

Supporting Information for

Close relationship partners of impartial altruists do not report diminished relationship quality and are similarly altruistic

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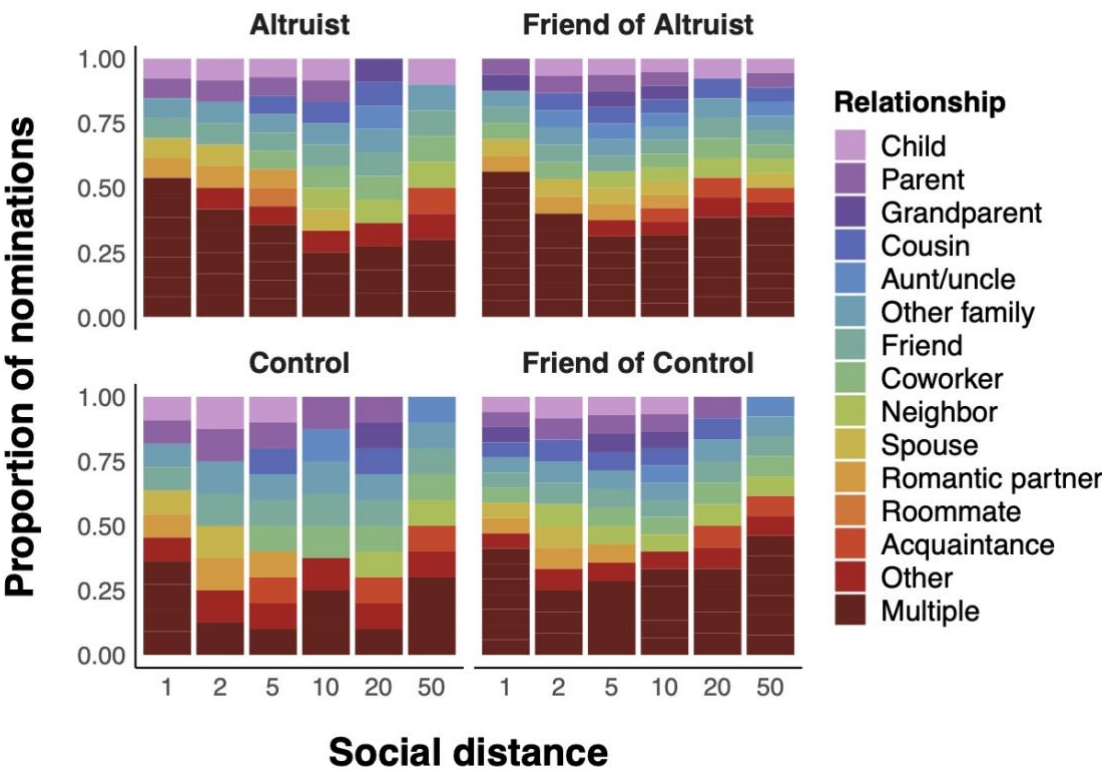
Supporting text
Figure S1
Tables S1 to S7

Supporting Information Text

To assess whether groups ranked people similarly across different social distances, participants described their relationship with each N via a multiple-choice prompt, which included 14 relationship categories (see Figure S1). Chi-square tests of independence (2x14, where group = altruistic/control dyad) were performed at each social distance to detect any differences between groups and the participants' relationship with each N. Groups did not differ in the proportion of relationship types with N's across social distances (see Figure S1): At Social Distance #1, χ^2 (30, N = 260) = 10.25, $p = >.999$; Social Distance #2, χ^2 (33, N = 260) = 13.33, $p = >.999$; Social Distance #5, χ^2 (42, N = 260) = 19.00, $p = >.999$; Social Distance #10, χ^2 (39, N = 260) = 12.27, $p = >.999$; Social Distance #20, χ^2 (33, N =260) = 13.32, $p = >.999$; Social Distance #50, χ^2 (33, N = 260) = 10.43, $p = >.999$.

SI Figures

Figure S1
Nominated Relationship Type of Participants from the Social Discounting Task



SI Tables

Table S1*Hyperbolic Model Predicting Classic Social Discounting Rates in Altruists and Controls*

	b [95% CI]	t value	p-value
Intercept	75.45 [73.54, 77.36]	77.29	<.001***
log <i>k</i> , mean discounting rate	-3.84 [-6.19, -1.49]	-3.21	.001**
Altruist > Control	-1.98 [-3.06, -0.90]	-3.58	<.001***
<i>Demographic Covariates</i>			
Age	-0.005 [- 0.03, 0.02]	0.49	.718
Gender	0.2 [-0.73, 1.21]	-0.36	.628
Household Income	0.03 [-0.26, 0.32]	0.21	.831

Note. 95% CI = 95% Confidence Interval. Degrees of Freedom = 703. Groups are indicator variables relative to the reference group (controls). * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$. Beta values are unstandardized.

