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Research Article

Volunteering, Self-Perceptions of Aging, and Mental Health in Later Life

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Abstract

Background and Objectives: Scholars argue that volunteering enhances social, physical, and cognitive activities that are increasingly valued as people age, which in turn improves older adults' well-being via a host of psychosocial and neurobiological mechanisms. This study explicitly tested older adults' self-perceptions of aging as a mechanism underlying the mental health benefits of volunteering.
Research Design and Methods: Using 2-wave data from the *Health and Retirement Study* (2008/2010 for Wave 1 and 2012/2014 for Wave 2), we analyzed reports from a pooled sample of older adults aged 65 or older (*N* = 9,017). Participants reported on demographic characteristics, volunteer work (did not volunteer, 1–99 h/year, 100+ h/year), self-perceptions of aging, and depressive symptoms. We estimated an autoregressive cross-lagged panel model.
Results: Volunteering for 100 h or more per year was associated with older adults' more positive and less negative self-perceptions of aging in the subsequent wave (i.e., 4 years later), which in turn predicted fewer depressive symptoms.
Discussion and Implications: This study suggests the promising role of volunteering in shaping older adults' self-perceptions of aging on a sustained basis and refines our understanding of the benefits volunteering brings. Findings shed light on future interventions aimed at improving older adults' adjustment to age-related changes and lessening ageism in society.

Keywords: Age stereotype, Depression, Health and Retirement Study, Subjective aging, Volunteer

Volunteering is one way for older adults to remain productively engaged in society and help people outside their social networks (Carr et al., 2015; Morrow-Howell, 2010). A plethora of research has documented the salubrious effects of volunteering in later life, but the mechanisms underlying these effects are less clear, which calls for more research to better inform interventions (Burr et al., 2021). Theoretical perspectives have been proposed to understand some of the mechanisms, suggesting that volunteering improves older adults' health by strengthening pivotal psychosocial resources in later life (e.g., social integration, generativity, a sense of meaning or purpose in life; Gruenewald et al., 2016;

Müller et al., 2014; Pilkington et al., 2012) and flattening physical and cognitive declines with age (Anderson et al., 2014). Surprisingly little is known, however, about how older adults' volunteering shapes their views on getting older (i.e., self-perceptions of aging), which are reliable predictors of older adults' health (Levy, 2009). Building on extant theoretical frameworks, we proposed self-perceptions of aging as a mechanism that contributes to our understanding of the benefits of volunteering in later life.

Self-perceptions of aging can be positive or negative, and they may be either a benefit or a barrier against older adults' health (Levy, 2009). Older adults with more

positive and less negative self-perceptions of aging typically live longer and healthier (Levy et al., 2018; Luo & Li, 2020). Yet, only a handful of studies have considered the antecedents of self-perceptions of aging, primarily through priming in the laboratory (Kotter-Grühn & Hess, 2012; Meisner, 2012). We know little about how these self-perceptions could be sustained beyond the laboratory manipulation. Given that volunteering provides the opportunity for older adults to serve a valuable role in their community, the experience could positively influence their identity as an aging individual. Moreover, volunteering typically occurs over a period of time as a regular form of engagement and thus the influence may occur on a sustained basis.

We were also interested in whether volunteering and its impact on self-perceptions of aging may help maintain older adults' mental health despite some inevitable physical and cognitive declines with age (Ryff et al., 1998). Much prior research has linked volunteering to reduced depressive symptoms (Jenkinson et al., 2013). This study explicitly tested self-perceptions of aging as a potential mechanism explaining this link.

The current study drew on longitudinal data from the *Health and Retirement Study* (HRS) that tracked older adults' volunteering, self-perceptions of aging, and depressive symptoms over time. The purpose is to examine (a) whether volunteering is associated with more positive and less negative self-perceptions of aging over time and (b) whether self-perceptions of aging mediate the link between volunteering and changes in depressive symptoms over time.

Volunteering and Self-Perceptions of Aging

Volunteering may shape older adults' self-perceptions of aging. Two theoretical perspectives guide this hypothesis. Stereotype embodiment theory posits that individuals are exposed to age stereotypes across the life span, which generate expectations that may or may not match with their behavioral outcomes (Levy, 2009). When there is a match, these stereotypes are internalized as self-perceptions of aging ("stereotype-matching"; Levy & Leifheit-Limson, 2009). Volunteering offers older adults a unique opportunity to help others as a useful person and increase their sense of purpose (Thoits, 2012). These older adults also likely interact with other older volunteers making positive contributions. As such, volunteering may expose older adults to positive stereotypes of older adults as spry and helpful and counteract negative stereotypes of older adults as incompetent and dependent (Anderson et al., 2014; Gruenewald et al., 2016).

