

# Motives for Volunteering Are Associated With Mortality Risk in Older Adults

Sara Konrath

University of Michigan and University of Rochester Medical Center

Andrea Fuhrel-Forbis and Alina Lou

University of Michigan

Stephanie Brown

University of Michigan and Stony Brook University Medical Center

**Objective:** The purpose of this study is to examine the effects of motives for volunteering on respondents' mortality risk 4 years later. **Methods:** Logistic regression analysis was used to examine whether motives for volunteering predicted later mortality risk, above and beyond volunteering itself, in older adults from the Wisconsin Longitudinal Study. Covariates included age, gender, socioeconomic variables, physical, mental, and cognitive health, health risk behaviors, personality traits, received social support, and actual volunteering behavior. **Results:** Replicating prior work, respondents who volunteered were at lower risk for mortality 4 years later, especially those who volunteered more regularly and frequently. However, volunteering behavior was not always beneficially related to mortality risk: Those who volunteered for self-oriented reasons had a mortality risk similar to nonvolunteers. Those who volunteered for other-oriented reasons had a decreased mortality risk, even in adjusted models. **Conclusions:** This study adds to the existing literature on the powerful effects of social interactions on health and is the first study to our knowledge to examine the effect of motives on volunteers' subsequent mortality. Volunteers live longer than nonvolunteers, but this is only true if they volunteer for other-oriented reasons.

**Keywords:** volunteering, mortality risk, motives, altruism, social interaction, health, older adults

The average life expectancy in the United States has recently reached an all-time high, increasing from 76.6 in 1998 to 78.4 years in 2008 (United Nations Population Division, 2009). Yet, this number represents an average, and many Americans die earlier than expected from preventable diseases such as cardiovascular disease and cancer (Cohen, Janicki-Deverts, & Miller, 2007). These two diseases together accounted for nearly half (48.6%) of all deaths in the United States in 2007 (Centers for Disease Control and Prevention, 2010). Given the high proportion of such preventable causes of death, it is important to understand factors that might help to reduce unnecessarily early mortality in older adults.

Established health benefits of social interaction, and specifically, giving to others, may offer a promising avenue for increasing longevity, especially among more vulnerable groups such as older adults (e.g., Brown, Brown, House, & Smith, 2008; Brown, Nesse, Vinokur, & Smith, 2003; Brown et al., 2009). Studies

specifically examining the effects of *volunteering* find that helping behavior is beneficial for volunteers' psychological and physical health. Regular volunteers have lower rates of depression (Lum & Lightfoot, 2005), better everyday physical functioning and psychological well-being (Greenfield & Marks, 2004; Piliavin & Siegl, 2007; Thoits & Hewitt, 2001), and lower mortality risk (Luoh & Herzog, 2002; Oman, Thoresen, & McMahon, 1999), even when controlling for a number of potential confounds (e.g., gender, social integration, socioeconomic status; Morrow-Howell, Hinterlong, Rozario, & Tang, 2003; Musick, Herzog, & House, 1999), and even when the number of self-reported physician-diagnosed health conditions do not differ between volunteers and nonvolunteers (Lum & Lightfoot, 2005).

As can be expected, most studies examining the relationship between volunteering and mortality do so among older adult populations because of methodological and logistic challenges of examining mortality among younger persons (e.g., longitudinal studies of younger persons would need to wait decades for potential group differences in mortality to surface). Despite this trend in the literature toward older adults, studies of volunteering in younger persons generally find that volunteering is associated with health benefits and well-being (e.g., adolescent volunteers, Benson, Clary, & Scales, 2007; midlife volunteers, Pillemer, Fuller-Rowell, Reid, & Wells, 2010). Multiple recent reviews of the literature on volunteering in older adults have concluded that volunteering is a predictor of decreased mortality (Grimm, Spring, & Dietz, 2007; Harris & Thoresen, 2005; Oman, 2007). In addition, a recent meta-analysis of studies examining the impact of volunteering on mortality in older adults also concludes that vol-

---

This article was published Online First August 15, 2011.

Sara Konrath, Institute for Social Research, University of Michigan, and University of Rochester Medical Center; Andrea Fuhrel-Forbis, Center for Bioethics and Social Sciences in Medicine, Department of Internal Medicine, University of Michigan; Alina Lou, Institute for Social Research, University of Michigan; Stephanie Brown, Institute for Social Research, University of Michigan, and Stony Brook University Medical Center.

Correspondence concerning this article should be addressed to Sara Konrath, Research Center for Group Dynamics, Institute for Social Research, University of Michigan, 426 Thompson Street, Ann Arbor, MI 48106. E-mail: skonrath@umich.edu

unteering is consistently associated with decreased mortality (Okun & Brown, in preparation).

Why should volunteering have such positive effects? To date, the mechanisms of the volunteering-health relationship have been understudied, but there are a number of potential theories. One such explanation is that volunteering boosts social resources, which in turn has health implications (Wilson & Musick, 1999). However, other theorists provide evidence that volunteering has additive benefits above and beyond the benefits of other everyday social activities. Volunteering contributes to a sense of deeper meaning (i.e., eudaimonic well-being) compared with other types of social activities, although other social activities may contribute to temporary and less meaningful aspects of happiness (i.e., hedonic well-being; see Piliavin & Siegl, 2007). Other researchers have suggested that volunteering behavior might prevent feelings of meaninglessness (i.e., anomie), with resulting health implications (Musick et al., 1999).

### Do Motives for Volunteering Matter?

There is a long history of intellectual discourse on what are essentially two fundamental psychological spheres: *self-focus* and *other-focus*. These concepts have parallels in Fromm's (1941) separate identity versus oneness with the world, Erikson's (1950) autonomy versus basic trust, and Bakan's (1966) agency versus communion distinction (see Wiggins, 1991, for a review). Other constructs that capture similar dimensions include instrumental versus expressive roles (Bem, 1974; Parsons & Bales, 1955), individualistic versus collectivist cultures (Triandis, 1995), and independent versus interdependent self-construals (Markus & Kitayama, 1991; Singelis, 1994). Not surprisingly, these two dimensions are also central to an understanding of *human motivation*, and several theorists have made the important distinction between self-oriented and other-oriented motives in driving human behavior. For example, McAdams (1985) distinguishes between power versus intimacy motivations, and more recent theoretical ap-

proaches acknowledge the important dual roles of needs for autonomy and needs for relatedness in humans (Deci & Ryan, 2002).

On the surface, volunteering appears to be a selfless behavior, and as such, it seems to be best captured by the *other-oriented* dimension. However, people volunteer for a variety of reasons, beyond concern for others in need (Table 1). In some cases, volunteering emerges from more self-oriented, or individual, motives (e.g., self-protection, self-enhancement, and/or career promotion; see Clary & Snyder, 1999). We hypothesize that underlying motives for volunteerism may determine whether volunteering is beneficial, with benefits being limited to the case of volunteering for more *other-oriented*, or relational motives, as opposed to more *self-oriented*, or individual motives (Table 1).

