

# The Role of Reputational Concerns in Pathological Altruism and Healthy Selfishness

Ryuji Oguni<sup>1,2\*</sup>, Chiaki Hagiwara<sup>3</sup>,  
and Tadahiro Shimotsukasa<sup>4</sup>

<sup>1</sup>Shujitsu University, 1-6-1 Nishigawara, Naka-ku, Okayama 703-8516, Japan

<sup>2</sup>Ritsumeikan University, 2-150 Iwakura-cho, Ibaraki, Osaka 567-8570, Japan

<sup>3</sup>Wayo Women's University, 2-3-1, Kounodai, Ichikawa, Chiba 272-8533, Japan

<sup>4</sup>Rissho University, 4-2-16 Osaki, Shinagawa-ku, Tokyo 141-8602, Japan

\*Author for correspondence (ryuji.oguni@gmail.com)

Human social behavior spans a continuum from self-serving actions to other-oriented sacrifices. Underlying these behaviors are reputational concerns, specifically rejection avoidance and praise seeking. However, it is unclear how reputational concerns relate to pathological altruism, which involves excessive, irrational self-sacrifice, and healthy selfishness, which prioritizes one's own fulfillment with consideration of potential negative effects on others. This study examined whether rejection avoidance and praise seeking are associated with pathological altruism and healthy selfishness. Data were collected from 787 participants between the ages of 15 and 59. The results indicated that both rejection avoidance and praise seeking were positively correlated with pathological altruism and healthy selfishness, even after controlling for empathy. Most associations were stable across all ages, although the association between praise seeking and healthy selfishness was moderated by age. These findings provide initial empirical evidence that reputational concerns may drive individuals toward both pathological altruism and healthy selfishness. This result enhances the understanding of the motivational role of social evaluation in complex human social functioning.

## Keywords

reputational concerns, rejection avoidance, praise seeking, pathological altruism, healthy selfishness

## Introduction

Humans navigate social situations by balancing their own needs with those of others. Although selfish behavior can bring short-term personal benefits, it often leads to disapproval or exclusion when it violates social norms.

Conversely, altruistic behavior, though seemingly self-sacrificing, can enhance long-term social status by eliciting positive evaluations and reinforcing one's reputation within groups (Nowak & Sigmund, 2005; Van Vugt et al., 2007; Wu et al., 2016). Most people are aware of these potential consequences and sensitive to how they appear to others (Berman & Silver, 2022; Wu et al., 2016). This sensitivity, called reputational concern, leads to behaviors aimed at avoiding disapproval and eliciting positive evaluations. Therefore, reputational concern helps explain why people refrain from selfish behavior and engage in altruistic behavior, even at personal cost.

Two primary components of reputational concern have been identified: rejection avoidance and praise seeking. Rejection avoidance is the desire to avoid negative evaluations and rejection from others, and praise seeking is the desire to obtain positive evaluations and praise from others (Kawamura & Kusumi, 2018; Wu et al., 2016). These reputational concerns serve adaptive purposes by guiding social behavior in ways that minimize social exclusion and maximize social approval. Rejection avoidance and praise seeking function as individual difference factors that influence altruistic behavior (Kawamura & Kusumi, 2018). Additionally, the relationship between reputational concerns and altruistic behavior varies depending on the age of the actor and their relationship with the recipient (Kawamura & Kusumi, 2018; Oguni et al., 2025b). However, previous studies have only examined associations with altruistic behavior and not with more complex, subtle behavioral patterns.

Recently, pathological altruism and healthy selfishness have been proposed to better understand the diversity of human social behaviors beyond the traditional dichotomy of altruism and selfishness<sup>1</sup>. Pathological altruism refers to behavioral tendencies that involve excessive, irrational self-sacrifice that results in harm to self and others (Bachner-Melman & Oakley, 2016; Oakley et al., 2012). From an evolutionary perspective, this tendency may stem from the overactivation of highly adaptive social motivations, especially those related to maintaining relationships and gaining acceptance. Individuals who exhibit pathological altruism often disregard their own needs in favor of helping others, sometimes to the point of burnout or exploitation (Oakley et al., 2012). Although this behavior is outwardly altruistic, it represents a maladaptive pattern that undermines long-term personal and social functioning. In contrast, healthy selfishness refers to behavioral tendencies that respect one's own happiness with consideration of the negative effects on others (Kaufman & Jauk, 2020). Rather than a form of self-centeredness, it can be seen as an adaptive strategy that ensures sustainability in personal well-being and social interactions. Unlike ordinary selfishness, which disregards the interests of others and risks social exclusion for short-term gains, healthy selfishness considers the negative effects on others. This reputational component is adaptive