Moreover, volunteerism is a salient social role that affects older adults' sense of being a valued member of the community. Role theory suggests that individuals who spend more time volunteering place stronger values on their identity as a volunteer (Oakes & Turner, 1980; Thoits,

2012). Thus, older adults who volunteer, especially those who volunteer for more hours, may be more likely to internalize the positive characteristics (e.g., being a worthy community member) associated with their volunteer roles, which influence their self-perceptions of aging. Much research examined volunteer status (i.e., *being a volunteer* vs. *nonvolunteer*), but a closer look at volunteer hours may yield more nuanced information regarding the effect of volunteering (Carr et al., 2018; Kim & Pai, 2010). This study investigated whether volunteering for more hours is associated with more positive and less negative self-perceptions of aging over time.

The Role of Self-Perceptions of Aging in Link Between Volunteering and Depression

This study also tested whether self-perceptions of aging explain the mental health benefits of volunteering (Burr et al., 2021; Carr et al., 2015). Most studies link more volunteer hours to fewer depressive symptoms and a lower likelihood of developing depression over time (Kim & Pai, 2010; Li & Ferraro, 2005). Yet, the mechanisms of this link are less clear (Carr et al., 2015). In addition to testing the direct effect of volunteering on depressive symptoms, we also explored the potential indirect path of this effect via self-perceptions of aging.

Notably, a growing body of research has examined associations between self-perceptions of aging and health outcomes, such as depression (Han & Richardson, 2015), dementia (Levy et al., 2018), and disability (Moser et al., 2011). Tracking all of these outcomes for a period of 7 years, a recent study identified four health trajectory patterns using latent profile analysis and linked these patterns to older adults' self-perceptions of aging (Luo & Li, 2020). Older adults who had more negative self-perceptions of aging were more likely to show patterns characterized by more depressive symptoms over time, regardless of changes in other health outcomes.

The Current Study

This study used longitudinal data from the Health and Retirement Study (HRS) to examine volunteering as a promising predictor of older adults' self-perceptions of aging, which may in turn explain the mental health benefit of volunteering. We expected older adults who volunteer for more hours to report more positive and less negative self-perceptions of aging over time (Hypothesis 1). We also tested self-perceptions of aging as a mediator underlying the benefits of volunteering, expecting volunteering for more hours to be associated with fewer depressive symptoms over time due to increasingly more positive and less negative self-perceptions of aging (Hypothesis 2).

We adjusted for other factors associated with our key variables of interest, including demographic characteristics

(i.e., age, gender, education, income, marital status, employment status, and minority status), health indicators (i.e., self-rated health, number of chronic conditions, and functional limitations), and informal help to friends or relatives. Research has shown variation in volunteering and mental health across age, gender, social class, and minority status (Musick & Wilson, 2008; Rosenfield, 2012). Poor physical health limits older adults' mobility and ability to volunteer, which in turn negatively influence both self-perceptions of aging and mental health among these older adults (Burr et al., 2021). Older adults may engage in other helping behaviors, such as offering help to friends or relatives (Choi et al., 2007). Occupying multiple social roles (i.e., being a formal volunteer and also an informal helper) could result in role strain and/or enhancement, both of which are associated with mental health (Burr et al., 2021; Thoits, 2012). Additionally, prior research has linked helping family and friends per se to a variety of health outcomes (Thomas, 2010). We also considered older adults' initial levels of self-perceptions of aging and depressive symptoms. Little research tested the impact of self-perceptions of aging on volunteering, but older adults with fewer depressive symptoms are more likely to volunteer (Li & Ferraro, 2005).

Design and Methods

Data and Participants

This study used longitudinal data from the HRS, which tracked a nationally representative sample of Americans aged 50 or older and their spouses (regardless of age). The HRS has been fielded biennially since 1992. We analyzed two-wave data collected from 2008/2010 and 2012/2014; the measures of self-perceptions of aging were first added to the Leave-Behind Questionnaire (LBQ; i.e., Participant Lifestyle Questionnaire) in 2008. Only a random half of the sample was invited to complete the LBQ in each wave, and the other half completed the questionnaire 2 years later. Because these two samples were mutually exclusive, we pooled participants from 2008 and 2010 as the initial wave and then 4 years later (2012 and 2014) as the follow-up wave. We adjusted for the random sample, coded as 1 (*completed 2008 and 2012*) or 0 (*completed 2010 and 2014*), in the model.