By "other-oriented," we are referring to motives that include the desire to help another person and the consideration of close others' behavior and desires in making decisions to volunteer. In this way, volunteer motives are perhaps a more sensitive way to measure helping behavior because those who cite other-oriented motives for volunteering are explicitly considering other people as their primary justification for helping. By "self-oriented," we are referring to motives for volunteering that explicitly consider some personal reward such as improving one's mood or self-esteem, escaping one's problems, or learning a new skill. These are all legitimate reasons to volunteer that are not good or bad in themselves; however, what they have in common is that they typify more individual dimensions rather than more relational ones.

More other-oriented motives for volunteering may be linked to improved health because these motives may help to promote a sense of deep and lasting well-being originating from service to something bigger than the self. This has been found to be one mechanism of health effects for volunteering in general (Piliavin & Siegl, 2007). In addition, other-oriented motives may buffer volunteers against potential stressors that occur in daily life, or even that may result from the volunteering experience itself. Such stressors may include having fewer resources for the self (e.g., less

Table 1  
*Other-Oriented Versus Self-Oriented Motives for Volunteering and Subscale Intercorrelations*

Motive	<i>M</i> ( <i>SD</i> )	Motive Index	Questionnaire items	Correlation with				
				SOC	VAL	PROT	ENHAN	UND
Social connection ( $\alpha = .76$ )	3.47 (1.67)	Other-oriented ( $\alpha = .79$ )	Volunteering is an important activity to the people I know best. Others with whom I am close place a high value on community service.	—	.47	.49	.53	.56
Altruistic values ( $\alpha = .86$ )	5.05 (1.55)		I feel it is important to help others. I feel compassion toward people in need.	.47	—	.33	.67	.59
Self-protection ( $\alpha = .79$ )	2.44 (1.53)	Self-oriented ( $\alpha = .88$ )	Volunteering is a good escape from my own troubles. Volunteering helps me work through my own personal problems	.49	.33	—	.52	.58
Self-enhancement ( $\alpha = .90$ )	4.17 (1.82)		Volunteering makes me feel needed. Volunteering makes me feel better about myself.	.53	.67	.52	—	.70
Learning/understanding ( $\alpha = .74$ )	3.70 (1.67)		I can learn how to deal with a variety of people. I can explore my own strengths.	.56	.59	.58	.70	—

Note. Respondents were asked "How important or accurate, for you, is the following reason for why people engage in volunteer activities" (1 = *not at all important/accurate*; 7 = *extremely important/accurate*).

time), but also might be directly caused by the volunteering situation itself. In many cases, volunteers interact with individuals who are needy, ill, or less fortunate, and these interactions can be emotionally distressing and physically taxing for volunteers (Capner & Caltabiano, 1993; Lewig, Xanthopoulou, Bakker, Dollard, & Metzger, 2007). In other words, volunteering can be stressful and lead to burnout, but perhaps having other-oriented motives can help to regulate this stress.

Prior research has found that increased social support can help to buffer volunteer-related stress (Capner & Caltabiano, 1993; Lewig et al., 2007). However, the consequences to volunteers of other-oriented motives for volunteering have received only a minute amount of empirical attention, having been examined only in two studies that we are aware of, and with mixed results (Ferrari, Luhrs, & Lyman, 2007; Gillath et al., 2005).

One of these studies finds that motives matter in predicting *interpersonal* outcomes, however, the results with respect to other-oriented motives are inconsistent. Gillath and colleagues (2005) examined 6 motives for volunteering—altruistic values, social connection, self-enhancement, self-protection, career promotion, and learning/understanding. They found that college undergraduates who volunteer because they have compassion for needy people (i.e., altruistic values) do indeed derive the most interpersonal benefits from volunteering; they are less likely to show patterns of avoidant attachment, are less lonely, and have fewer interpersonal problems. However, this study demonstrated that individuals who volunteer because it is important to others they care about (i.e., social connection, an other-oriented motive) were *more* likely to show patterns of anxious attachment, contrary to what one might expect. Finally, as one might expect, people who volunteer for certain *self-oriented* reasons (i.e., self-enhancement, self-protection) are more likely to have anxious attachment patterns.

In another relevant study, researchers examined the relationship between motives for working with elderly clients and caregiver stress and satisfaction (Ferrari, Luhrs, & Lyman, 2007). Participants were either unpaid volunteers or paid staff. Among unpaid volunteers, stronger *self-oriented motives* (i.e., self-enhancement, self-protection, or career promotion) for volunteering were associated with increased caregiver *stress*, but there was no relationship between motives of any kind and caregiver *satisfaction*. Among paid caregivers, stronger *self-oriented motives* (specifically, self-protection) were also associated with increased *stress*, while stronger *other-oriented motives* (i.e., social connection, altruistic values) were associated with increased caregiver *satisfaction*. The results of this study suggest that self-oriented motives for caregiving may ultimately result in increased caregiver stress. Given the inconsistency between paid and unpaid caregivers in this study, however, the role of other-oriented motives needs further empirical attention. In addition, this study cannot adequately comment on the causal relationship between motives, stress, and satisfaction, given that the data were collected at a single point in time.

The current study contributes to this literature by (1) providing an additional test case for the role of motives in predicting important outcomes among volunteers, and (2) extending prior work by examining these questions among (a) a large longitudinal cohort sample, (b) with a number of potential confounds addressed, and (c) on an important new health outcome measure (i.e., mortality).

## Research Questions and Hypotheses

We will address three main research questions in this article.

**Part A: Replicating past research on health benefits of volunteering.** Using data from the Wisconsin Longitudinal Study (WLS), we will first attempt to replicate prior research demonstrating that volunteering behavior is associated with a reduced mortality risk at later time points. We hypothesize that volunteering behavior will be associated with a lower mortality risk, especially for regular and frequent volunteers (see Piliavin & Siegl, 2007). Although this first analysis may appear redundant given past research demonstrating mortality benefits associated with volunteering, we include it to demonstrate the validity of the current data set, and also in the interest of supplementing prior research.

**Part B: The health benefits of volunteering depend on the motives.** We hypothesize that health outcomes are driven by one's motives for volunteering, above and beyond volunteering behavior itself. Thus, our second research question examines the role of motives for volunteering on mortality risk. We specifically predict that *other-oriented* motives for volunteering (i.e., social connection, altruistic values) will be associated with reduced mortality risk, and that individuals with more *self-oriented* motives for volunteering will experience either attenuated benefits, or perhaps even an increased risk of mortality. Because of prior work demonstrating the role of motives in stress regulation (Ferrari et al., 2007), we posit that this occurs via a stress regulation process. However, we cannot speak to the mechanism of our finding without further research, and limit this study to a direct examination of the effects of motives on mortality itself.