Table S2*Linear Regression Predicting MFQ-RA from Group Membership*

	b [95% CI]	t value	p-value
Intercept	3.95 [3.06,4.83]	8.76	<.001***
Group ^a	-0.29 [-0.65, 0.07]	-1.57	.121
<i>Demographic Covariates</i>			
Age ^b	0.004 [-0.01,0.02]	0.48	.633
Gender ^b	-0.10 [-0.44,0.23]	-0.60	.549
Household Income ^b	0.04 [-0.10,0.19]	0.51	.608
Age ^c	-0.01 [-0.03,0.01]	-1.34	.183
Gender ^c	-0.03 [-0.37,0.32]	-0.15	.878
Household Income ^c	-0.03 [-0.18,0.12]	-0.37	.715

Note. 95% CI = 95% Confidence Interval. Degrees of Freedom = 104. Beta values are unstandardized.

^aClose others of Altruist

^bClose others' data

^cAltruists' and Controls' data

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table S3

Linear Regression Predicting MFQ-FF from Group Membership

	<i>b</i> [95% CI]	t value	p-value
Intercept	7.59[6.41,8.76]	12.68	<.001***
Group ^a	-0.23[-0.71,0.25]	-0.94	.352
<i>Demographic Covariates</i>			
Age ^b	0.001[-0.02,0.02]	0.09	.928
Gender ^b	0.07[-0.38,0.51]	0.29	.775
Household Income ^b	0.03[-0.16,0.22]	0.33	.741
Age ^c	-0.01[-0.04,0.01]	-1.14	.258
Gender ^c	0.23[-0.23,0.69]	0.10	.321
Household Income ^c	-0.06[-0.25,0.14]	-0.58	.562

Note. 95% CI = 95% Confidence Interval. Degrees of Freedom = 104. Beta values are unstandardized.

^aClose-others of Altruist

^bClose-others' data

^cAltruists' and Controls' data

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table S4
Bivariate Spearman Correlations

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. MFQ-FF Help																		
2. MFQ-FF Emotional Security	0.74***																	
3. MFQ-FF Intimacy	0.66***	0.77***																
4. MFQ-FF Stimulating Companionship	0.74***	0.74***	0.66***															
5. MFQ-FF Reliable Alliance	0.34***	0.44***	0.46***	0.33***														
6. MFQ-FF Self-Validation	0.74***	0.82***	0.65***	0.75***	0.40***													
7. MFQ-FF Total	0.89***	0.91***	0.82***	0.87***	0.48***	0.89***												
8. MFQ-RA Satisfaction	0.46***	0.61***	0.58***	0.48***	0.50***	0.51***	0.60***											
9. MFQ-RA Positive Feelings	0.47***	0.55***	0.53***	0.47***	0.48***	0.49***	0.56***	0.73***										
10. MFQ-RA Total	0.50***	0.63***	0.58***	0.51***	0.51***	0.53***	0.62***	0.95***	0.85***									
11. MRS	-0.04	-0.03	0.01	-0.06	-0.08	-0.04	-0.05	0.03	-0.09	-0.01								
12. MTS	0.04	0.04	0.05	-0.08	0.18**	0.08	0.07	0.16**	0.13*	0.17**	0.25***							
13. OUS IH	0.10	0.10+	0.04	0.04	-0.02	0.11+	0.09	-0.03	-0.01	-0.03	-0.05	-0.02						

14. OUS IB	-0.12*	-0.12 ⁺	-0.15**	-0.17**	-0.25***	-0.13*	-0.16**	-0.14*	-0.10 ⁺	-0.14*	0.12*	-0.26***	0.20***					
15. OUS Total	0.01	-0.01	-0.09	-0.09	-0.14*	-0.01	-0.04	-0.09 ⁺	-0.02	-0.07	0.04	-0.12 ⁺	0.75***	0.72***				
16. Age	-0.20**	-0.14*	-0.12 ⁺	-0.25***	0.22***	-0.18**	-0.19**	0.01	-0.03	-0.02	-0.16**	-0.16**	-0.13 ⁺	-0.09 ⁺	-0.12 ⁺			
17. Gender ^a	-0.04	0.05	0.01	-0.01	0.01	0.08	0.02	-0.01	-0.03	0.004	0.03	-0.01	0.01	-0.18**	-0.09	-0.05		
18. Education	0.09	-0.02	0.06	-0.001	-0.03	0.02	0.05	0.01	0.09 ⁺	0.06	0.04	-0.10 ⁺	-0.03	0.01	0.003	-0.04	-0.06	
19. Income	-0.10 ⁺	-0.14*	-0.12 ⁺	-0.20***	-0.01	-0.12*	-0.15*	-0.09 ⁺	-0.004	-0.07	-0.14*	-0.12*	0.001	0.11 ⁺	0.09	0.16**	-0.18**	0.29***