In total, 19,507 participants were eligible to complete the LBQ in Wave 1 (2008/2010). Given our focus on older adults' self-perceptions of aging, we excluded 8,356 participants aged younger than 65. Among the 11,151 participants aged 65 or older in Wave 1 (2008 or 2010), 8,358 returned for Wave 2 (2012 or 2014), 659 dropped out, and 2,134 were deceased between waves. Omitting the 2,134 deceased participants, we included a final analytic sample of 9,017 participants. Compared to the deceased participants, our sample was younger, healthier, better educated, more likely to be female, partnered, to help, and work for pay; they also reported more positive and less

negative self-perceptions of aging as well as fewer depressive symptoms in Wave 1. These two groups of participants did not differ in minority status, however.

Measures

Volunteering

In each wave, participants indicated whether they had spent any time in the past 12 months doing volunteer work for religious, educational, health-related, or other charitable organizations (1 = *yes* and 0 = *no*). If they answered yes, participants were asked whether the time amounted to 50, 100, and 200 h. Based on participants' reports, we generated three dummy variables (1 = *yes* and 0 = *no*) to measure whether participants (a) did not volunteer at all, (b) volunteered 1–99 h/year, and (c) volunteered 100+ h/year (Han et al., 2017). The category of *did not volunteer at all* was used as the reference. We treated Wave 1 volunteering variables as our key predictors.

Self-perceptions of aging

Self-perceptions of aging were measured in each wave using the modified Attitudes Toward Own Aging subscale of the Philadelphia Geriatric Center Morale Scale (Lawton, 1975; Levy et al., 2002). Participants indicated their feelings about getting older and things that occur as they age (1 = *strongly disagree* to 6 = *strongly agree*). The measure includes eight items from which we generated two measures. For positive self-perceptions of aging, items include (a) I have as much pep as I did last year, (b) I am as happy now as I was when I was younger, (c) As I get older, things are better than I thought they would be, and (d) So far, I am satisfied with the way I am aging. For negative self-perceptions of aging, items include (a) Things keep getting worse as I get older, (b) The older I get, the more useless I feel, (c) The older I get, the more I have had to stop doing things that I liked, and (d) Getting older has brought with it many things that I do not like. We averaged participants' ratings across items in the measures for positive self-perceptions of aging (Wave 1: $\alpha = .76$; Wave 2: $\alpha = .78$) and negative self-perceptions of aging (Wave 1: $\alpha = .76$; Wave 2: $\alpha = .75$). Higher scores of positive self-perceptions of aging represent more positive views of getting older, and the same applies to negative self-perceptions of aging. The correlations between positive and negative self-perceptions of aging were moderate (Wave 1: $r = -.46$; Wave 2: $r = -.42$). We tested Wave 2 self-perceptions of aging as the outcome for Hypothesis 1 and the mediator for Hypothesis 2 (also adjusting for Wave 1 self-perceptions of aging).

Depressive symptoms

In each wave, participants rated their depressive symptoms using the shortened version of the Center for Epidemiologic Studies-Depression scale (Radloff, 1977). Participants indicated whether they had experienced certain symptoms much of the time during the past week (1 = *yes* and 0 = *no*).

Symptoms include eight items: feeling depressed, everything was an effort, restless sleep, was happy, felt lonely, enjoyed life, felt sad, and could not get going. We reverse-coded items that were phrased positively and created a sum of depressive symptoms participants experienced in the past week (Wave 1: α = .73; Wave 2: α = .71). We treated Wave 2 depressive symptoms as the outcome for Hypothesis 2 but also adjusted for Wave 1 depressive symptoms.