Prior work with this same dataset (i.e., the WLS) has examined the potential beneficial health outcomes of volunteering (Piliavin & Siegl, 2007), which is an important contribution, but our study adds a unique contribution because we examine the impact of motives for volunteering. In addition, given the updated WLS data that we use (the most recent mortality data is from 2008), the current study can examine the relationship between volunteering and *mortality risk*, rather than only psychological well-being and self-rated health, as prior work has done (Piliavin & Siegl, 2007). Finally, given these past health and well-being outcomes (Piliavin & Siegl, 2007), in the current study we control for any possible effects of psychological well-being and self-rated health.

**Part C: Is it better to volunteer for self-oriented reasons or not to volunteer at all?** In our final analysis, we examine whether it is better to volunteer for self-oriented reasons, or not to volunteer at all, in terms of one's mortality risk. We hypothesize that those who volunteer for self-oriented reasons will have a similar mortality as nonvolunteers. In other words, we expect that only respondents who volunteer for other-oriented reasons will reap the associated mortality benefits.

## Method

### Sample

We used data from the 1992, 2004, and 2008 time points of the WLS, a study that has followed a random sample of 10,317 male and female Wisconsin high school graduates since their graduation in 1957 until the present. The WLS primarily includes Caucasian,

non-Hispanic respondents, thus ethnic minorities are not well-represented. The sample is 51.6% female, and the mean age of all respondents was 69.16 years ( $SD = 0.51$ ) in 2008 (range = 68–71).

### Mortality Status

Mortality status in 2008 was indicated with a dichotomous variable (0 = *alive*, 1 = *deceased*).

### Baseline Measures

**Volunteering behavior and motives.** In 2004, respondents were asked whether they had volunteered within the past 10 years (0 = *no*, 1 = *yes*) and how regularly they had volunteered in this time period (0 = *did not volunteer*, 1 = *volunteered occasionally, when opportunities arose*, 2 = *volunteered regularly across some periods, less other times*, 3 = *volunteered regularly the whole time*). Respondents were also asked to report the number of hours per month that they had volunteered in the past year. In addition, respondents were asked to report the reasons that they volunteered (or would volunteer, for those who had not volunteered) using 10 questions from the Volunteer Functions Inventory (VFI; Clary et al., 1998). Respondents answered two questions for each of five of the six VFI subscales (the *Career* subscale was not assessed in the WLS.) Responses were assessed on a seven-point scale from 1 = “not at all important/accurate for you,” to 7 = “extremely important/accurate for you.” The subscales reflect different motives for volunteering, some more other-oriented and some more self-oriented. Because of our a priori hypotheses with regards to the importance of different types of motives in predicting health outcomes, we created indices of other-oriented motives (4 items;  $\alpha = .79$ ) and self-oriented motives (6 items;  $\alpha = .88$ ) from these subscales for the purpose of this study (Table 1). However, results are similar whether these motives are analyzed separately, or in the self- versus other-oriented category (See Footnote 1). Subscales included in the other-oriented index were: *Altruistic Values* (e.g., “I feel compassion toward people in need”) and *Social Connection* (e.g., “Others with whom I am close place a high value on community service”). Subscales included in the self-oriented index were: *Learning /Understanding* (e.g., “I can explore my own strengths”), *Self-Enhancement* (e.g., “Volunteering makes me feel better about myself”), and *Self-Protection* (e.g., “Volunteering is a good escape from my own troubles”).

**Control variables.** To control for the possibility that any beneficial effects of volunteering are because of a type of mental or physical robustness that underlies both tendencies toward altruism and mortality risk, we included a variety of demographic, health, and individual difference variables in our analyses. Although respondent age varied little because of the study’s population, we controlled for both age and gender (0 = *female*, 1 = *male*) to take into account the possibilities that (a) older people may be less likely to volunteer, and may also be more likely to die than younger people, and (b) females may be more likely to volunteer and tend to live longer than males. Other *Demographic variables* included marital status (1 = *married*, 0 = *not married, i.e., separated, divorced, widowed, or never married*) and frequency of religious attendance in the past year (0 = *never, or less than once per year*, 11 = *approximately once per day*; Mode = 7,

or once per week), both assessed in 2004. *Socioeconomic status* variables included the number of years of education, respondents’ net worth, and their employment status in 2004 (0 = *not working*, 1 = *working for pay*). *Physical health* was assessed with three variables reported in 1992. The total number of diagnosed illnesses was a continuous variable based on 17 items. Respondents reported whether a medical professional had ever told them they had: anemia, asthma, arthritis/rheumatism, bronchitis/emphysema, cancer, chronic liver trouble, diabetes, serious back trouble, heart trouble, high blood pressure, circulation problems, kidney or bladder problems, ulcers, allergies, multiple sclerosis, colitis, or some other illness or condition. Self-rated health was assessed on a five-point scale (1 = *poor*, 2 = *fair*, 3 = *good*, 4 = *very good*, 5 = *excellent*; Ware et al., 1993). Functional status was assessed by respondents’ self-report of whether they ever had any long-term physical or mental conditions, illnesses or disabilities that limited what they were able to do, either on or off the job (0 = *no*, 1 = *yes*). *Risk factors* were also assessed in 1992 and included respondents’ body mass index (BMI) and whether respondents had a history of smoking (0 = *no*, 1 = *yes*) or drinking alcohol (0 = *no*, 1 = *yes*). *Mental and cognitive health* included whether respondents had a history of depression (0 = *no*, 1 = *yes*), which was assessed in 1992. Cognitive health was only measured in 2004, and was represented by respondents’ score on a word recall task to test their short-term memory (0 to 10 words correct), and on a cognitive fluency task in which they are given 60 seconds to think of as many words as possible beginning with a specific letter. *Personality traits* were assessed in 2004 using the Big Five Inventory (version 4a and 5a; John, Donahue, & Kentle, 1991), a 30-item scale (6 items per trait; 1 = *agree strongly*, 6 = *disagree strongly*) that measures extraversion ( $\alpha = .75$ ), agreeableness ( $\alpha = .69$ ), conscientiousness ( $\alpha = .69$ ), neuroticism ( $\alpha = .74$ ), and openness ( $\alpha = .62$ ). *Social support* was assessed in 2004 by asking respondents if anyone in his or her life was available to lend respondents money, give advice and encouragement, help with house and yard work, provide help with transportation and errands, and give physical care if they needed it. Each question was scored 0 = *no* and 1 = *yes*, and the five questions were summed to create a total social support variable.

