

## Research Report

# Aging, Empathy, and Prosocial Behaviors During the COVID-19 Pandemic

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Received: March 6, 2021; Editorial Decision Date: July 22, 2021

**Decision Editor:** Anne Krendl, PhD

## Abstract

**Objectives:** Previous literature suggests age-related increases in prosociality. Does such an age–prosociality relationship occur during the coronavirus disease 2019 (COVID-19) pandemic, or might the pandemic—as a stressor that may differently influence young and older adults—create a boundary condition on the relationship? If so, can empathy, a well-known prosocial disposition, explain the age–prosociality relationship? This study investigated these questions and whether the target (distant others compared to close others) of prosocial behaviors differs by age.

**Methods:** Participants completed a series of surveys on dispositional empathy and prosocial behaviors for a study assessing their experiences during the COVID-19 pandemic. There were 330 participants (aged 18–89) from the United States who completed all of the surveys included in the present analyses.

**Results:** Age was positively related to greater prosociality during the pandemic. Although empathy was positively associated with individuals' prosociality, it did not account for the age–prosociality association. Interestingly, increasing age was associated with greater prosocial behaviors toward close others (i.e., family, friends).

**Discussion:** Results are discussed in the context of socioemotional goals and substantiate that findings of age differences in prosocial behaviors occur during the period of limited resources and threat associated with the COVID-19 pandemic.

**Keywords:** Age, Altruism, COVID-19, Empathic concern, Prosociality

Prosociality—the tendency to engage in behaviors that benefit others—has critical functions in human society and evolution (Simpson & Beckes, 2010). People perform prosocial behaviors even in times of stress (Buchanan & Preston, 2014), when survival is threatened and resources are limited, making these behaviors of interest to study during the coronavirus disease 2019 (COVID-19) pandemic. Interestingly, levels of prosocial behaviors can vary by age. This study examines whether prosocial behaviors during the pandemic differ by age and (if so) what factors can explain such differences.

Prosociality increases with age (Sparrow et al., 2021). Theoretically, changes in motivation, values, and goals with age drive these increases in prosociality (see Bailey et al., 2021 for review). For instance, as people get older, they tend to have greater concerns for others, such as future generations (Eriksen, 1963) and society (Midlarsky & Kahana, 1994). Also, limited time horizons due to aging can induce individuals to pursue socioemotional (e.g., fostering and providing for close social relationships; Carstensen et al., 1999) and ego-transcending goals (e.g., prioritizing others than the self; Brandtstädter & Rothermund, 2002).

One possible factor underlying age-related increases in prosociality is empathy. Empathy includes cognitive (e.g., mentalizing) and affective (e.g., sympathy) components. Contrary to the evidence of age-related declines in cognitive empathy (Henry et al., 2013), affective empathy seems to increase with age (Sze et al., 2012; see Chen et al., 2014 for exception). Empirical findings support the positive relationship between affective empathy and prosociality (Beadle et al., 2015; Sze et al., 2012). Furthermore, affective empathy is proposed as a driver of prosociality because it reflects the motivation to consider others' welfare (Decety et al., 2016). Thus, age-related increases in affective empathy might promote increases in prosociality with age.

Built on the prior literature, the current preregistered study examines whether increasing age is associated with increased prosocial behaviors during the COVID-19 pandemic and probes the role of empathy. To this end, the contribution of dispositional empathy (i.e., trait empathy), strongly related to the affective component, and age on self-reported prosocial behaviors during the pandemic was assessed in an adult life-span sample from the Boston College COVID-19 Data Set (Cunningham, Fields, & Kensinger, 2021). Given previous findings suggesting sex differences in prosociality (Fabes & Eisenberg, 1998) and the effect of higher resource-holding status (e.g., economic status) on prosocial behaviors (Piff et al., 2010), sex and household income were controlled for when analyzing prosociality. A recent study (Sin et al., 2021) found age-related increases in overall prosociality. Due to the importance of examining contextual features of prosocial behaviors in order to better understand aging and prosociality (Bailey et al., 2021), further investigation is needed. This study contributes by investigating not only the overall occurrence of prosociality but also its change in frequency from prepandemic and the target of those behaviors.

