

Donating a Kidney to a Stranger: Social Discounting and Costly Altruism

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INTRODUCTION

- Altruistic donation of one's kidney to a stranger is costly, painful, non-normative, and extremely rare
- Dominant biological models of altruism, such as kin selection and reciprocity, do not explain this puzzling phenomena
- Altruism toward strangers implies higher valuation of the well-being of distant others; the social discounting function describes the rate at which generosity declines as relationships become less socially close:

$$v = \frac{V}{1 + sN}$$

- Previous work links decreases in social discounting to laboratory-based measures of altruism, but as yet no research has examined social discounting in the context of real-world generosity
- The present study evaluated social discounting in altruistic kidney donors and matched controls; we hypothesized that extraordinary altruists would exhibit reduced social discounting in comparison to controls

METHODS & ANALYSIS

- We recruited altruistic kidney donors from across North America via transplant organizations/online advertisement; control participants were recruited from across the Washington, D.C. area via fliers/online advertisements
- Self-Report Measures**
 - Interpersonal Reactivity Index (IRI) (Davis, 1983)
 - Psychopathic Personality Inventory – Revised (PPI-R) (Lilienfeld & Widows, 2005)
- Social Discounting Task** (Jones & Rachlin, 2006)
 - 9 dichotomous choices about keeping or forgoing money to benefit each of 7 target individuals, ranging in social distance N from 1 to 100
 - The crossover point for each value of N , i.e. the switch point from selfish to generous decisions, was subtracted from maximum to obtain v , amount willing to forgo
 - Expected values for v were calculated in a constrained least squares residual model ($V \geq 0$, $s \geq 0$, 100,000 max iterations) estimating values for V and s using mean values of v for each group
 - AUC (area under the curve) for each participant was calculated in order to run parametric statistics; this was done by first normalizing v and N , connecting the crossover points by straight lines, and summing the trapezoids formed