doi: 10.5178/lebs.2025.127

Received 08 October 2025.

Accepted 18 October 2025.

Published online 11 November 2025.

© 2025 Oguni et al.



This work is licensed under the Creative Commons Attribution 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

because it minimizes the risk of social penalties, allowing individuals to pursue their personal goals sustainably without damaging their social standing. These concepts are useful for explaining behaviors that cannot be captured by the traditional moral view that altruism is always good and selfishness is always bad. They thus have important implications for clarifying the breadth of human behavior that cannot be captured by the conventional dualistic perspective.

Understanding how reputational concerns underlie these distinct behaviors may illuminate the complex role of social evaluation-based motives in shaping both extreme self-sacrifice and balanced self-interest. The potential links between reputational concerns and these two behavioral patterns can be inferred from existing literature (Bachner-Melman & Oakley, 2016; Kaufman & Jauk, 2020; Oakley et al., 2012). For example, rejection avoidance may motivate the excessive self-sacrifice characteristic of pathological altruism, driving individuals to avoid rejection and maintain relationships at any cost. It could also encourage the socially considerate aspect of healthy selfishness as a means of avoiding interpersonal conflict and negative evaluations. Similarly, praise seeking drives behaviors aimed at social gain. It can motivate self-sacrificial behaviors to gain approval and an altruistic reputation, aligning with pathological altruism. Praise seeking can also motivate individuals to adopt the balanced, thoughtful behaviors inherent in healthy selfishness to appear competent and socially successful. While these associations are suggested by existing research, no empirical study directly tests reputational concerns as factors related to pathological altruism and healthy selfishness.

This study examined whether rejection avoidance and praise seeking are related to pathological altruism and healthy selfishness. While previous studies have primarily examined the relationship between reputational concern and altruism, this study explored a more comprehensive understanding of reputation by introducing different behavioral patterns. Based on previous findings (Bachner-Melman & Oakley, 2016; Kaufman & Jauk, 2020; Oakley et al., 2012), we hypothesized that both rejection avoidance and praise seeking would be positively associated with both pathological altruism and healthy selfishness. Rejection avoidance, which primarily functions to minimize social criticism and exclusion, can motivate excessive self-sacrifice to maintain relationships at any cost, consistent with pathological altruism. It can also encourage consideration of others to avoid negative evaluation and conflict, aligning with healthy selfishness. Similarly, praise seeking, which maximizes social approval and status, may drive self-sacrificial behaviors to gain a positive social image, a feature of pathological altruism. It can simultaneously align with the balanced pursuit of one's own happiness to be perceived as competent and well-adjusted, fitting the definition of healthy selfishness.

Although the relationship between reputational concern and altruistic behavior is moderated by age (Oguni et al., 2025b), there is a lack of understanding as to whether the role of reputational concern in pathological altruism and healthy selfishness is also moderated by age. Therefore, this study also conducted an exploratory examination of the interaction effect between reputational concern and age.

## Methods

### Participants

To determine sample size prior to data collection, a power analysis was conducted using G\*Power 3.1.9.4 (Faul et al., 2007). It was estimated that a minimum sample size of 759 participants would be required to detect small effects (effect size  $f = 0.02$ , alpha level = .05, power = .80, number of predictors = 8). Therefore, data were collected from 1,000 participants between the ages of 15 and 59 who were registered with an online survey company (Freeasy; iBRIDGE Company, Tokyo, Japan). Of these, 100 participants were recruited from each gender (male and female) and decade-based age group (i.e., 10s, 20s, 30s, 40s, 50s). Data for 213 participants who failed the attention-check item ("Please answer '2' for this item") were excluded. The data for the remaining 787 participants (384 males, 403 females;  $M_{\text{age}} = 37.13$ ,  $SD = 13.34$ ) were then analyzed. Over 99% of registrants and respondents of this online survey company are Japanese, and only 0.1% or fewer are non-Japanese, a demographic spread assumed to apply to the present study's participant pool.