Based on the aforementioned findings on aging and prosociality, we hypothesized that increased age would be positively associated with prosocial behaviors during the pandemic (Hypothesis 1a, H1a). The stressful situation of the pandemic, however, may create a boundary condition on the age-prosociality relationship, leading to the possibility that increased age is associated with decreased prosociality during the pandemic (H1b). For instance, because stress can enhance prosociality as a protective response to stress (von Dawans et al., 2012) and young adults reported greater stress levels during the pandemic compared to older adults (Cunningham, Fields, Garcia et al., 2021), increased age may be negatively associated with prosociality (see Supplementary Material for exploratory findings). Also, empathy is hypothesized to be positively associated with prosociality (H2) and to mediate the relationship between age and prosociality (H3). For the target of prosociality, given older adults' tendency to have smaller social networks and devote energy into emotionally meaningful relationships (i.e., close others; Ajrouch et al., 2005; Carstensen et al., 1999), increased age is hypothesized to

be associated with greater prosocial behaviors toward close others (e.g., family, close friends) rather than distant others (e.g., community, strangers; H4a). The pandemic, however, could also induce the opposite pattern such that times of suffering may induce greater concerns about others' welfare in older age due to stronger ego-transcending concerns with age (i.e., others' well-being; Mayr & Freund, 2020). This could motivate age-related increases in prosociality toward distant others (H4b).

## Method

### Participants

A final sample of 330 participants (aged 18–89) from the online open-access Boston College COVID-19 Data Set (<https://osf.io/gpxwa/>) met inclusion criteria and completed both the empathy measure and the prosocial behaviors questionnaire. Although measures of empathy, prosocial behaviors, and demographics used for the present cross-sectional study were assessed at separate time points, the literature has treated empathy as a stable characteristic (Mooradian et al., 2011; see Supplementary Material for exclusion and study details). The hypotheses and analysis approach were preregistered (<https://osf.io/v47n3>). See Table 1 for demographics information. Because the data set is preexisting, we did not conduct a prior power analysis, but post hoc power analyses revealed that our sample size is large enough to obtain sufficient power for the main four models (power  $(1-\beta)$  average = 0.81, min 0.74–max 0.87).

### Measures

#### Prosocial COVID-19 behaviors

To measure prosocial behaviors, participants reported (1 = Yes, 0 = No) whether they engaged in the following eight activities during the pandemic: (a) lent/donated books or clothes, (b) shared/donated food, (c) delivered food, medications, or other goods to immobilized individuals, (d) gave/donated Personal Protective Equipment (PPE) or other hard to find supplies, (e) sewed homemade masks, (f) checked in with an isolated person, (g) lent/donated money to someone, and (h) donated blood or platelets (Cronbach's  $\alpha = 0.51$ ). This questionnaire was created based on Einolf (2008), encompassing both formal and informal prosocial behaviors, and designed to reflect the pandemic situation. If they responded "Yes" to an item, they were then asked about the frequency of prosocial behaviors compared to before the pandemic (using a 5-point scale; 1 = less than usual, 5 = more than usual) and the target of the prosocial behaviors (using a 5-point scale; 1 = primarily for family/close friends, 5 = primarily for strangers). There are two outcome variables for prosocial behaviors: (a) sum scores (i.e., the sum of "Yes" answers to the items) and (b) frequency scores (i.e., multiplying the sum scores with the averaged frequency score across the eight items; to consider the *amount*

