## Variables needed at which ages:

| Concept | Variable |
|---|---|
| **Outcome Variables**<br><br>*Perceptions of Arrest Risk* | **Risk of Arrest for …** (from Barnes et al., 2024)<br><br>• Shoplifting (risk18_shoplft)<br>• Car Theft (risk18_carthft)<br>• Burglary (risk18_burgle)<br>• Fraud (risk18_fraud) |
| **Key Predictor Variables**<br><br>*Cognitive/Behavioral Factors*<br>*Social Factors* | **Cognitive/Behavioral Factors**<br><br>• Age-3 Temperament: Lack of Control (DIFF3)<br>• Rutter's Child Behavior Scale (Phase 7-11)<br>• Age-3 Brain Health Factor z-score<br>• WISC IQ |
| | **Social Factors**<br><br>• Household SES through childhood<br>• Parent's history of antisocial behavior from the Diagnostic Interview Schedule (from Wertz et al. 2018, *Genetics and Crime*)<br>• Childhood maltreatment (Phases 3-11)<br>• Rutter's Malaise Inventory (Phase 3)<br>• Experiences and Activities Scale (Phases 7-11)<br>• Parental Discipline Questionnaires (Phase 7-11) |
| **Covariates** | • Sex |

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

Criminologists have little information about how perceptions of arrest risk develop over the life course. The proposed study will extend this literature by offering the first empirical insight into the childhood factors that shape perceptions of arrest risk. Because rational choice theory is relied upon by policymakers worldwide (Wilson & Petersilia, 2010), the findings from the present study have the potential to impact policy decisions on a large scale.

### Limitations

This study will analyze data that were gathered three decades ago. Evolving social conditions and theories of crime contexts, child development, and family life may affect the application of our findings to current contexts and generations of youth. We will endeavor to address this limitation through acknowledgement and incorporation of these evolved theories into our write-up. However, given the absence of studies into the sources of variation in the formation of perceived risk—the still unanswered question of "how do people form perceptions of arrest risk"—we believe our findings will extend knowledge and provide a foundation for futher extension of the rational choice literature, despite the age of the data.

## How the paper will contribute to Māori health advancement and/or equitable health outcomes[2]

This research will not include separate analysis of specific ethnicities. Yet, we believe the findings from this study will be generalizable to the Māori community. Indeed, the implications of the findings may be particularly important for the advancement of Māori health. Disparities exist at every stage of the New Zealand justice system. For example, while Māori are approximately 18% of Aotearoa New Zealand's general population, approximately 44% of convictions in 2023 were Māori (Ministry of Justice, 2024[a]). Furthermore, when it comes to youth involvement in the justice system, the majority of child and youth offenses proceeded against by Police were of Māori descent (54%), despite comprising only 25% of the youth population (Ministry of Justice, 2024[b]). The disparities widen when it comes to young people with serious and persistent offending behavior, as 68% of such individuals in 2023 were Māori. Yet, research finds the self-reported delinquency behavior of Māori youth is no different from non-Māori and that Māori experience harsher responses from the justice system for the same crimes compared to non-Māori (Elers, 2012). As such, disparities in justice system contact are at least partially a function of structural discrimination and bias.

The present study will produce estimates of the potential impact that parenting and early childhood factors have on perceptions of arrest risk. We believe the results will benefit both Māori and non-Māori communities and could indicate where interventions might help reduce disparities in criminal justice contact.

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[2] Helpful information can be found here: https://www.hrc.govt.nz/sites/default/files/2020-01/NZ%20Prioritisation-Framework-FA-web_0.pdf

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