Background covariates

We adjusted for background characteristics measured in Wave 1. Participants reported age in years, gender (1 = *male* and 0 = *female*), and the number of years they attended school. Participants provided their wage/salary, bonuses/overtime pay/commission/tips, second job or military reserve earnings, and professional practice or trade income; these were all summed and imputed by the RAND Institute to indicate participants' household income. We log-transformed the income variable in the analysis. Participants also rated their health as 1 (*poor*), 2 (*fair*), 3 (*good*), 4 (*very good*), or 5 (*excellent*; Idler & Kasl, 1995) and reported the number of chronic conditions they ever had. Chronic conditions included hypertension, diabetes, cancer, lung disease, heart disease, stroke, psychiatric problems, and arthritis. For functional limitations, participants also indicated whether they had difficulty performing 12 activities such as walking, jogging, sitting, getting up from a chair, climbing, stooping, reaching arms, pull/push large objects, lifting weights, and picking up a dime (1 = *yes* and 0 = *no*). Responses were summed (Nagi, 1976). Participants reported their marital status (e.g., married, partnered, divorced, separated, widowed, and never married), which was then recoded to 1 (*married/partnered*) and 0 (*nonmarried/partnered*). Participants self-identified their race and ethnicity, based on which we coded 1 (*Hispanic or non-Hispanic Black/other race*) and 0 (*non-Hispanic White*). Participants also indicated whether they were working for pay (1 = *yes* and 0 = *no*). We also included informal support participants provided to friends or relatives not coresiding. Like the volunteer hour variables, we generated three dummy variables to indicate whether each participant (a) did not offer informal help (reference group), (b) offered informal help for 1–99 h/year, and (c) offered informal help for 100+ h/year.

Analytic strategy

We estimated the autoregressive cross-lagged panel model (CLPM) using Mplus 8 (Muthén & Muthén, 1998–2017) and handled missing data using a full information maximum likelihood procedure. CLPM is a type of structural equation modeling (SEM) that examines variables measured at two or more time points simultaneously. Each key variable was auto-regressed on the same variable in the prior wave, which accounted for measure stability across waves and provided stronger evidence for causal inferences. We adjusted

for Wave 1 covariates, including participant's age, gender, education, household income, self-rated health, number of chronic conditions, functional limitations, marital status, minority status, employment status, informal support to friends or relatives, and the random sample (1 = *completed 2008 and 2012*, 0 = *completed 2010 and 2014*). Because some participants (*n* = 1,877) were from the same household, we accounted for the nested structure of data using the CLUSTER function. Model fit indices included the comparative fit index (CFI; a value of .95 and greater indicates good fit) and root mean squared error of approximation (RMSEA; a value of .08 and lower indicates good fit).

We tested a priori hypotheses in one SEM model. Our first hypothesis stated that older adults who volunteered for more hours in Wave 1 would report more positive and less negative self-perceptions of aging (Figure 1). We entered the two dummy variables of Wave 1 volunteer hours as predictors (*volunteered for 1–99 h/year* and *volunteered for 100+ h*), using *did not volunteer* as the reference group. Outcomes were positive and negative self-perceptions of aging in Wave 2. Because we adjusted for self-perceptions of aging in Wave 1, the model tested the impact of volunteering on the *change* in these perceptions over time.

We also tested our second hypothesis regarding whether volunteering influenced older adults' depressive symptoms over time via self-perceptions of aging (Figure 1). Predictors were the two dummy variables of Wave 1 volunteer hours as elaborated above. Mediators were self-perceptions of aging in Wave 2. Outcomes were depressive symptoms in Wave 2. Likewise, this model examined the impact of
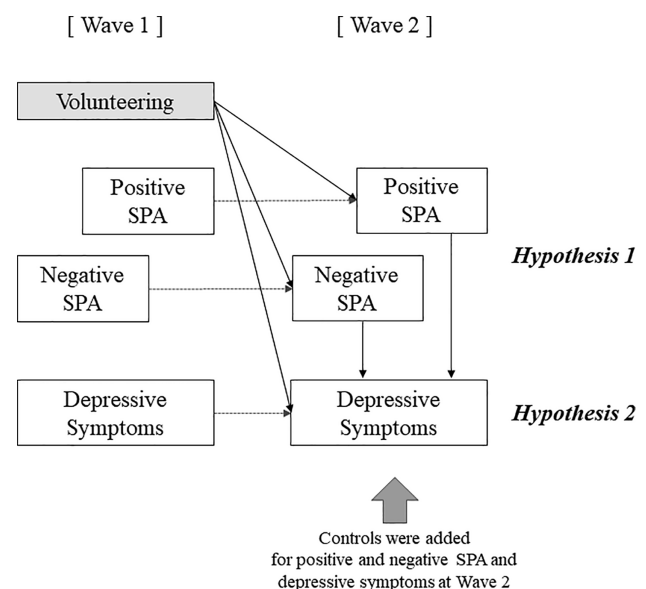

Figure 1. Conceptual model for volunteering, self-perceptions of aging, and depressive symptoms. *Note*: Wave 1 = 2008 or 2010; Wave 2 = 2010 or 2014. SPA = self-perceptions of aging. Only present key paths of the hypotheses for parsimony. Each key variable was regressed on the same variable measured in the prior wave (dashed lines).

volunteering on the *change* in depressive symptoms via the potential change in self-perceptions of aging. The significance of indirect effects was tested with the delta method and 95% confidence intervals for these effects were estimated.