**Table 1.** Descriptive Statistics of Demographics Information

	Sample (N = 330)
<b>Age</b>	
Mean (SD)	40.06 (17.47)
Median [min, max]	34 [18, 89]
The number of participants falling into each age range	
18–39	204
40–59	57
60 and older	69
<b>Sex</b>	
Male	55 (16.67%)
Female	275 (83.33%)
<b>Race</b>	
African American	5 (1.5%)
Asian	30 (9.1%)
White	286 (86.7%)
Hispanic/Latinx	4 (1.2%)
More than one race/prefer to self-describe	3 (0.9%)
Unknown/prefer not to say	2 (0.6%)
<b>Education</b>	
High school diploma or GED	9 (2.7%)
Some college	34 (10.3%)
College degree	91 (27.6%)
Some postbachelor education	38 (11.5%)
Graduate, medical, or professional degree	158 (47.9%)
<b>Entire household income</b>	
\$0–\$25,000	16 (4.8%)
\$25,001–\$50,000	56 (17.0%)
\$50,001–\$75,000	45 (13.6%)
\$75,001–\$100,000	59 (17.9%)
\$100,001–\$150,000	76 (23.0%)
\$150,001–\$250,000	43 (13.0%)
\$250,000+	35 (10.6%)
<b>Prosocial behaviors: mean (SD)</b>	
Sum scores (range: 0–8)	2.80 (1.64)
Frequency scores <sup>a</sup> (range: 1–40)	11.59 (6.37)
Target scores <sup>a,b</sup> (range: 1–5)	2.93 (1.23)
Close-other scores <sup>a</sup> (range: 0–8)	1.25 (1.09)
Distant-other scores <sup>a</sup> (range: 0–8)	1.15 (1.13)
<b>Toronto Empathy Questionnaire: mean (SD)</b>	
Total sum scores (range: 0–64)	49.42 (6.63)

<sup>a</sup>N = 308 (308 participants responded “Yes” to at least one prosocial behaviors item).

<sup>b</sup>1 = primarily for family/close friends, 5 = primarily for strangers.

of prosocial behaviors). Prosocial target variables were calculated in two ways: (a) target scores (i.e., by averaging the target scales; to assess whether prosocial behaviors are overall directed more toward close or distant others) and (b) close (or distant) others scores (i.e., summing the number of items where participants responded 1 or 2 [or 4 or 5 for distant-others scores]; to consider the *amount* of prosocial behaviors toward close and distant others, respectively).

## Empathy

Participants’ empathy was measured using the Toronto Empathy Questionnaire (TEQ; Spreng et al., 2009), which consists of 16 items (e.g., “I enjoy making other people feel better”; Cronbach’s  $\alpha = 0.84$ ). Participants were asked about how often they feel or act in the manner described by the item on a 5-point scale (0 = never, 4 = always). The total sum scores were used for outcome variables.