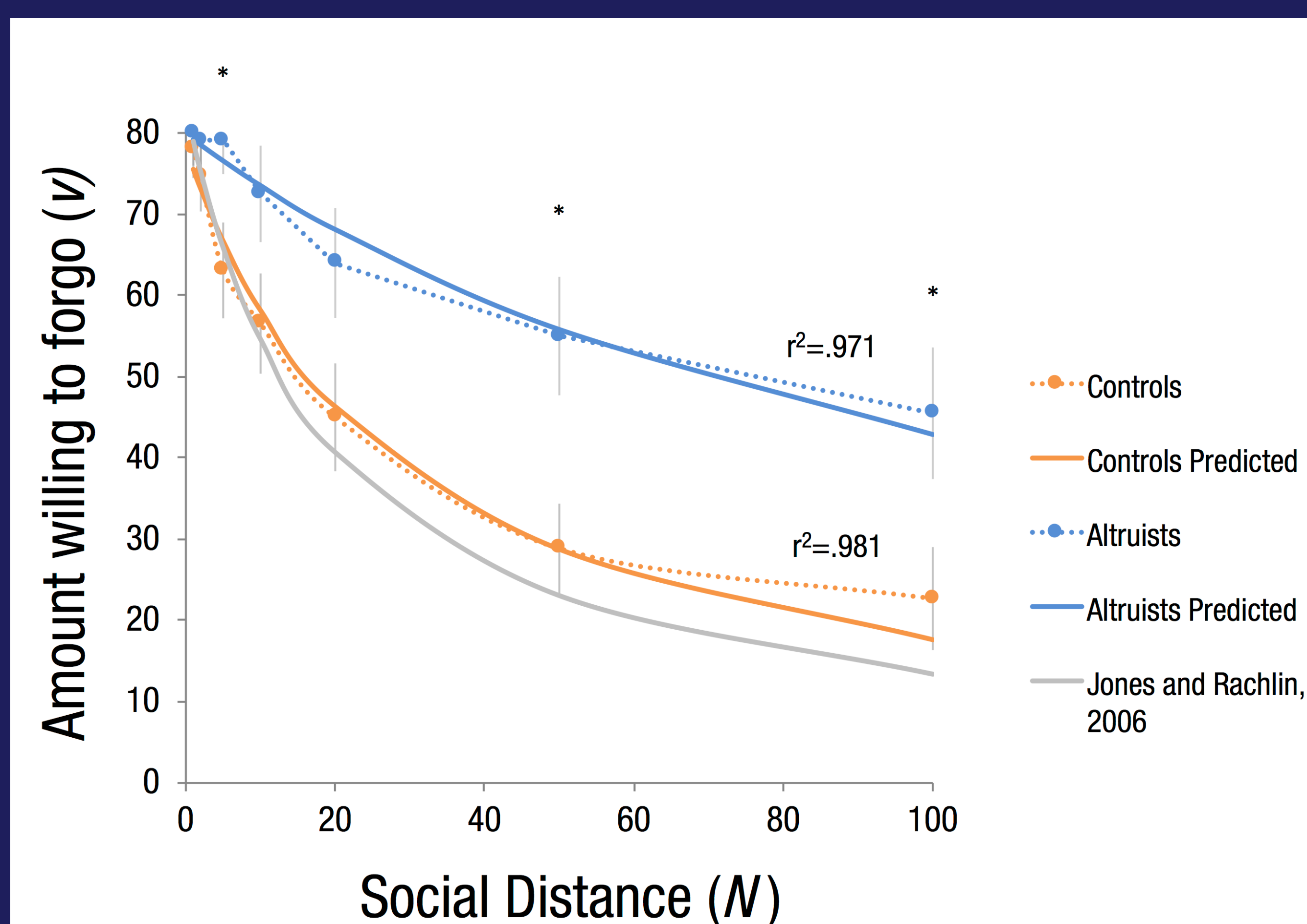
PARTICIPANTS

$N = 46$

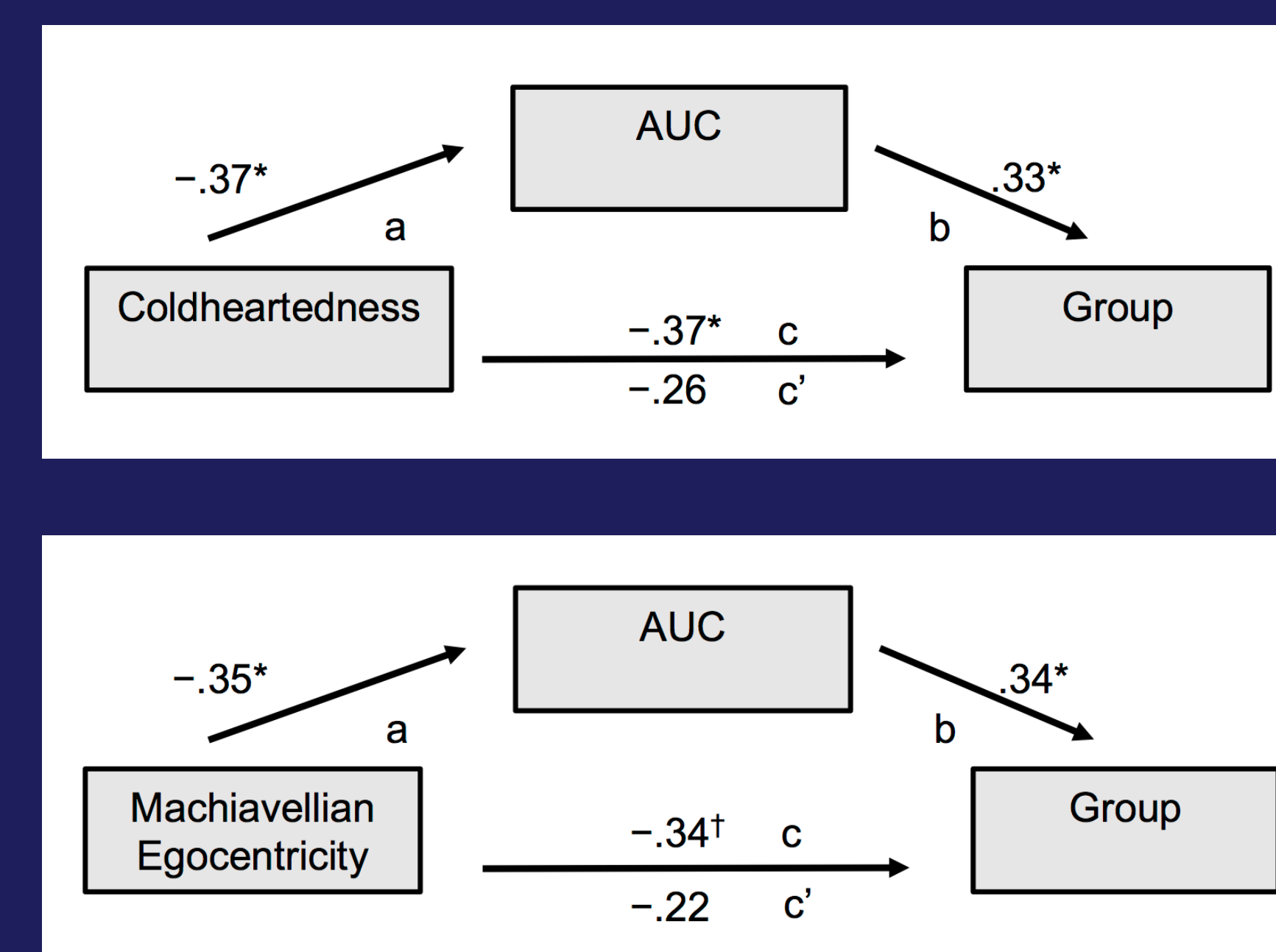
Variable	Altruists (N=20)	Controls (N=26)	p
Sex (Male/Female)	12/8 (60.0%)	15/11 (57.70%)	.875
Race (White/Nonwhite)	19/1 (95.0%)	22/4 (84.62%)	.262
Age, M (SD)	45.20 (9.60)	44.92 (6.47)	.908
IQ, M (SD)	114.40 (11.60)	114.84 (13.49)	.907
Education, $\geq$ Four-year degree	12/8 (57.14%)	21/5 (80.77%)	.084
Household Income, $\geq$ \$60,000	14/6 (70.0%)	16/7 (69.57%)	.975

RESULTS

Social Discounting In Altruists and Matched Controls



Social Discounting Mediates the Relationship between Other-Oriented Traits and Group (Altruist vs. Control)



CONCLUSIONS & FUTURE DIRECTIONS

- Relative to controls, altruists exhibited significantly reduced social discounting: AUC for altruists ($M=0.68$, $SD=0.33$) and controls ($M=0.42$, $SD=0.31$), $t(44)=2.71$, $p=.009$, $d=.80$
- Social discounting mediated group differences in self-reported other-oriented preferences
- These results demonstrate altruists' increased concern for the welfare of distant others, giving insight into the underpinnings of extraordinary altruism
- These findings support the growing literature demonstrating that the social discounting function meaningfully measures altruistic motivation, and suggest a mechanism by which costly helping behavior toward genetically and socially close others might be extended to unrelated others
- The use of a special population limited the sample size; altruistic kidney donors are extremely rare and make up only 0.0006% of the U.S. population
- Future research will examine the neural substrates of social discounting in altruists to further understand motivations for extraordinary generosity
- The altered subjective valuation of socially distant others is likely a complex process, potentially reflecting a wide network of neural regions including the temporoparietal junction, ventromedial prefrontal cortex and amygdala

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