Results

[Table 1](#) presents sample descriptive characteristics. This sample includes slightly more females (59%) and predominantly non-Hispanic Whites (76%). Most participants were married (61%) and no longer worked for pay (79%). They generally rated their health as good, had about two chronic conditions ever, and experienced limitations in almost three functional activities.

In total, 64% of the participants (*n* = 5,733) did not volunteer in Wave 1, about 20% (*n* = 1,766) volunteered for 1–99 h/year, and 17% (*n* = 1,511) volunteered for 100+ h/year. With regard to informal support to friends and relatives, 52% of the participants (*n* = 4,642) did not help in the past year, 35% (*n* = 3,147) helped for 1–99 h, and 14% (*n* = 1,215) helped for 100+ h. Participants' helping

behaviors, either volunteering or informal helping, declined over time (see McNemar's tests in [Table 1](#)). Positive self-perceptions of aging decreased, and negative self-perceptions of aging increased (see paired *t* tests in [Table 1](#)). Yet, volunteers reported more positive and less negative self-perceptions of aging each wave ([Figure 2](#)).

Our model exhibited a good fit: CFI = .98, RMSEA = .04 ([Table 2](#)). In Hypothesis 1, we expected volunteering to predict changes in older adults' self-perceptions of aging between waves. We only observed an effect if older adults volunteered for 100 or more hours per year, which was associated with more positive (*B* = 0.12, *p* < .001) and less negative self-perceptions of aging (*B* = −0.09, *p* = .009). Volunteering for 1–99 h was not associated with either positive (*B* = 0.06, *p* = .08) or negative self-perceptions of aging (*B* = −0.03, *p* = .32).

We also tested whether older adults' self-perceptions of aging mediated the association between volunteering and depressive symptoms (Hypothesis 2). The bivariate correlation between volunteering and depressive symptoms was significant (*p* < .001), but the link became nonsignificant after we adjusted for the covariates. The direct effect

Table 1. Sample Descriptive Information

Variable	Wave 1 M (SD)	Wave 2 M (SD)	Paired *t* or McNemar's test
Age	74.24 (6.64)	—	—
Male, %	41	—	—
Education in years	12.36 (3.49)	—	—
Income[a]	54,927.94 (96,762.56)	—	—
Self-rated health[b]	3.15 (1.05)	—	—
Number of chronic conditions[c]	2.31 (1.38)	—	—
Functional limitations[d]	2.72 (2.69)	—	—
Married/partnered, %	61	—	—
Minority, %	24	—	—
Worked for pay, %	21	—	—
Informal help, %			
Did not help	52	61	240.00***
Helped for 1–99 h	35	31	49.31***
Helped for 100+ h	14	9	129.93***
Volunteering, %			
Did not volunteer	64	69	148.32***
Volunteered for 1–99 h	20	18	24.79***
Volunteered for 100+ h	17	14	68.31***
Positive SPA[e]	4.15 (1.17)	3.92 (1.21)	−16.87***
Negative SPA[e]	3.44 (1.21)	3.55 (1.19)	9.54***
Depressive symptoms[f]	1.34 (2.11)	1.51 (2.41)	7.27***

Notes: SPA = self-perceptions of aging. Participant *N* = 9,017. Wave 1 = 2008 or 2010; Wave 2 = 2010 or 2014.

[a]Income in U.S. dollars (raw score).

[b]Rated from 1 (*poor*) to 5 (*excellent*).

[c]Sum of eight items (yes/no).

[d]Sum of 12 items (yes/no).

[e]Mean of four items rated from 1 (*strongly disagree*) to 6 (*strongly agree*).

[f]Sum of eight items (yes/no).