The study was approved by the Ritsumeikan University Ethics Review Committee for Research Involving Human Subjects (Kinugasa-Human-2023-18) and was conducted after obtaining informed consent from participants. Informed consent was also obtained from the parents of any participants under the age of 18.

### Measures<sup>2</sup>

#### (a) Rejection avoidance and praise seeking

To assess rejection avoidance and praise seeking, this study used the *Praise Seeking and Rejection Avoidance Need Scales* (Kojima et al., 2003). Participants responded to 18 items on a five-point Likert scale (1 = *disagree*, 5 = *agree*). Consistent with previous studies (Kawamura & Kusumi, 2018; Kojima et al., 2003), internal consistency was satisfactory (praise seeking:  $\alpha = .91$ ; rejection avoidance:  $\alpha = .90$ ).

#### (b) Pathological altruism and healthy selfishness

To assess pathological altruism and healthy selfishness, the Japanese version of the *Healthy Selfishness and Pathological Altruism Scale* (Oguni et al., 2025a; original English version, Kaufman & Jauk, 2020) was employed. Participants responded to 20 items on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Consistent with previous studies (Kaufman & Jauk, 2020; Oguni et al., 2025a), internal consistency was satisfactory (pathological altruism:  $\alpha = .86$ ; healthy selfishness:  $\alpha = .86$ ).

#### (c) Empathy

Empathy was treated as a control variable because it is closely related to social behavior (Yin & Wang, 2023). To assess empathy, the study used the Japanese version of the *Interpersonal Reactivity Index* (Himichi et al., 2017; for the original English version, see Davis, 1980). The scale consists of four factors related to empathy (personal distress, empathic concern, perspective taking, and fantasy). Participants responded to 28 items on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Consistent with previous studies (Davis, 1980; Himichi et al., 2017; Kawamura & Kusumi, 2018), internal consistency was satisfactory (personal distress:  $\alpha = .77$ ;

empathic concern:  $\alpha = .74$ ; perspective taking:  $\alpha = .62$ ; fantasy:  $\alpha = .76$ ).

### Statistical analyses

All statistical analyses were performed using R software, version 4.3.1 (R Core Team, 2024). A hierarchical multiple regression analysis was conducted with pathological altruism and healthy selfishness as dependent variables. Step 1 included age, gender, and empathy (personal distress, empathic concern, perspective taking, fantasy) as predictor variables. Step 2 included rejection avoidance and praise seeking. Step 3 included the interaction terms “rejection avoidance  $\times$  age” and “praise seeking  $\times$  age.” All independent variables were mean centered. If the interaction term was significant, the slope from age-adjusted rejection avoidance or praise seeking to pathological altruism or healthy selfishness was estimated, and its 95% confidence band and regions of significance were calculated using the Johnson-Neyman technique (Bauer & Curran, 2005). There were no missing values.

## Results

### Descriptive statistics

Table 1 presents the correlation coefficients for each scale. Rejection avoidance and praise seeking were positively correlated with pathological altruism and healthy selfishness. Furthermore, these relationships remained consistent after controlling for age.

### Hierarchical multiple regression analysis

Table 2 shows the results of the hierarchical multiple regression analysis with pathological altruism and healthy selfishness as the dependent variables. Up to Step 2, reputational concerns explained a significant proportion of the variance in all models, controlling for age, gender, and empathy. When pathological altruism was the dependent variable, rejection avoidance and praise seeking were significant predictors. Similarly, when healthy selfishness was the dependent variable, rejection avoidance and praise seeking were significant predictors.