## Results

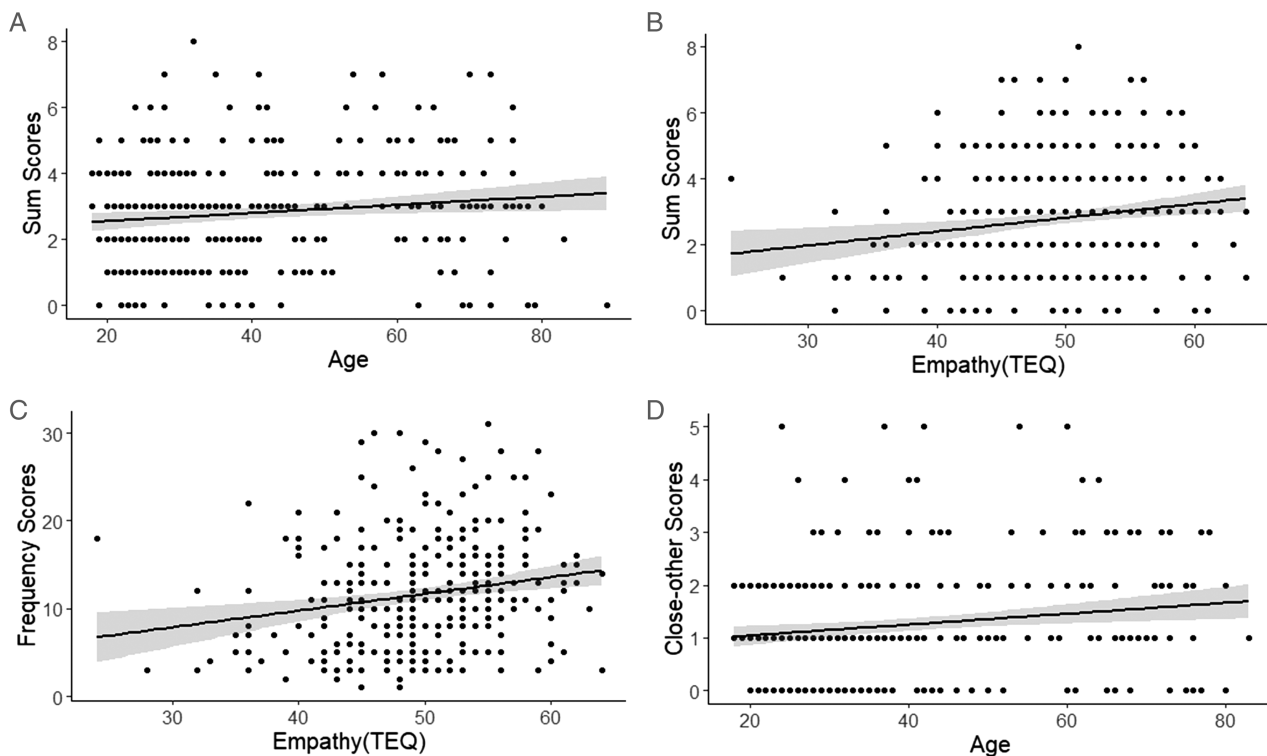
All variables are continuous. Because two variables (i.e., sum and frequency scores, target, and close/distant-other scores) were examined to test each of the hypotheses, we applied the Bonferroni-corrected  $p = .025$  (i.e.,  $0.05/2$ ) as the significance threshold. Ninety-three percent of participants ( $n = 308$ ) reported at least one prosocial behavior, although the average sum and frequency scores were relatively low (Table 1).

### Age and Prosocial Behaviors

We tested whether age-related differences in prosocial behaviors occur during the COVID-19 pandemic (H1a and H1b) using linear regressions. Age was positively associated with the sum scores for prosocial behaviors,  $F(1, 328) = 5.73, p = .017, R^2 = 0.02$  (Figure 1A). This relationship held when controlling for sex and household income (i.e., the midpoint of the entire household income range divided by the number of dependents), using hierarchical linear regressions (Model 1 in Table 2), suggesting more prosociality with age (supporting H1a). Among participants who endorsed at least one prosocial behavior, age was not associated with increased frequency of prosocial behaviors,  $F(1, 306) = 3.03, p = .08$ . Age-related differences in prosociality for each item were also assessed for exploratory purposes (Supplementary Material).

### Empathy and Prosocial Behaviors

We tested whether individuals with higher levels of empathy show more prosocial behaviors during the pandemic (H2) using linear regression. Empathy was positively associated with both of the prosocial behaviors outcomes: (a) sum scores:  $F(1, 328) = 9.73, p = .002, R^2 = 0.03$  and (b) frequency scores:  $F(1, 306) = 12.10, p = .001, R^2 = 0.04$  (Figure 1B and C). These relations held even when controlling for sex and household income (Models 2 and 3 in Table 2), indicating that empathy is positively associated with prosociality during the pandemic (H2). These relations did not change when excluding two participants whose empathy scores exceed  $\pm 3SD$ .