## Results

### Part A: Replicating Past Research on Health Benefits of Volunteering

In Part A, Binary logistic regressions were used to predict mortality status (0 = *alive*, 1 = *deceased*) in 2008 from volunteering-related variables in 2004 to test our hypothesis that volunteering behavior will be associated with lower mortality risk, especially for regular and frequent volunteers, and that these results will remain statistically significant even when controlling for plausible explanatory variables. We found support for this hypothesis.

As can be seen from Figure 1, respondents who volunteered in the past 10 years had a significantly reduced mortality risk 4 years later,  $\beta = -0.66$ ,  $p < .001$ , odds ratio = 0.52, 95% confidence interval (CI) = [.38, .71]. In addition, the regularity of volunteering had an effect on mortality risk. The more regularly respondents had volunteered within the past decade of being questioned, the



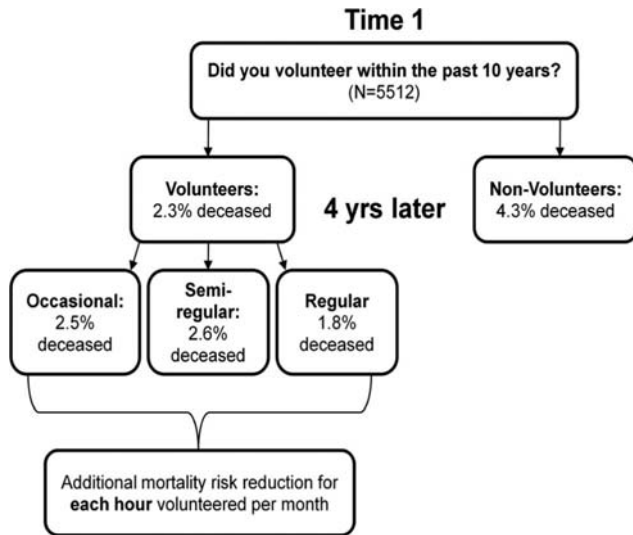


Figure 1. Examining overall effects of volunteering on mortality status in Part A. Note: All models were run separately.

lower their risk of mortality 4 years later,  $\beta = -0.30$ ,  $p < .001$ , odds ratio = 0.74, 95% CI = [.64, .86]. Finally, the number of hours per month that respondents had volunteered within the past year also predicted mortality. The more hours respondents had volunteered within the past year, the lower their risk of mortality 4 years later,  $\beta = -0.04$ ,  $p = .003$ , odds ratio = 0.96, 95% CI = [.93, .99].

We next examined whether these effects would remain similar when controlling for the influence of demographic, health, and personality variables on mortality status using a stepwise logistic regression (Step 1: volunteering; Step 2: demographic and socioeconomic status variables; Step 3: mental, cognitive, and physical health; Step 4: big five personality traits and social support).

The number of hours volunteering in the past 12 months was still associated with a reduced mortality risk, however, this effect became marginally significant,  $\beta = -0.03$ ,  $p = .09$ , odds ratio = 0.97, 95% CI = [.94, 1.00]. Similarly, the presence of volunteering behavior within the past 10 years was also reduced to marginally significance with the inclusion of the covariates,  $\beta = -0.35$ ,  $p = .12$ , odds ratio = 0.71, 95% CI = [.46, 1.10]. Regularity of volunteering was no longer significantly associated with mortality after all covariates were included in the model,  $\beta = -0.12$ ,  $p = .23$ , odds ratio = 0.88, 95% CI = [.72, 1.08].

## Part B: The Health Benefits of Volunteering Depend on the Motives

**Descriptive statistics.** A repeated measures analysis of variance (ANOVA) found that respondents were most likely to volunteer for reasons related to altruistic values ( $M = 5.05$ ,  $SD = 1.55$ ), followed by self-enhancement ( $M = 4.17$ ,  $SD = 1.82$ ), then learning/understanding ( $M = 3.70$ ,  $SD = 1.67$ ). The least important reasons for volunteering were social connection ( $M = 3.47$ ,  $SD = 1.67$ ) and self-protection ( $M = 2.44$ ,  $SD = 1.53$ ),  $F(4, 6139) = 4529.92$ ,  $p < .001$  (Table 1). This replicates prior research on the relative importance of each motive (Clary et al.,

1998). A Fischer's Least Significant Difference post hoc test confirmed that each of these motives was significantly different from each other ( $p < .001$ ). In addition, a paired samples  $t$  test found that respondents reported higher other-oriented motives for volunteering ( $M = 4.27$ ,  $SD = 1.39$ ) compared with self-oriented motives ( $M = 3.44$ ,  $SD = 1.44$ ),  $t(6211) = -61.53$ ,  $p < .001$ .

**Effect of motives for volunteering.** A total of 3376 respondents reported answers to all covariates, and of these, 98 (2.9%) were deceased in 2008. We predicted that self-oriented and other-oriented volunteering motives would influence mortality status (0 = *alive*, 1 = *deceased*).<sup>1</sup> We expected that our predicted effects should remain even when controlling for all covariates mentioned above, and also when controlling for actual volunteering behavior within the past 10 years. Actual volunteering behavior is important to consider because while some respondents actually volunteered, and thus described their actual motives for volunteering, nonvolunteers could still respond to the motives question using their hypothetical or imagined motives for volunteering.

We conducted a stepwise logistic regression examining the effect of motives on mortality risk, and testing whether our effects would remain statistically significant when controlling for the influence of all covariates, and also controlling for actual volunteering behavior. Step 1 included self- versus other-oriented motives for volunteering; Step 2 included demographic variables and socioeconomic status variables; Step 3 added the effect of mental, cognitive, and physical health variables; Step 4 added the effect of the big five personality traits, and social support. In Step 5 we included volunteering behavior in the past 10 years as an additional covariate (0 = *did not volunteer*, 1 = *volunteered*).<sup>2</sup>

**Step 1.** When both types of motives were simultaneously entered into the regression model, both of them predicted mortality risk (Table 2). Respondents who reported other-oriented motives for volunteering,  $\beta = -0.35$ ,  $p < .001$ , odds ratio = 0.70, 95% CI = [.56, .88] had significantly reduced risks of mortality 4 years later. In addition, respondents who reported self-oriented motives for volunteering had significantly increased risks of mortality 4 years later,  $\beta = 0.22$ ,  $p = .04$ , odds ratio = 1.25, 95% CI = [1.01, 1.54].