Note. MFQ-FF/-RA = McGill Friendship Questionnaire, Close-other's Functions/Respondent's Affection. MRS = Moral Relativism Scale. MTS = Moral Tolerance Scale. OUS IH/IB = Oxford Utilitarianism Scale, Instrumental Harm/Impartial Beneficence.

^a 0 = woman; 1 = man. Degrees of freedom = 222.

⁺ $p \leq .1$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table S5*Linear Regression Predicting MFQ-RA from Third Party Discounting for N=1 (AUC)*

	<i>b</i> [95% CI]	t value	p-value
Intercept	4.14[3.25,5.02]	9.15	<.001
AUC for N=1	-0.02[-0.54,0.5]	-0.09	.928
<i>Demographic Covariates</i>			
Age ^a	0.001[-0.02,0.02]	0.15	.880
Gender ^a	-0.10[-0.45,0.25]	-0.58	.565
Household Income ^a	0.03[-0.11,0.18]	0.45	.654
Age ^b	-0.01[-0.12,-0.09]	-1.12	.264
Gender ^b	-0.05[-0.41,0.31]	-0.27	.790
Household Income ^b	-0.06[-0.21,0.09]	-0.80	.426

Note. 95% CI = 95% Confidence Interval. Degrees of Freedom = 102. Beta values are unstandardized.

^aClose-others' data

^bAltruists' and Controls' data

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table S6*Linear Regression Predicting MFQ-FF from Third Party Discounting for N=1 (AUC)*

	<i>b</i> [95% CI]	t value	p-value
Intercept	7.77[6.61, 8.94]	13.05	<.001***
AUC for N=1	-0.03[-0.71, 0.66]	-0.08	.933
<i>Demographic Covariates</i>			
Age ^a	-0.001[-0.02,0.02]	-0.12	.903
Gender ^a	0.06[-0.40,0.51]	0.24	.810
Household Income ^a	0.03[-0.16,0.22]	0.32	.750
Age ^b	-0.01[-0.04,0.01]	-1.03	.306
Gender ^b	0.20[-0.27,0.67]	0.83	.408
Household Income ^b	-0.09[-0.10,0.29]	-0.86	.390

Note. 95% CI = 95% Confidence Interval. Degrees of Freedom = 102. Beta values are unstandardized.

^aClose-others' data

^bAltruists' and Controls' data

* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table S7
Descriptive Statistics