***p* < .001.

of volunteering on depressive symptoms at Wave 2 was nonsignificant, adjusting for the level of depressive symptoms at Wave 1 (volunteering for 1–99 h: $B = -0.04$, $p = .48$; volunteering for 100+ h: $B = 0.06$, $p = .49$). Yet,
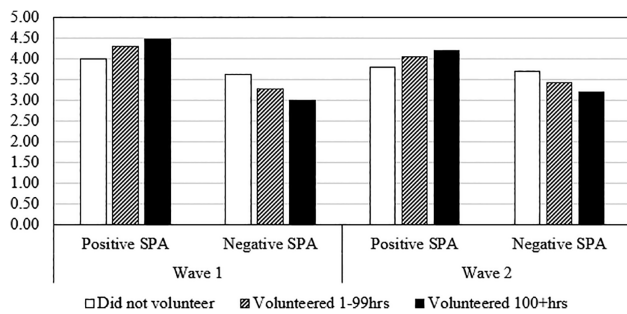

Figure 2. Participants' self-perceptions of aging by volunteer hours. *Note*: Wave 1 = 2008 or 2010; Wave 2 = 2010 or 2014. SPA = self-perceptions of aging.

we observed significant indirect effects of volunteering for 100 or more hours via positive self-perceptions of aging ($B = -0.04$, $p = .002$, 95% confidence interval [CI] = -0.06 to -0.01) and negative self-perceptions of aging ($B = -0.02$, $p = .015$, 95% CI = -0.03 to -0.00). Older adults who volunteered for 100 or more hours per year held more positive and less negative self-perceptions of aging, which reduced their depressive symptoms over time. None of the indirect effects of volunteering for 1–99 h were significant (not shown but available upon request). We also found the total effect of volunteering on depressive symptoms to be nonsignificant (volunteering for 1–99 h: $B = -0.07$, $p = .26$; volunteering for 100+ h: $B = 0.00$, $p = .97$).

Post-Hoc Tests

We estimated a follow-up model to examine whether the association between volunteering and self-perceptions

Table 2. Autoregressive Cross-Lagged Panel Model Predicting Self-Perceptions of Aging and Depressive Symptoms From Volunteering

Parameter	Positive SPA (Wave 2) B (SE)	Negative SPA (Wave 2) B (SE)	Depressive symptoms (Wave 2) B (SE)
Intercept	2.65*** (0.27)	1.32*** (0.26)	2.38*** (0.45)
Volunteered for 1–99 h	0.06 (0.03)	–0.03 (0.03)	–0.04 (0.06)
Volunteered for 100+ h	0.12*** (0.04)	–0.09** (0.03)	–0.33 (0.05)
Did not volunteer (Ref.)	—	—	—
Positive SPA[a] (Wave 1)	0.41*** (0.02)	—	—
Negative SPA[a] (Wave 1)	—	0.42*** (0.01)	—
Positive SPA[a] (Wave 2)	—	—	–0.33*** (0.05)
Negative SPA[a] (Wave 2)	—	—	0.21*** (0.03)
Depressive symptoms[b] (Wave 1)	—	—	0.35*** (0.04)
Participant covariates (Wave 1)			
Age	–0.01*** (0.00)	0.02*** (0.00)	0.00 (0.00)
Male	0.00 (0.03)	0.05 (0.03)	–0.17*** (0.05)
Education in years	–0.01 (0.01)	–0.01* (0.00)	–0.03*** (0.01)
Income[c]	0.01 (0.02)	–0.04 (0.02)	–0.07* (0.03)
Self-rated health[d]	0.16*** (0.02)	–0.11*** (0.02)	–0.06 (0.04)
Number of chronic conditions[e]	–0.02 (0.01)	0.01 (0.01)	0.09*** (0.02)
Functional limitations[f]	–0.02*** (0.01)	0.04*** (0.01)	0.06*** (0.02)
Married/partnered	–0.02 (0.03)	0.07* (0.03)	0.02 (0.06)
Minority	0.20*** (0.04)	–0.13*** (0.03)	0.26*** (0.08)
Worked for pay	0.01 (0.03)	–0.00 (0.03)	0.09 (0.07)
Offered informal help for 1–99 h	0.05 (0.03)	–0.03 (0.03)	–0.02 (0.05)
Offered informal help for 100+ h	–0.02 (0.04)	–0.06 (0.04)	–0.04 (0.08)
Did not offer informal help (Ref.)	—	—	—
Random sample[g]	–0.06* (0.03)	0.07** (0.02)	0.05 (0.05)