Step 3 added the interaction terms “rejection avoidance  $\times$  age” and “praise seeking  $\times$  age.” The interaction terms did not explain a significant proportion of the variance for pathological altruism. On the other hand, the interaction term “praise seeking  $\times$  age” explained a significant proportion of the variance in healthy selfishness. Although the interaction term “rejection avoidance  $\times$  age” was not significant, the interaction term “praise seeking  $\times$  age” predicted healthy selfishness. The slope from age-adjusted praise seeking to healthy selfishness was then estimated, and its 95% confidence bands and regions of significance were calculated. Age was presented in its original unit scale. The results showed that the effect of praise seeking on healthy selfishness had a significant positive slope from 15 to 55.05 years of age (Figure 1).

## Discussion

This study examined whether rejection avoidance and praise seeking are related to pathological altruism and healthy selfishness. The results showed that rejection avoidance and praise seeking were positively associated

with pathological altruism and healthy selfishness, even when controlling for empathy. Additionally, age had no moderating effect in most models, suggesting that the role of reputational concerns in pathological altruism and healthy selfishness is relatively stable across a lifetime. However, the association between praise seeking and healthy selfishness was moderated by age and limited to the range of 15 to 55.05 years. These findings provide empirical evidence for the association between reputational concerns and both pathological altruism and healthy selfishness.

These findings suggest that rejection avoidance and praise seeking may contribute to the induction of pathological altruism. From an evolutionary psychological perspective, the motivations of rejection avoidance and praise seeking have evolved as adaptive responses to the demands of maintaining cooperation and cohesion within social groups (Van Vugt et al., 2007; Wu et al., 2016). However, extreme manifestations of these tendencies can lead to pathological altruism: disproportionate self-sacrifice that prioritizes others regardless of one's own resources or limitations. Although pathological altruism is intended to benefit others, it has undesirable consequences for both the actor and others (Kaufman & Jauk, 2020). Additionally, while altruistic behaviors tend to be evaluated positively in general (Barclay, 2012), excessive altruism often leads to negative evaluations within groups (Parks & Stone, 2010). Thus, high sensitivity to interpersonal evaluation can promote both adaptive and maladaptive altruistic behaviors. This suggests the long-term risk of oversensitivity to evaluation eventually impairing mental and physical health, as well as social functioning.

This study also showed that rejection avoidance and praise seeking may both contribute to healthy selfishness, which involves pursuing personal fulfillment while accounting for potential negative effects on others. These findings suggest that reputational concerns may regulate selfish behavior in socially acceptable ways. For example, rejection avoidance may encourage restraint in behavior that pursues only self-interest without regard for others, thereby minimizing social penalties. Similarly, individuals high in praise seeking may be motivated to balance self-assertion with others' welfare to maintain a positive social image. Furthermore, the positive relationship between praise seeking and healthy selfishness was moderated by age. This association progressively weakened with age, becoming non-significant after 55.05 years. This pattern suggests that praise seeking is strongly associated with the manifestation of healthy selfishness from adolescence to middle adulthood—a critical period for developing social identity and complex behavioral norms. During this phase, praise seeking serves as a crucial external motivator for learning and reinforcing complex social adaptation strategies, as individuals frequently seek positive external feedback to confirm the social acceptability of self-assertion balanced with others' welfare (Branje, 2022; Branje et al., 2021). However, as individuals age, their self-concepts and social roles stabilize, and their behaviors become internalized (Lodi-Smith & Roberts, 2010). In middle to late adulthood, behavioral patterns of healthy selfishness become habitual and integrated into one's identity, reducing the need for external validation. This

Table 1. Means, standard deviations, coefficient alphas, and correlations.