**Step 2.** After including demographic and socioeconomic status variables, self-oriented motives for volunteering were marginally significant,  $\beta = 0.21$ ,  $p = .06$ , odds ratio = 1.23, 95% CI = [0.99, 1.53], but other-oriented motives remained significant,  $\beta =$

<sup>1</sup> Note that when motives were entered separately into regression models, both *other-oriented* motives for volunteering emerge as predictors. Motives related to social connection ( $\beta = -0.12$ ,  $p = .008$ , odds ratio = 0.89, 95% CI = [.81, .97] and altruistic values are both associated with reduced mortality risk 4 years later although the relationship for altruistic values is only marginally significant,  $\beta = -0.08$ ,  $p = .08$ , odds ratio = 0.92, 95% CI = [.84, 1.01]. None of the *self-oriented* motives for volunteering emerge as predictors: self-protection:  $\beta = 0.01$ ,  $p = .79$ , odds ratio = 0.99, 95% CI = [.90, 1.09]; learning/understanding:  $\beta = -0.05$ ,  $p = .24$ , odds ratio = 0.95, 95% CI = [.87, 1.04]; self-enhancement:  $\beta = -0.02$ ,  $p = .70$ , odds ratio = 0.98, 95% CI = [.91, 1.07].

<sup>2</sup> Patterns remain nearly identical regardless of which volunteering behavior variable is entered into the regression model. All significant results remain significant when either the number of hours volunteering in the past year, or the presence of volunteering in the past 10 years, is entered into the model in Step 5.

Table 2  
Hierarchical Logistic Regression Model Used to Predict Mortality Risk in Part B

	Step 1		Step 2		Step 3		Step 4		Step 5	
	$\beta$	Odds ratio	$\beta$	Odds ratio	$\beta$	Odds ratio	$\beta$	Odds ratio	$\beta$	Odds ratio
Volunteer motives										
Self-oriented	0.22*	1.25	0.21~	1.23	0.20~	1.23	0.20~	1.22	0.21~	1.23
Other-oriented	-0.35**	0.70	-0.28*	0.76	-0.26*	0.77	-0.27*	0.76	-0.26*	0.77
Demographic variables										
Age			0.11	1.12	0.11	1.11	0.09	1.09	0.09	1.09
Gender			0.16	1.18	-0.06	0.94	-0.02	0.98	-0.03	0.97
Marital status			-0.50*	0.61	-0.51*	0.60	-0.47*	0.62	-0.46*	0.63
Religious attendance			-0.09*	0.91	-0.08*	0.93	-0.07*	0.93	-0.05	0.95
Socioeconomic status										
Education			-0.06	0.95	-0.02	0.98	-0.05	0.95	-0.04	0.96
Net worth			0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Employment status			-0.42*	0.66	-0.35	0.71	-0.34	0.71	-0.33	0.72
Health										
Number of illnesses					0.00	1.00	-0.02	0.98	-0.01	0.99
Self-rated health					-0.25	0.78	-0.27	0.76	-0.24	0.79
Functional status					0.13	1.14	0.13	1.14	0.13	1.14
Risk factors										
Smoking					0.36	1.43	0.37	1.44	0.36	1.43
Drinking					0.82	2.27	0.79	2.21	0.80	2.23
Body mass index					0.05**	1.05	0.05**	1.06	0.05**	1.06
Mental and cognitive health										
Depression					-0.39	0.68	-0.43	0.65	-0.43	0.65
Short-term memory					-0.07	0.93	-0.07	0.93	-0.07	0.93
Cognitive fluency					-0.01	0.99	-0.01	0.99	-0.01	0.99
Personality traits										
Extraversion							-0.02	0.98	-0.02	0.98
Agreeableness							0.01	1.01	0.01	1.01
Conscientiousness							0.02	1.02	0.02	1.02
Neuroticism							0.04	1.04	0.03	1.03
Openness							0.06*	1.06	0.06*	1.06
Social Support							0.00	1.00	0.00	1.00
Behavior									-0.40~	0.67

Note.  $N = 3,376$ .  
~ $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ .

-0.28,  $p = .02$ , odds ratio = 0.76, 95% CI = [.60, .95]. In addition, married respondents had a lower mortality risk than unmarried ones,  $\beta = -0.50$ ,  $p = .03$ , odds ratio = 0.61, 95% CI = [.39, .96], and increased religious attendance was associated with decreased mortality risk,  $\beta = -0.09$ ,  $p = .01$ , odds ratio = 0.91, 95% CI = [.85, .98]. Finally, employment status had an association with mortality risk such that employed respondents had a lower risk of mortality 4 years later,  $\beta = -0.42$ ,  $p = .05$ , odds ratio = 0.66, 95% CI = [.43, 1.01].

**Step 3.** Both types of motives were still associated with mortality risk at the same levels of statistical significance as Step 2 after including mental, cognitive, and physical health variables into the model, with self-oriented motives still emerging as a marginally significant predictor (Table 2). In addition, having a higher BMI,  $\beta = 0.05$ ,  $p = .02$ , odds ratio = 1.05, 95% CI = [1.01, 1.09], was associated with an increased mortality risk 4 years later.

**Step 4.** Similar patterns to Step 3 emerged for the motives for volunteering after including mental, cognitive, and physical health variables into the model. In addition, respondents who scored higher in openness to experience had a significantly increased mortality risk 4 years later,  $\beta = 0.06$ ,  $p = .03$ , odds ratio = 1.06, 95% CI = [1.01, 1.12].

**Step 5.** When including volunteering behavior in the model, similar patterns to Step 4 remained for both self-oriented and other-oriented motives. In addition, volunteering behavior had a marginal effect such that respondents who had volunteered over the past 10 years had a lower mortality risk,  $\beta = -0.40$ ,  $p = .08$ , odds ratio = 0.67, 95% CI = [.42, 1.05].

**Part C: Is It Better to Volunteer for Self-Oriented Reasons or to Not Volunteer at All?**

For our final analysis, we considered whether there would be any benefit to volunteering for self-oriented motives compared with not volunteering at all. We ran two analyses in order to address this question. We hypothesized that mortality risk would be similar for those who volunteer for self-oriented reasons compared with nonvolunteers.

**Nonvolunteers compared with those with other-oriented versus self-oriented motives.** We created a variable that represented the extent to which people volunteered for relatively more other-oriented versus self-oriented reasons. To do so, the average of self-oriented motives was subtracted from the average of other-oriented motives, such that numbers above zero represented more other-oriented motives, and numbers be-

low zero represented more self-oriented motives. On the basis of this information, respondents were then classified into three groups: (a) *Nonvolunteers*: those who had not volunteered in the past 10 years ( $N = 2,384$ ), (b) *Self-oriented volunteers*: those who had volunteered, but for predominantly self-oriented reasons ( $N = 452$ ), and (c) *Other-oriented volunteers*: those who had volunteered, but for predominantly other-oriented reasons ( $N = 2,053$ ).