**Figure 1.** Scatterplots depicting the relations between (A) age and sum scores ( $r(328) = 0.13, p = .017$ ), (B) empathy and sum scores ( $r(328) = 0.17, p = .002$ ), (C) empathy and frequency scores ( $r(306) = 0.20, p = .001$ ), and (D) age and close-other scores ( $r(306) = 0.16, p = .005$ ; cf. zeros in the close-other scores indicate respondents who responded “Yes” to at least one prosocial behavior item but did not answer any of their prosocial behaviors were toward close others (i.e., answered neither 1 [primarily for family/close friends] nor 2 on a 5-point scale in any target questions). The gray shading around the regression line reflects the 95% confidence interval. TEQ = Toronto Empathy Questionnaire.

### Empathy as a Mediator in the Relation Between Age and Prosocial Behaviors

We planned to test whether empathy mediates the relation between age and prosocial behaviors (H3), but age did not significantly predict empathy,  $F(1, 328) = 0.22, p = .64$ . Thus, the mediation analysis was not run, and H3 was not supported.

### Age and the Target of Prosocial Behaviors

To examine whether prosocial behaviors in older age during the pandemic are directed more toward close or distant others, linear regressions were used. First, there was a nonsignificant trend that age was negatively associated with target scores (i.e., more prosociality toward close others with age),  $F(1, 306) = 3.52, p = .06, R^2 = 0.01$ . For the close- and distant-others scores, age was positively related to the close-others scores,  $F(1, 306) = 8.11, p = .005, R^2 = 0.03$  (Figure 1D), but not significantly associated with distant-others scores,  $F(1, 306) = 1.94, p = .17$ . The relation between age and close-others scores was still significant even when sex and income were controlled (Model 4 in Table 2). The results suggest that older adults showed greater prosocial behaviors toward close, but not distant, others during the pandemic (supporting H4a).

### Discussion

This study examined whether and how prosocial behaviors during the COVID-19 pandemic differ with age and empathy. There are several important results.

First, consistent with previous studies showing age-related increases in prosociality (Sparrow et al., 2021), increased age was associated with higher engagement in prosocial behaviors during the pandemic. The results correspond with a recent study (Sin et al., 2021) that reported age-related increases in prosociality during the pandemic by investigating the frequency of daily-reported prosociality for seven consecutive days. However, our results diverge slightly in that we found age associated with a greater breadth in the types of prosocial behaviors performed (sum scores) rather than in the overall frequency of behaviors performed. Importantly, the frequency measures in the two studies were not the same. Here, participants retrospectively reported *differences* in frequency of prosocial behaviors during the pandemic when compared with prepandemic. Sin et al. computed frequencies based on daily reporting over seven consecutive days. Thus, our frequency item may fail to capture age differences in frequency scores if older adults are more prosocial in general (even prepandemic). Such variations in the measures of prosociality across the two studies make it difficult to

**Table 2.** Summary of Hierarchical Regression Analyses Testing for Effects of Age and Empathy on Prosocial Behaviors, Including the Sum of Behaviors, Frequency, and Targets, Controlling for Sex and Household Income