	<i>M</i>	<i>SD</i>	$\alpha$	1	2	3	4	5	6	7
1 Rejection avoidance	3.22	0.81	.90							
2 Praise seeking	2.52	0.83	.91	.30						
3 Personal distress	3.12	0.68	.77	.53	.01					
4 Empathic concern	3.10	0.62	.74	.27	.24	.15				
5 Perspective taking	3.02	0.53	.62	.23	.30	-.03	.55			
6 Fantasy	2.98	0.68	.76	.29	.30	.24	.38	.52		
7 Pathological altruism	2.77	0.70	.86	.45	.53	.27	.40	.45	.40	
8 Healthy selfishness	3.15	0.65	.86	.15	.31	-.08	.16	.36	.19	.22

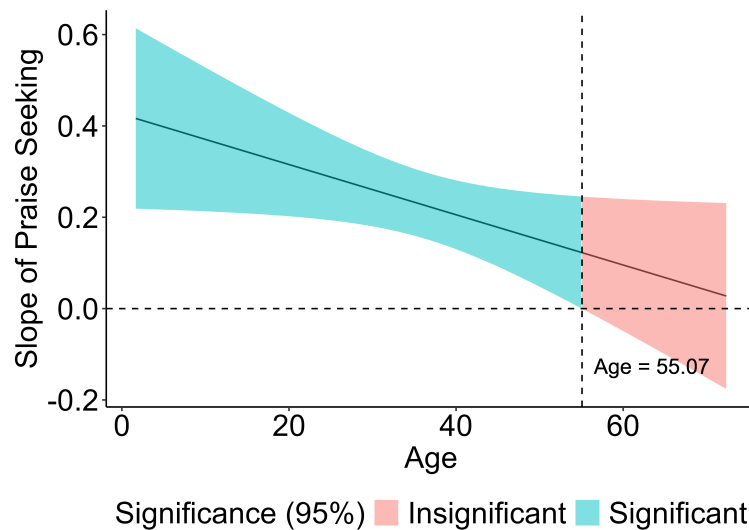
\*\*\**p* < .001, \* *p* < .05

Table 2. Hierarchical multiple regression analysis predicting healthy selfishness and pathological altruism from the interaction of reputational concerns and age.

	Healthy selfishness						Pathological altruism					
	Step 1			Step 2			Step 3			Step 1		
	$\beta$	95% CI	<i>p</i>	$\beta$	95% CI	<i>p</i>	$\beta$	95% CI	<i>p</i>	$\beta$	95% CI	<i>p</i>
Age	.02	[-.05, .09]	.565	.07	[.01, .14]	.033	.08	[.01, .14]	.024	-.10	[-.16, -.04]	.002
Gender ( <i>M</i> =1, <i>F</i> =0)	.01	[-.06, .07]	.805	.03	[-.03, .10]	.347	.03	[-.03, .10]	.315	-.02	[-.08, .04]	.556
Personal distress	-.08	[-.15, -.01]	.028	-.11	[-.19, -.03]	.006	-.11	[-.19, -.03]	.006	.22	[.16, .28]	<.001
Empathic concern	-.04	[-.12, .04]	.360	-.07	[-.15, .00]	.065	-.08	[-.16, -.00]	.050	.15	[.08, .23]	<.001
Perspective taking	.35	[.26, .44]	<.001	.30	[.21, .38]	<.001	.29	[.20, .38]	<.001	.32	[.24, .40]	<.001
Fantasy	.05	[-.03, .13]	.256	.01	[-.07, .09]	.821	.02	[-.07, .10]	.711	.11	[.04, .19]	.002
Rejection avoidance				.09	[.01, .17]	.038	.07	[-.01, .16]	.080	.15	[.09, .22]	<.001
Praise seeking				.23	[.16, .30]	<.001	.22	[.15, .29]	<.001	.37	[.31, .43]	<.001
Rejection avoidance*Age							-.02	[-.08, .05]	.625			
Praise seeking*Age							-.07	[-.14, -.00]	.041			
$\Delta R^2$				.06	***		.01			.15	***	
<i>R</i> <sup>2</sup>	.13	***		.19	***		.20	***		.47	***	

\*\*\**p* < .001





**Figure 1.** Johnson-Neyman confidence bands and regions of significance for the relationship between praise seeking and healthy selfishness moderated by age.

Note. Shaded regions represent 95% confidence bands. The slope values are standardized.

developmental shift may reflect age-related changes in the factors driving self-regarding behavior, such as the increasing prioritization of emotionally meaningful goals over external social rewards (Fung et al., 1999). Consequently, older adults may continue to exhibit healthy selfishness driven by internalized values rather than praise seeking, leading to the observed weakening of the association (Sparrow et al., 2021).