Notes: SPA = self-perceptions of aging. Participant $N = 9{,}017$. Comparative fit index = .98, root mean squared error of approximation = .04. Wave 1 = 2008 or 2010; Wave 2 = 2010 or 2014.
[a]Mean of four items rated from 1 (*strongly disagree*) to 6 (*strongly agree*).
[b]Sum of eight items (yes/no).
[c]Log-transformed.
[d]Rated from 1 (*poor*) to 5 (*excellent*).
[e]Sum of eight items (yes/no).
[f]Sum of 12 items (yes/no).
[g]Coded 1 (*completed 2008 and 2012*) and 0 (*completed 2010 and 2014*).
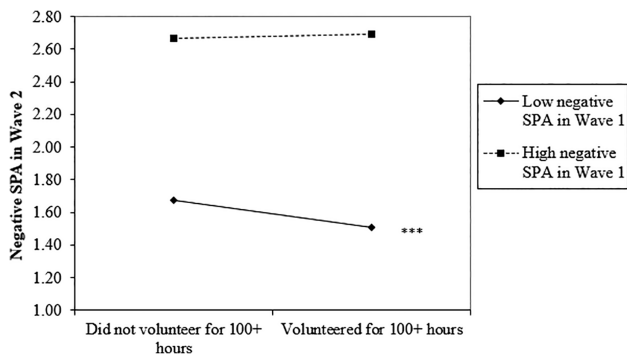*$p < .05$, **$p < .01$, ***$p < .001$.

Figure 3. Interaction of volunteering × initial level of negative self-perceptions of aging on negative self-perceptions of aging in Wave 2. *Note*: Wave 1 = 2008 or 2010; Wave 2 = 2010 or 2014. SPA = self-perceptions of aging. ***$p < .001$.

of aging varied depending on their initial level of self-perceptions of aging (a covariate in the main analysis). We observed a significant interaction ($B = 0.08$, $p = .005$), such that volunteering for 100 or more hours only reduced older adults' negative self-perceptions of aging if they started with less negative self-perceptions of aging ($p < .001$). The link was nonsignificant for older adults who started with stronger negative self-perceptions of aging ($p = .83$; Figure 3). Volunteering for 100 or more hours increased older adults' positive self-perceptions of aging regardless of starting levels ($B = 0.05$, $p = .14$).

We also reestimated the main model using volunteer status (1 = *did any volunteer work*, 0 = *did not volunteer*) as the predictor. This predictor yielded the same pattern of findings as volunteering for 100 or more hours per year (Supplementary Table 1).

Discussion and Implications

Research has linked volunteering to a host of social, physical, and cognitive functioning that vary with age and documented its particularly salient benefit to older adults' health (Anderson et al., 2014; Burr et al., 2021). Yet, this is the first study that tests how older adults' volunteering shapes their internalized age biases or self-perceptions of aging over time and explores these perceptions as a mechanism underlying the volunteering–health link. Findings offer suggestive evidence that volunteering may increase older adults' positive self-perceptions of aging and dampen their negative self-perceptions of aging, which over time reduces their depressive symptoms. This study highlights the unique effect of volunteering (above and beyond other helping behaviors) on older adults' self-perceptions of aging and sheds light on future health-promotion interventions.

Volunteering and Self-Perceptions of Aging

We observed a significant link between volunteering, particularly if for 100 or more hours per year, and changes in

older adults' self-perceptions of aging over time. This finding is in line with role identity theory (Oakes & Turner, 1980; Thoits, 2012) and adds to the small but burgeoning literature on changing self-perceptions of aging. Self-perceptions of aging are typically formed in earlier life (Levy, 2009), and prior attempts on changing these perceptions of aging have not always succeeded. For example, an experimental study found that priming older adults with positive age stereotypes in the laboratory made older adults, even those in good health, feel older immediately (Kotter-Grühn & Hess, 2012). Yet, Levy et al. (2014) conducted an implicit age-stereotype intervention in the community over a longer period of time (four 1-week intervals) and observed a significant increase in older adults' positive self-perceptions of aging. Given that volunteering often reflects a personal choice that ends up with longer-term, regular engagement (Carr, 2018), it may be a promising candidate for interventions aimed to shape older adults' self-perceptions of aging on a sustained basis (and also in the naturalistic setting). We also found an impact of volunteering on both positive and negative self-perceptions of aging, calling for additional research to understand how the processes underlying these impacts differ by the valence (i.e., positive vs. negative).

Importantly, our post hoc test suggests one caveat for reducing negative self-perceptions of aging via volunteering. Older adults with stronger negative self-perceptions of aging may not perceive the social value that they, as an older adult, contribute through their volunteer work as much as their counterparts who view aging less negatively. Negative feelings often last longer (Rook, 2015); therefore, older adults with negative self-perceptions of aging may be more resistant toward changing their thoughts. The current study tracked older adults across 4 years, but a longer period of time may reveal more substantial changes. It would also be important to capture older adults' interactions with fellow volunteers and examine whether their self-perceptions of aging influence the way they communicate, which may also influence the role volunteering plays in their lives. Future research may record these interactions objectively (e.g., using Electronically Activated Recorders) or assess older adults' feelings on the same days when they volunteer.