We then examined differences among these 3 groups in the proportion of participants who were deceased 4 years later by conducting a  $\chi^2$  analysis. Overall, 4.3% of nonvolunteers were deceased 4 years later, which was similar to the proportion of deceased respondents among self-oriented volunteers (4.0%). However, only 1.6% of other-oriented volunteers were deceased 4 years later. The significant  $\chi^2$  analysis indicated that volunteering was not beneficial in terms of mortality risk if the volunteering was motivated by predominantly self-oriented reasons,  $\chi^2(2, N = 4889) = 23.35, p < .001$ . A follow-up analysis comparing self-oriented volunteers to nonvolunteers found that they did not statistically differ from each other,  $\chi^2(1, N = 2836) = .08, p = .77$ .

Next, we used a stepwise logistic regression to examine whether the difference score (other-oriented motives minus self-oriented motives) would predict mortality risk even when including all covariates described in the methods section. Step 1 included the difference score (positive numbers = predominantly other-oriented motives, negative numbers = predominantly self-oriented motives); Step 2 included demographic and socioeconomic status variables; Step 3 added the effect of mental, cognitive, and physical health variables; Step 4 added the effect of the big five personality traits, and social support; and Step 5 included volunteering behavior in the past 10 years.

Respondents who reported predominantly other-oriented motives for volunteering,  $\beta = -0.46, p = .001$ , odds ratio = 0.63, 95% CI = [.48, .82] had significantly reduced risk of mortality 4 years later relative to those who reported predominantly self-oriented motives for volunteering. This effect remained significant even when including all covariates,  $\beta = -0.33, p = .03$ , odds ratio = 0.72, 95% CI = [.53, .96].

**Nonvolunteers compared with volunteers with each predominant motive.** We next compared the mortality risk of nonvolunteers (past 10 years) to volunteers who predominantly had one type of motive relative to the others. The predominant motive of each volunteer was the one that he or she rated as most important/accurate relative to the other motives. Some respondents rated two or more motives equally as their highest motive—those respondents were not included in this analysis. Only respondents who rated one motive higher than all of the other motives were included. The final sample consisted of 2,384 nonvolunteers and 2714 volunteers (social connection,  $N = 200$ ; altruistic values,  $N = 1950$ ; learning/understanding,  $N = 123$ ; self-enhancement,  $N = 428$ ; self-protection,  $N = 13$ ).

An ANOVA found that there were significant differences in mortality rates across these six groups overall,  $F(4, 5092) = 4.51, p < .001$  (Figure 2). A post hoc test found that respondents who listed social connection (0.5%) or altruistic values (2.1%) as their predominant motives were significantly less likely to be deceased compared with nonvolunteers (4.3%;  $ps < .01$ ). There was no reduction in mortality risk for respondents with predominantly self-oriented motives: those rating learning/understanding (2.4%), self-enhancement (3.3%), or self-protection (7.7%) motives as their predominant motives were just as likely as nonvolunteers to

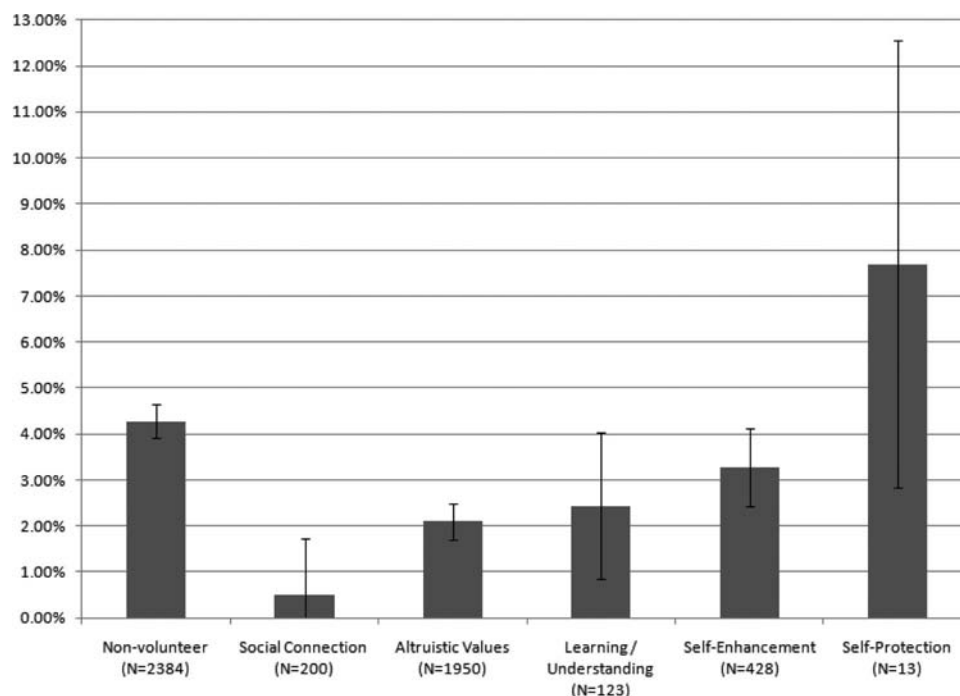


Figure 2. Percentage of respondents who were deceased in 2008, categorized by highest motive for volunteering, compared with nonvolunteers (Part C). Note: Capped bars denote SEs.

be deceased ( $ps > .25$ ). In addition, respondents with predominantly social connection motives were marginally less likely to be deceased compared with those with self-protection motives ( $p = .07$ ). No other significant differences emerged ( $ps > .15$ ).

When including all covariates into the analysis, the number of participants is substantially reduced ( $N = 2767$ ). Despite this, patterns are similar. Respondents who listed social connection (0.4%) or altruistic values (2.3%) as their predominant motive were marginally less likely to be deceased compared with nonvolunteers (3.6%;  $ps < .10$ ). There was no reduction in mortality risk for respondents with predominantly self-oriented motives: those rating learning/understanding (1.7%) or self-enhancement (4.2%) motives as their predominant motives were just as likely as nonvolunteers to be deceased ( $ps > .40$ ). (Only 4 respondents listed self-protection motives as predominant; thus, they were excluded from this analysis.) In addition, respondents with predominant social connection motives were marginally less likely to be deceased compared with those with self-enhancement motives,  $p = .07$ . No other significant differences emerged ( $ps > .14$ ).

### Discussion

In this study, we replicated past research by finding that volunteers had reduced mortality risks compared with nonvolunteers. This was especially true for those who volunteered more regularly and frequently, with some attenuation of the effects when covariates were added to the predictive model (Part A). It is important to note, however, that this study found that other-oriented motives for volunteering were associated with a significantly reduced mortality risk, and self-oriented motives were associated with a significantly increased mortality risk, 4 years later (Part B). Our findings were relatively robust to a number of potential confounds; however, the self-oriented effects were attenuated slightly when covariates were entered into the model. In the most novel part of this analysis, we compared nonvolunteers to respondents with different motives for volunteering (Part C). We found that respondents who volunteered for other-oriented reasons experienced reduced mortality risk relative to nonvolunteers, but respondents who volunteered for more self-oriented reasons had a similar risk of mortality as nonvolunteers. This analysis clearly demonstrates the importance of motives in determining health outcomes with respect to volunteering.