Step	Predictor	Beta (95% CI)	<i>t</i>	<i>R</i>	<i>R</i> <sup>2</sup>	<i>p</i>
Model 1 (DV: Sum scores, <i>N</i> = 330)						
Step 1	Constant	2.50 (CI [1.99, 3.01])	9.67	0.07	0.01	.45
	Sex	0.29 (CI [-0.19, 0.76])	1.18			
	Household income	6.83E <sup>-7</sup> (CI [0.00, 0.00])	0.48			
Step 2	Constant	1.88 (CI [1.19, 2.57])	5.37	0.16	0.03	.010
	Sex	0.36 (CI [-0.12, 0.84])	1.49			
	Household income	8.93E <sup>-7</sup> (CI [0.00, 0.00])	0.64			
	Age	0.01 (CI [0.00, 0.02])	2.59			
Model 2 (DV: Sum scores, <i>N</i> = 330)						
Step 1	Constant	2.50 (CI [1.99, 3.01])	9.67	0.07	0.01	.45
	Sex	0.29 (CI [-0.19, 0.76])	1.18			
	Household income	6.83E <sup>-7</sup> (CI [0.00, 0.00])	0.48			
Step 2	Constant	0.65 (CI [-0.70, 2.00])	0.95	0.17	0.03	.004
	Sex	0.14 (CI [-0.35, 0.62])	0.56			
	Household income	5.21E <sup>-7</sup> (CI [0.00, 0.00])	0.37			
	Empathy	0.04 (CI [0.01, 0.07])	2.91			
Model 3 (DV: Frequency scores, <i>N</i> = 308)						
Step 1	Constant	10.02 (CI [7.95, 12.10])	9.50	0.10	0.01	.21
	Sex	0.91 (CI [-1.03, 2.86])	0.92			
	Household income	8.77E <sup>-6</sup> (CI [0.00, 0.00])	1.52			
Step 2	Constant	1.61 (CI [-3.86, 7.08])	0.58	0.21	0.04	.001
	Sex	0.28 (CI [-1.68, 2.23])	0.28			
	Household income	7.50E <sup>-6</sup> (CI [0.00, 0.00])	1.32			
	Empathy	0.18 (CI [0.07, 0.29])	3.26			
Model 4 (DV: Close-other scores, <i>N</i> = 308)						
Step 1	Constant	1.13 (CI [0.78, 1.48])	6.29	0.14	0.02	.045
	Sex	0.32 (CI [-0.02, 0.65])	1.87			
	Household income	-1.62E <sup>-6</sup> (CI [0.00, 0.00])	-1.65			
Step 2	Constant	0.64 (CI [0.17, 1.11])	2.66	0.22	0.05	.003
	Sex	0.37 (CI [0.04, 0.70])	2.21			
	Household income	-1.50E <sup>-6</sup> (CI [0.00, 0.00])	-1.55			
	Age	0.01 (CI [0.00, 0.02])	3.03			

Notes: CI = confidence interval; DV = Dependent variable. Model 1 (the effect of age on the sum of behaviors), Model 2 (the effect of empathy on the sum of behaviors), Model 3 (the effect of empathy on the frequency of behaviors), and Model 4 (the effect of age on the close-other scores; higher scores indicate prosocial behaviors more toward close others). Step 1 includes control variables (i.e., sex, household income) only, and age (or empathy) is then added in Step 2.

directly compare prosociality in our sample with that in the work of Sin et al. (2021).

We also found a positive relationship between empathy and prosociality as shown in existing literature (Hoffman, 2008; Pfartheicher et al., 2020). Empathy, however, did not mediate the age–prosociality association because empathy was not significantly associated with age. The lack of age–empathy association might reflect the characteristics of our empathy measure (i.e., TEQ). Even though the TEQ is strongly related to affective empathy (Spreng et al.,

2009), it also taps cognitive empathy. Thus, measures specifically estimating affective empathy might explain the age–prosociality association.

Lastly, regarding the target of prosociality, older age was associated with more prosociality toward close others. Such findings appear to correspond with previous findings that older adults devote more resources to close others (Wrzus et al., 2013). Or, it is possible that the restrictive nature of the COVID-19 pandemic, due to higher health risk for older adults, restrains older adults’ activities more than

young, ultimately leading to their increased prosociality toward close others. The lack of both age-related differences in social isolation and associations between social isolation and prosociality (Supplementary Material), however, seems to speak against this possibility, as does the fact that the age differences arose in the sum scores, reflecting that older age is associated with a wider range of prosocial behaviors.

The current study has potential limitations. The sample tended to be highly educated, White, English-speaking, and female and required access to technology to participate. The sample was somewhat bimodal in the age which might pose challenges to understand age and prosociality across the entire life span, given the importance of middle age in the development of prosociality (Sparrow et al., 2021). In addition, data rely on retrospective self-report and could, in part, reflect inaccurate memory and differences in individuals' desires to appear prosocial, and possible age or cohort differences in this tendency. Because the measures (i.e., prosociality, empathy) were estimated during the pandemic, the current findings may not apply to normal circumstances, but this cannot be determined without replication during nonpandemic times.