The Role of Self-Perceptions of Aging in Link Between Volunteering and Depression

We found that volunteering for 100 or more hours per year reduced older adults' depressive symptoms *indirectly* via changing their self-perceptions of aging. This finding contributes to extant theoretical frameworks intended to understand how and why volunteering seems to particularly benefit older adults (Anderson et al., 2014; Burr et al., 2021). In addition to identifying a new mechanism underlying the benefit to each older volunteer, this study can help

extend the frameworks by considering ecological contexts (e.g., reducing ageism in society). Indeed, one study of 11 European countries found more positive age stereotypes (i.e., viewing older adults as more competent) in countries where a higher number of older adults participated in volunteer work (Bowen & Skirbekk, 2013). It also poses interesting questions for future research regarding the impact of volunteering on reducing age-related declines. For example, do older volunteers show a delayed onset of cognitive declines and at a slower pace (Guiney & Machado, 2018; Infurna et al., 2016) because they have more positive and less negative perceptions of aging (Levy et al., 2018)? The same question may apply to older volunteers' better-preserved physical functions than nonvolunteers, in that older adults with more positive self-perceptions of aging are more likely to recover from disability (Levy et al., 2012).

Surprisingly, we did not observe a significant direct path or total effect of volunteering on changes in older adults' depressive symptoms, which is somewhat inconsistent with the literature (Jenkinson et al., 2013). It is worth noting that most U.S. studies that documented the volunteering–depression link relied on data from the *Americans' Changing Lives* study (Kim & Pai, 2010; Li & Ferraro, 2005) or the earliest few waves of the HRS (Hao, 2008), both of which were conducted almost 20 years ago. Changes may have occurred during the past two decades that affect assessing the effect of volunteering on older Americans' mental health. There could be other indirect paths that link volunteering to more depressive symptoms, which wash out the significant indirect effect via self-perceptions of aging (Shrout & Bolger, 2002). Indeed, depending on the type, volunteering can be demanding sometimes. Although volunteering is often an act of free will, some volunteers still feel obligated, overworked, and stressed out. Self-determination theory suggests prosocial behaviors that are not volitional likely compromise individuals' well-being (Ryan & Deci, 2000). A small body of research has also shown that emotional burnout is a key reason behind volunteers' intention to quit (Allen & Mueller, 2013; Chen & Yu, 2014). Future research should consider other factors such as the number of different placements and reasons for volunteering.

Limitations and Implications

There are several limitations in the current study. We included participants who partook in Wave 1 and were still alive in Wave 2, who were significantly different from those who were deceased. The mortality-related attrition issue may inevitably confound our findings with a selection effect (Li & Ferraro, 2005). Given the way volunteering was assessed, it was impossible to examine volunteer hours continuously. We believe the findings are important but are also cautious not to overinterpret the arbitrary threshold presented in this study (i.e., 1–99 vs. 100+ h). Lastly, the volunteering measure in HRS is broad and does not include different types of volunteer activities. Some volunteer

activities can be physically intensive and thus not feasible for older adults with health limitations, who may be the very population that is most vulnerable to negative age stereotypes.

Despite limitations, this study carries important theoretical and practical implications. Findings contribute to the growing body of research that suggests volunteering as an effective way to promote older adults' mental health and identifies self-perceptions of aging as a key factor underlying this benefit. The use of an autoregressive CLPM provides stronger evidence for us to uniquely detect a causal impact of volunteering on changing self-perceptions of aging in the real world (as opposed to in the laboratory). Volunteering regularly simultaneously promotes positive and attenuates negative self-perceptions of aging, which is in line with the recently proposed "two-prong approach" in intervention research that emphasizes jointly modifying age stereotypes in both valences (Levy, 2017). The impact of volunteering occurs over years, which holds promise for lasting benefits to older adults' self-perceptions of aging and mental health in the long run. Although this study focused on individuals, it suggests potential benefits of volunteering to society as a whole. Indeed, volunteering may serve as double protection for older adults, by both influencing their own views of aging and also reducing ageism in the surrounding environment (Bowen & Skirbekk, 2013).

Supplementary Material

Supplementary data are available at *The Gerontologist* online.

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Conflict of Interest

None declared.

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