However, this study had several limitations. First, the cross-sectional design prevented causal inference. Future studies should employ different research designs, such as longitudinal studies and experimental methods, to rigorously test for causal effects. Second, the scale used to measure pathological altruism and healthy selfishness in this study did not account for the influence of relationships with others. The relationship between reputational concerns and social behavior depends on the nature of one's relationships with others (Kawamura & Kusumi, 2018; Knoll et al., 2015). Therefore, future studies should analyze these relationships to more deeply examine this study's findings.

In conclusion, this study demonstrated that rejection avoidance and praise seeking are associated with pathological altruism and healthy selfishness. The age-moderated effect was limited, suggesting that the role of reputational concerns in pathological altruism and healthy selfishness may be relatively stable regardless of age. This result enhances the understanding of the complex role of social motivation in human behavior by providing initial empirical evidence for the motivational underpinnings of these two complex behavioral patterns.

## Notes

<sup>1</sup>Note that these concepts are not diametrically opposed, and the boundaries between them (i.e., between altruism and pathological altruism, and between selfishness and healthy selfishness) are often ambiguous (Bachner-Melman & Oakley, 2016; Kaufman & Jauk, 2020).

<sup>2</sup>Due to constraints on space, the full set of items for all measures is provided in the supplementary material, which is available on the Open Science Framework: <https://osf.io/7urd4/>

## Acknowledgments

This research was supported by Research Support Program for Institute of Human Sciences Exploratory Project at Ritsumeikan University.

## Author contribution

Ryuji Oguni: Conceptualization, Methodology, Data curation, Formal analysis, Investigation, Writing- Original draft preparation, Writing- Reviewing and Editing, Project administration, Funding acquisition. Chiaki Hagiwara: Conceptualization, Methodology, Data curation, Formal analysis, Writing- Reviewing and Editing. Tadahiro Shimotsukasa: Conceptualization, Methodology, Data curation, Formal analysis, Writing- Reviewing and Editing.

## Data accessibility

The datasets generated during the current study are available in the Open Science Framework: <https://osf.io/7urd4/>

## References

- Bachner-Melman, R., & Oakley, B. (2016). Giving 'til it hurts: Eating disorders and pathological altruism. In Y. Latzer & D. Stein (Eds.), *Bio-psycho-social contributions to understanding eating disorders* (pp. 91–103). Springer. [https://doi.org/10.1007/978-3-319-32742-6\\_7](https://doi.org/10.1007/978-3-319-32742-6_7)
- Barclay, P. (2012). Harnessing the power of reputation: Strengths and limits for promoting cooperative