	Altruists			Controls			Altruists' Close-others			Controls' Close-others		
	M (SD)	Min-Max	Skew (Kurtosis)	M (SD)	Min-Max	Skew (Kurtosis)	M (SD)	Min-Max	Skew (Kurtosis)	M (SD)	Min-Max	Skew (Kurtosis)
MFQ-FF Help	6.65 (1.15)	3.80-8.00	-0.68 (2.45)	6.75 (1.24)	3.40-8.00	-1.01 (3.04)	6.47 (1.44)	2.84-2.80	-0.90 (2.84)	6.97 (1.44)	0.40-8.00	-2.50 (12.40)
MFQ-FF Emotional Security	6.89 (1.19)	2.80-8.00	-1.51 (5.14)	6.89 (1.45)	0.80-8.00	-2.21 (8.36)	6.48 (1.67)	2.40-8.00	-1.13 (3.16)	7.08 (1.26)	2.40-8.00	-1.97 (6.87)
MFQ-FF Intimacy	6.96 (1.10)	3.20-8.00	-1.32 (4.74)	7.08 (1.06)	3.60-8.00	-1.69 (5.48)	6.64 (1.45)	2.40-8.00	-1.09 (3.17)	7.05 (1.30)	2.20-8.00	-1.92 (6.35)
MFQ-FF Stimulating Companionship	6.51 (1.24)	3.00-8.00	-0.64 (2.68)	6.92 (1.09)	2.60-8.00	-1.69 (6.43)	6.52 (1.45)	2.20-8.00	-0.93 (3.05)	6.88 (1.33)	3.00-8.00	-1.29 (3.79)
MFQ-FF Reliable Alliance	7.68 (0.54)	5.80-8.00	-1.82 (5.71)	7.57 (0.62)	5.00-8.00	-1.87 (6.89)	7.65 (0.72)	4.60-8.00	-2.61 (9.51)	7.49 (0.85)	4.00-8.00	-2.38 (8.45)
MFQ-FF Self- Validation	6.76 (1.28)	3.60-8.00	-1.68 (5.32)	6.79 (1.44)	2.20-8.00	-1.58 (5.32)	6.55 (1.57)	0.60-8.00	-1.49 (5.21)	6.93 (1.31)	2.80-8.00	-1.37 (4.18)
MFQ-FF Total	6.77 (0.88)	4.27-7.87	-0.70 (2.90)	6.87 (0.96)	3.63-7.87	-1.48 (4.72)	6.58 (1.22)	3.47-7.87	-1.03 (3.04)	6.93 (1.03)	3.50-7.87	-1.61 (5.26)
MFQ-RA Satisfaction	3.23 (0.98)	0.20-4.00	- 1.43(4.38)	3.41 (0.89)	-0.60-4.00	-2.29 (9.28)	2.99 (1.39)	-2.40-4.00	-2.07 (7.44)	3.35 (0.93)	-1.00-4.00	-2.35 (9.79)
MFQ-RA Positive Feelings	3.69 (0.58)	0.60-4.00	-1.68 (5.69)	3.56 (0.69)	0.40-4.00	-2.31 (9.39)	3.44 (0.81)	0.40-4.00	-1.76 (6.01)	3.57 (0.62)	1.20-4.00	-3.13 (15.1)

MFQ-RA Total	3.45 (0.73)	0.73-4.00	-1.61 (5.70)	3.50 (0.70)	-0.13-4.00	-2.44 (11.7)	3.21 (1.04)	-0.80-4.00	-1.85 (6.38)	3.46 (0.73)	0.73-4.00	-1.78 (6.17)
MRS	3.05 (0.58)	1.30-4.20	-0.58 (3.58)	3.11 (0.52)	1.60-4.50	-0.26 (3.42)	2.86 (0.63)	1.10-3.90	-0.82 (3.26)	3.07 (0.54)	1.40-4.20	-0.96 (4.29)
MTS	3.84 (0.64)	2.40-5.20	-0.211 (2.54)	3.67 (0.73)	2.00-5.00	-0.29 (- 0.21)	3.78 (0.63)	2.50-5.00	0.08 (2.34)	3.76 (0.59)	2.60-4.90	-0.02 (2.18)
OUS Instrumental Harm	4.64 (1.14)	2.50-6.75	-0.08 (2.15)	4.39 (1.13)	1.25-6.50	-0.30 (2.88)	4.23 (1.18)	1.50-7.00	0.11 (2.89)	4.31 (1.13)	1.00-6.50	-0.09 (2.68)
OUS Impartial Beneficence	3.06 (1.14)	0.80-5.80	-0.10 (2.70)	3.28 (0.98)	1.40-5.60	0.07 (2.58)	2.98 (0.98)	1.20-5.40	0.05 (2.44)	3.19 (0.93)	1.40-5.20	0.13 (2.35)
OUS Total	4.01 (0.94)	1.67-6.56	0.09 (3.17)	3.91 (0.86)	2.00-6.11	0.30 (3.04)	3.78 (0.93)	1.78-6.44	-0.001 (3.18)	3.83 (0.88)	1.67-6.00	0.17 (2.94)

Output from G*Power Sensitivity Analysis

Input data (sample size and number of predictors) is from Tables S8-S9 and S11-S12, all of which had seven predictors.

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F tests - Linear multiple regression: Fixed model, R^2 deviation from zero

Analysis:	Sensitivity: Compute required effect size		
Input:	α err prob	=	0.05
	Power ($1-\beta$ err prob)	=	0.8
	Total sample size	=	130
	Number of predictors	=	7
Output:	Noncentrality parameter λ	=	15.1918934
	Critical F	=	2.0854845
	Numerator df	=	7
	Denominator df	=	122
	Effect size f^2	=	0.1168607

This output suggests that with a sample size of 130, 7 predictors, an alpha level of 0.05, and a power of 0.80, the model is sensitive enough to detect an effect size of 0.117 (small-medium range), or a beta value of .122 or larger.