Despite the possibility that the current findings reflect idiosyncrasies of our sample, this study makes a contribution to revealing how prosociality differs with age and empathy by assessing effects on behavior in one's community during the uniquely stressful period of need and investigating diverse contextual features of prosociality.

## Supplementary Material

Supplementary data are available at *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences* online.

## Funding

This work was supported by funding from Boston College. I. Cho is supported by the National Institutes of Health (R01AG061886 awarded to A. Gutches). T. J. Cunningham is supported by the Research Training Program in Sleep, Circadian and Respiratory Neurobiology (National Institutes of Health T32 HL007901) through the Division of Sleep Medicine at Harvard Medical School and Brigham & Women's Hospital.

## Conflict of Interest

None declared.

## Data Availability

The Boston College COVID full data set is available at <https://osf.io/gpxwa/> and the cleaned data set used for this

project is available at [https://osf.io/8qj6y/?view\\_only=03dcf87ba6b49cd8dc5d9181bc75c35](https://osf.io/8qj6y/?view_only=03dcf87ba6b49cd8dc5d9181bc75c35). The hypotheses, exclusion criteria, and data analysis plans of this study were preregistered on the Open Science Framework: <https://osf.io/v47n3>. We thank all the participants who made this research possible.

## References

- Ajrouch, K. J., Blandon, A. Y., & Antonucci, T. C. (2005). Social networks among men and women: The effects of age and socioeconomic status. *The Journals of Gerontology, Series B, Psychological Sciences and Social Sciences*, 60(6), 311–317. doi:10.1093/geronb/60.6.s311
- Bailey, P. E., Ebner, N. C., & Stine-Morrow, E. A. L. (2021). Introduction to the special issue on prosociality in adult development and aging: Advancing theory within a multilevel framework. *Psychology and Aging*, 36(1), 1–9. doi:10.1037/pag0000598
- Beadle, J. N., Sheehan, A. H., Dahlben, B., & Gutches, A. H. (2015). Aging, empathy, and prosociality. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 70(2), 215–224. doi:10.1093/geronb/gbt091
- Brandtstädter, J., & Rothermund, K. (2002). The life-course dynamics of goal pursuit and goal adjustment: A two-process framework. *Developmental Review*, 22(1), 117–150. doi:10.1006/drev.2001.0539
- Buchanan, T. W., & Preston, S. D. (2014). Stress leads to prosocial action in immediate need situations. *Frontiers in Behavioral Neuroscience*, 8, 5. doi:10.3389/fnbeh.2014.00005
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165–181. doi:10.1037/0003-066X.54.3.165
- Chen, Y. C., Chen, C. C., Decety, J., & Cheng, Y. (2014). Aging is associated with changes in the neural circuits underlying empathy. *Neurobiology of Aging*, 35(4), 827–836. doi:10.1016/j.neurobiolaging.2013.10.080
- Cunningham, T. J., Fields, E. C., Garcia, S.M., & Kensinger, E. A. (2021). The relation between age and experienced stress, worry, affect, and depression during the spring 2020 phase of the COVID-19 pandemic in the United States. *Emotion*. Advance online publication. doi:10.1037/emo0000982
- Cunningham, T. J., Fields, E. C., & Kensinger, E. (2021). Boston College COVID-19 sleep and well-being dataset: Daily survey data during early phase of COVID-19 pandemic. *Scientific Data*, 8(1), 1–6. doi:10.6084/m9.figshare.14069348.v1
- Decety, J., Bartal, I. B., Uzevovsky, F., & Knafno-Noam, A. (2016). Empathy as a driver of prosocial behaviour: Highly conserved neurobehavioural mechanisms across species. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, 371(1686), 20150077. doi:10.1098/rstb.2015.0077
- Einolf, C. J. (2008). Empathic concern and prosocial behaviors: A test of experimental results using survey data. *Social Science Research*, 37(4), 1267–1279. doi:10.1016/j.ssresearch.2007.06.003
- Erikson, E. H. (1963). *Childhood and society* (2nd ed.). W W Norton & Co.
- Fabes, R. A., & Eisenberg, N. (1998). *Meta-analyses of age and sex differences in children's and adolescents' prosocial behavior*.