Although we cannot speak to the mechanism of our results without further research, we hypothesize that people who volunteer for more other-oriented reasons may be buffered from potential stressors associated with volunteering, which explains the finding of increased longevity. In future work, we hope to address the specific mechanisms of our effects. We hypothesize that *other-oriented motives* for helping engage a *caregiving behavioral system*, a suite of cognitions, emotions, and underlying neurological and psychophysiological circuitry that motivates various forms of helping behavior (Brown & Brown, 2006). When this system is engaged, it deactivates helpers' stress responses and activates hormones, such as oxytocin, that are restorative in terms of physiological function (Brown, Brown, & Preston, in press). Our future studies will attempt to examine such processes in detail in the hopes of further contributing to the debate on the benefits versus costs of prosocial behavior. Other possible mechanisms of our findings include increased social resources (Wilson & Musick,

1999) or an increased sense of meaning (Piliavin & Siegl, 2007) when people volunteer for other-oriented reasons. These ideas are purely speculative, and our data cannot allow for an examination of respondents' volunteering behavior in such fine-grained detail, but our results suggest that future researchers should attend to the motives for volunteering behavior.

### Implications

One important theoretical implication of this article is that it helps to reconcile the apparently contradictory findings within the prosocial behavior literature. For example, volunteering has a number of health benefits overall (Greenfield & Marks, 2004; Lum & Lightfoot, 2005; Piliavin & Siegl, 2007; Thoits & Hewitt, 2001); however, volunteering can also be stressful, and some volunteers experience burnout (Capner & Caltabiano, 1993; Lewig et al., 2007). The current study points to the possibility that motives for volunteering might be an important moderator of whether volunteers experience health benefits versus burnout. In doing so, this work can potentially help to clarify the debate on potential benefits (e.g., Brown et al., 2003; Brown et al., 2009) versus costs (e.g., Pinquart & Sörensen, 2003) of helping others by suggesting that motives, a heretofore relatively unexplored variable, may be quite powerful determinants of whether helping others will also help the self. Thus future researchers, including those seeking to meta-analytically integrate these two literatures, should consider examining the role of motives in potential outcomes associated with other types of helping behaviors.

A practical implication of this research is that it paves the way for potential interventions that would maximize the health benefits of prosocial behavior. There are practical difficulties involved with manipulating volunteering behavior itself and also in manipulating people's motives for volunteering. However, future researchers might attempt to create interventions that steer people toward more other-oriented motives for volunteering in order to examine whether such motives are malleable, and if so, whether manipulated motives have parallel health implications.

### Limitations

The current study is not without its limitations in that it relies on what is ultimately a nonrandomized cohort design, with its inevitable problems in inferring causality. Although direction of causality can be accounted for because of the longitudinal nature of the study, there may be underlying factors for which we have not accounted that could explain the relationship between volunteering for other-oriented reasons and decreased mortality. We acknowledge these limitations and have addressed them as much as possible by including a host of covariates; nevertheless, we recommend caution in interpreting our results until more research is conducted. An additional limitation of this study is that the sample is not representative of minority populations, those who have not graduated high school, or populations from other parts of the United States or the world. It is difficult to know whether these effects would apply to other populations and we recommend that future research extend these findings to more diverse groups of participants. Our study was also limited by the relatively short time period (4 years) between the collection of baseline measures about volunteering and mortality status. Although theoretically that short



time period would have made it even less probable that we would find the predicted results, we still recommend follow up analyses as WLS updates become available in the future. Finally, the measures of volunteering behavior rely on participant self-report. However, given that these are generally considered to be socially desirable behaviors or traits, we would expect that self-report items may make it less likely to find significant effects because of people overstating whether they volunteer.

## Concluding Thoughts

Volunteering is increasingly being encouraged in schools and organizations, via the media (e.g., Oprah Winfrey's "Angel Network"), and even by the President (e.g., President Obama's "Organizing for America" volunteerism movement), possibly in part because of an increased awareness of its potential benefits for the helper. In fact, some volunteering-promoting organizations directly advocate this viewpoint. For example, CharityGuide.org (2010), a popular online portal that directs potential volunteers to volunteering opportunities, notes that it is "OK to want some benefits for yourself from volunteering." They recommend that "instead of considering volunteering as something you do for people who are not as fortunate as yourself, begin to think of it as an exchange." This type of advice may aim to increase the likelihood that potential volunteers will actually volunteer and that current volunteers will maintain their behavior. It is reasonable for volunteers to volunteer in part because of benefits to the self, however, our research implies that, ironically, should these benefits to the self become the predominant motive for volunteering, potential health benefits of volunteering may be attenuated.