- behaviors. *Evolutionary Psychology*, 10(5), 868–883. <https://doi.org/10.1177/147470491201000509>
- Bauer, D. J., & Curran, P. J. (2005). Probing interactions in fixed and multilevel regression: Inferential and graphical techniques. *Multivariate Behavioral Research*, 40(3), 373–400. [https://doi.org/10.1207/s15327906mbr4003\\_5](https://doi.org/10.1207/s15327906mbr4003_5)
- Berman, J. Z., & Silver, I. (2022). Prosocial behavior and reputation: When does doing good lead to looking good? *Current Opinion in Psychology*, 43, 102–107. <https://doi.org/10.1016/j.copsyc.2021.06.021>
- Branje, S. (2022). Adolescent identity development in context. *Current Opinion in Psychology*, 45, Article 101286. <https://doi.org/10.1016/j.copsyc.2021.11.006>
- Branje, S., De Moor, E. L., Spitzer, J., & Becht, A. I. (2021). Dynamics of identity development in adolescence: A decade in review. *Journal of Research on Adolescence*, 31(4), 908–927. <https://doi.org/10.1111/jora.12678>
- Davis, M. H. (1980). A multidimensional approach to individual differences in empathy. *Journal Supplement Abstract Service Catalog of Selected Documents in Psychology*, 10, 85.
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191. <https://doi.org/10.3758/BF03193146>
- Fung, H. H., Carstensen, L. L., Lutz, A. M. (1999). Influence of time on social preferences: Implications for life-span development. *Psychology and Aging*, 14(4), 595–604. <https://doi.org/10.1037/0882-7974.14.4.595>
- Himichi, T., Osanai, H., Goto, T., Fujita, H., Kawamura, Y., Davis, M. H., & Nomura, M. (2017). Development of a Japanese version of the interpersonal reactivity index. *The Japanese Journal of Psychology*, 88(1), 61–71. <http://doi.org/10.4992/jjpsy.88.15218>
- Kaufman, S. B., & Jauk, E. (2020). Healthy selfishness and pathological altruism: Measuring two paradoxical forms of selfishness. *Frontiers in Psychology*, 11, Article 1006. <https://doi.org/10.3389/fpsyg.2020.01006>
- Kawamura, Y., & Kusumi, T. (2018). Relationships between two types of reputational concern and altruistic behavior in daily life. *Personality and Individual Differences*, 121, 19–24. <https://doi.org/10.1016/j.paid.2017.09.003>
- Knoll, L. J., Magis-Weinberg, L., Speekenbrink, M., & Blakemore, S. J. (2015). Social influence on risk perception during adolescence. *Psychological Science*, 26(5), 583–592. <https://doi.org/10.1177/0956797615569578>
- Kojima, Y., Ohta, K., & Sugawara, K. (2003). Praise seeking and rejection avoidance need scales: Development and examination of validity. *The Japanese Journal of Personality*, 11(2), 86–98. [https://doi.org/10.2132/jjpspp.11.2\\_86](https://doi.org/10.2132/jjpspp.11.2_86)
- Lodi-Smith, J., & Roberts, B. W. (2010). Getting to know me: Social role experiences and age differences in self-concept clarity during adulthood. *Journal of Personality*, 78(5), 1383–1410. <https://doi.org/10.1111/j.1467-6494.2010.00655.x>
- Nowak, M. A., & Sigmund, K. (2005). Evolution of indirect reciprocity. *Nature*, 437(7063), 1291–1298. <https://doi.org/10.1038/nature04131>
- Oakley, B., Knafo, A., Madhavan, G., & Wilson, D. S. (2012). *Pathological altruism*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199738571.001.0001>
- Oguni, R., Hagiwara, C., & Shimotsukasa, T. (2025a). Development of the Japanese version of the healthy selfishness and pathological altruism scale. *Personality Science*, 6, 1–14. <https://doi.org/10.1177/27000710251340618>
- Oguni, R., Hagiwara, C., & Shimotsukasa, T. (2025b). Relationship between reputational concern and altruistic behavior in adolescence and adulthood. *Personality Science*, 6, 1–11. <https://doi.org/10.1177/27000710251340614>
- Parks, C. D., & Stone, A. B. (2010). The desire to expel unselfish members from the group. *Journal of Personality and Social Psychology*, 99(2), 303–310. <https://doi.org/10.1037/a0018403>
- R Core Team. (2024). R: A language and environment for statistical computing. R Foundation for Statistical Computing. <https://www.R-project.org/>
- Sparrow E. P., Swirsky L. T., Kudus F., Spaniol J. (2021). Aging and altruism: A meta-analysis. *Psychology and Aging*, 36(1), 49–56. <https://doi.org/10.1037/pag0000447>
- Van Vugt, M., Roberts, G., & Hardy, C. (2007). Competitive altruism: A theory of reputation-based cooperation in groups. In Dunbar R. I. M & Barrett L. (Eds.), *Oxford handbook of evolutionary psychology* (pp. 531–540). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780198568308.013.0036>
- Wu, J., Balliet, D., & Van Lange, P. A. M. (2016). Reputation, gossip, and human cooperation. *Social and Personality Psychology Compass*, 10(6), 350–364. <https://doi.org/10.1111/spc3.12255>
- Yin, Y., & Wang, Y. (2023). Is empathy associated with more prosocial behaviour? A meta-analysis. *Asian Journal of Social Psychology*, 26(1), 3–22. <https://doi.org/10.1111/ajsp.12537>