- Working paper, Arizona State University. Retrieved from <http://www.public.asu.edu/~sparky00/fabes/meta.pdf>
- Henry, J. D., Phillips, L. H., Ruffman, T., & Bailey, P. E. (2013). A meta-analytic review of age differences in theory of mind. *Psychology and Aging, 28*(3), 826–839. doi:10.1037/a0030677
- Hoffman, M. L. (2008). Empathy and prosocial behavior. In M. Lewis, J. Haviland-Jones & L. Feldman-Barrett (Eds.), *Handbook of emotions* (3rd ed., pp. 440–455). Guilford Press.
- Mayr, U., & Freund, A. M. (2020). Do we become more prosocial as we age, and if so, why? *Current Directions in Psychological Science, 29*, 248–254. doi:10.1177/0963721420910811
- Midlarsky, E., & Kahana, E. (1994). *Altruism in later life*. SAGE Publications.
- Mooradian, T. A., Davis, M., & Matzler, K. (2011). Dispositional empathy and the hierarchical structure of personality. *The American Journal of Psychology, 124*(1), 99–109. doi:10.5406/amerjpsyc.124.1.0099
- Pfattheicher, S., Nockur, L., Böhm, R., Sassenrath, C., & Petersen, M. B. (2020). The emotional path to action: Empathy promotes physical distancing and wearing of face masks during the COVID-19 pandemic. *Psychological Science, 31*(11), 1363–1373. doi:10.1177/0956797620964422
- Piff, P. K., Kraus, M. W., Côté, S., Cheng, B. H., & Keltner, D. (2010). Having less, giving more: The influence of social class on prosocial behavior. *Journal of Personality and Social Psychology, 99*(5), 771–784. doi:10.1037/a0020092
- Simpson, J. A., & Beckes, L. (2010). Evolutionary perspectives on prosocial behavior. In M. Mikulincer & P. R. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature* (pp. 35–53). American Psychological Association.
- Sin, N. L., Klaiber, P., Wen, J. H., & DeLongis, A. (2021). Helping amid the pandemic: Daily affective and social implications of COVID-19-related prosocial activities. *The Gerontologist, 61*(1), 59–70. doi:10.1093/geront/gnaa140
- Sparrow, E. P., Swirsky, L. T., Kudus, F., & Spaniol, J. (2021). Aging and altruism: A meta-analysis. *Psychology and Aging, 36*(1), 49–56. doi:10.1037/pag0000447
- Spreng, R. N., McKinnon, M. C., Mar, R. A., & Levine, B. (2009). The Toronto Empathy Questionnaire: Scale development and initial validation of a factor-analytic solution to multiple empathy measures. *Journal of Personality Assessment, 91*(1), 62–71. doi:10.1080/00223890802484381
- Sze, J. A., Gyurak, A., Goodkind, M. S., & Levenson, R. W. (2012). Greater emotional empathy and prosocial behavior in late life. *Emotion (Washington, D.C.), 12*(5), 1129–1140. doi:10.1037/a0025011
- von Dawans, B., Fischbacher, U., Kirschbaum, C., Fehr, E., & Heinrichs, M. (2012). The social dimension of stress reactivity: Acute stress increases prosocial behavior in humans. *Psychological Science, 23*(6), 651–660. doi:10.1177/0956797611431576
- Wrzus, C., Hänel, M., Wagner, J., & Neyer, F. J. (2013). Social network changes and life events across the life span: A meta-analysis. *Psychological Bulletin, 139*(1), 53–80. doi:10.1037/a0028601