## References

- Bakan, D. (1966). *The duality of human existence: Isolation and communion in Western man*. Boston, MA: Beacon.
- Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology, 42*, 155–162. doi:10.1037/h0036215
- Benson, P. L., Clary, E. G., & Scales, P. (2007). Altruism and health: Is there a link during adolescence? In S. G. Post (Ed.), *Altruism and health: Perspectives from empirical research* (pp. 97–115). New York, NY: Oxford University.
- Brown, S. L., & Brown, R. M. (2006). Selective Investment Theory: Recasting the functional significance of close relationships. *Psychological Inquiry (Target Article), 17*, 1–29. doi:10.1207/s15327965pli1701\_01
- Brown, S. L., Brown, R. M., House, J. S., & Smith, D. M. (2008). Coping with spousal loss: The potential buffering effects of self-reported helping behavior. *Personality & Social Psychology Bulletin, 34*, 849–861. doi:10.1177/0146167208314972
- Brown, S. L., Brown, R. M., & Preston, S. (in press). *Advancing a neuroscientific model of human caregiving motivation and behavior*.
- Brown, S. L., Nesse, R., Vinokur, A. D., & Smith, D. M. (2003). Providing support may be more beneficial than receiving it: Results from a prospective study of mortality. *Psychological Science, 14*, 320–327. doi:10.1111/1467-9280.14461
- Brown, S. L., Smith, D. M., Schulz, R., Kabeto, M., Ubel, P., Yee, J., . . . Langa, K. (2009). Caregiving and decreased mortality in a national sample of older adults. *Psychological Science, 20*, 488–494. doi:10.1111/j.1467-9280.2009.02323.x
- Capner, M., & Caltabiano, M. L. (1993). Factors affecting the progression towards burnout: A comparison of professional and volunteer counseling. *Psychological Reports, 73*, 555–561.
- Centers for Disease Control and Prevention. (2010). *Deaths and mortality*. Retrieved from <http://www.cdc.gov/nchs/fastats/deaths.htm>
- CharityGuide.org. (2010). *Why volunteer?* Retrieved from <http://charityguide.org/volunteer/motivation/why-volunteer.htm>
- Clary, E. G., & Snyder, M. (1999). The motivations to volunteer: Theoretical and practical considerations. *Current Directions in Psychological Science, 8*, 156–159. doi:10.1111/1467-8721.00037
- Clary, E. G., Snyder, M., Ridge, R. D., Copeland, J., Stukas, A. A., Haugen, J., & Mience, P. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology, 74*, 1516–1530. doi:10.1037/0022-3514.74.6.1516
- Cohen, S., Janicki-Deverts, D., & Miller, G. (2007). Psychological stress and disease. *Journal of the American Medical Association, 298*, 1685–1687. doi:10.1001/jama.298.14.1685
- Deci, E., & Ryan, R. (Eds.). (2002). *Handbook of self-determination research*. Rochester, NY: University of Rochester.
- Erikson, E. (1950). *Childhood and society*. New York: Norton.
- Ferrari, J., Luhrs, T., & Lyman, V. (2007). Eldercare volunteers and employees: Predicting caregiver experiences from service motives and sense of community. *The Journal of Primary Prevention, 28*, 467–479. doi:10.1007/s10935-007-0108-6
- Fromm, E. (1941). *Escape from freedom*. New York, NY: Avon Books.
- Gillath, O., Shaver, P. R., Mikulincer, M., Nitzberg, R. E., Erez, A., & van Ijzendoorn, M. H. (2005). Attachment, caregiving, and volunteering: Placing volunteerism in an attachment-theoretical framework. *Personal Relationships, 12*, 425–446. doi:10.1111/j.1475-6811.2005.00124.x
- Greenfield, E. A., & Marks, N. F. (2004). Formal volunteering as a protective factor for older adults' psychological well-being. *The Journals of Gerontology, Series B, 59*, S258–S264. doi:10.1093/geronb/59.5.S258
- Grimm, R., Spring, K., & Dietz, N. (2007). *The health benefits of volunteering: A review of recent research*. New York, NY: Corporation for National & Community Service.
- Harris, A. H., & Thoresen, C. E. (2005). Volunteering is associated with delayed mortality in older people: Analysis of the Longitudinal Study of Aging. *Journal of Health Psychology, 10*, 739–752. doi:10.1177/1359105305057310
- John, O. P., Donahue, E. M., & Kentle, R. L. (1991). *The "Big Five" inventory: Version 4a and 5a*. Berkeley, CA: Institute of Personality and Social Research, University of California, Berkeley.
- Lewig, K. A., Xanthopoulou, D., Bakker, A. B., Dollard, M. F., & Metzger, J. C. (2007). Burnout and connectedness among Australian volunteers: A test of the job demands-resources model. *Journal of Vocational Behavior, 71*, 429–445. doi:10.1016/j.jvb.2007.07.003
- Lum, T. Y., & Lightfoot, E. (2005). The effects of volunteering on the physical and mental health of older people. *Research on Aging, 27*, 31–55. doi:10.1177/0164027504271349
- Luoh, M.-C., & Herzog, A. R. (2002). Individual consequences of volunteer and paid work in old age: Health and mortality. *Journal of Health and Social Behavior, 43*, 490–509. doi:10.2307/3090239
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253. doi:10.1037/0033-295X.98.2.224
- McAdams, D. (1985). *Power, intimacy, and the life story: Personal inquiries into identity*. Homewood, IL: Dow Jones-Irwin.
- Morrow-Howell, N., Hinterlong, J., Rozario, P. A., & Tang, F. (2003). Effects of volunteering on the well-being of older adults. *The Journals of Gerontology, Series B, 58*, S137–145. doi:10.1093/geronb/58.3.S137
- Musick, M., Herzog, A. R., & House, J. S. (1999). Volunteering and mortality among older adults: Findings from a national sample. *Journals*

- of *Gerontology Series B: Psychological Sciences and Social Sciences*, 54, S173–S180. doi:10.1093/geronb/54B.3.S173
- Okun, M. & Brown, S. (in preparation). Do older volunteers live longer? A research synthesis and a conceptual framework.
- Oman, D. (2007). Does volunteering foster physical health and longevity? In S. G. Post (Ed.), *Altruism and health: Perspectives from empirical research* (pp. 15–32). New York, NY: Oxford University.
- Oman, D., Thoresen, C. E., & McMahon, K. (1999). Volunteerism and mortality among the community dwelling elderly. *Journal of Health Psychology*, 4, 301–316. doi:10.1177/135910539900400301
- Parsons, T., & Bales, R. F. (1955). *Family, socialization and interaction process*. New York, NY: Free Press.
- Piliavin, J. A., & Siegl, E. (2007). Health benefits of volunteering in the Wisconsin Longitudinal Study. *Journal of Health and Social Behavior*, 48, 450–464. doi:10.1177/002214650704800408
- Pillemer, K., Fuller-Rowell, T. E., Reid, M. C., & Wells, N. M. (2010). Environmental volunteering and health outcomes over a 20-year period. *The Gerontologist*, 50, 594–602.
- Pinquart, M., & Sörensen, S. (2003). Differences between caregivers and noncaregivers in psychological health and physical health: A meta-analysis. *Psychology and Aging*, 18, 250–267. doi:10.1037/0882-7974.18.2.250
- Singelis, T. M. (1994). The measurement of independent and interdependent self-construals. *Personality and Social Psychology Bulletin*, 20, 580–591. doi:10.1177/0146167294205014
- Thoits, P. A., & Hewitt, L. N. (2001). Volunteer work and well-being. *Journal of Health and Social Behavior*, 42, 115–131. doi:10.2307/3090173
- Triandis, H. C. (1995). *Individualism and collectivism*. Boulder, CO: Westview Press.
- United Nations Population Division. (2009). *Derived from male and female life expectancy at birth. World Population Prospects*: New York, NY: United Nations, Department of Economic and Social Affairs.
- Ware, J. E., Snow, K., Kosinski, M., & Gandek, B. (1993). *SF-36 Health Survey: Manual and Interpretation Guide*. Boston, MA: New England Medical Center, The Health Institute.
- Wiggins, J. S. (1991). Agency and communion as conceptual coordinates for the understanding and measurement of interpersonal behavior. In W. M. Grove & D. Cicchetti (Eds.), *Thinking clearly about psychology, Vol 2: Personality and psychopathology*. Minneapolis, MN: University of Minnesota.
- Wilson, J., & Musick, M. (1999). The effects of volunteering on the volunteer. *Law and Contemporary Problems*, 62, 141–168.
- Wisconsin Longitudinal Study (WLS) [graduates, siblings, and spouses]. (1957–2005). Version 12.23. Madison, WI: University of Wisconsin–Madison, WLS. Retrieved from <http://www.ssc.wisc.edu/wlsresearch/documentation/>