

# Health Benefits of Volunteering in the Wisconsin Longitudinal Study\*

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*We investigate positive effects of volunteering on psychological well-being and self-reported health using all four waves of the Wisconsin Longitudinal Study. Confirming previous research, volunteering was positively related to both outcome variables. Both consistency of volunteering over time and diversity of participation are significantly related to well-being and self-reported health. The relationship of volunteering to psychological well-being was moderated by level of social integration, such that those who were less well integrated benefited the most. Mattering appears to mediate the link between volunteering and well-being. Controls for other forms of social participation and for the predictors of volunteering are employed in analyses of well-being in 1992. We find volunteering effects on psychological well-being in 2004, controlling for 1992 well-being, thus providing strong evidence for a causal effect.*

When praised for their altruistic actions, blood donors and volunteers commonly respond by saying something like, “Oh, no, what I do is actually selfish. I get so much more out of it than I give.” Is this simply American individualist rhetoric? Or is there evidence that doing work that serves others has mood-enhancing, social-integrating, health-promoting, or even death-delaying power? Based on a review of the literature, Piliavin (2003) claims that the answer is, “essentially ‘yes’”. One does well by doing good” (p. 227).

Numerous studies reveal protective effects of volunteering on mental and physical health. Young and Glasgow (1998) found that self-re-

ported health status increased as instrumental social participation increased for both men and women, using a longitudinal sample of 629 nonmetropolitan elderly. Moen, Dempster-McClain, and Williams (1989) followed a sample of women who were between the ages of 25 and 50 when first interviewed in 1956 and found that participation in clubs and volunteer activities had a significant protective effect on mortality in 1986. The analysis controlled for many other relevant factors, including health and the number of other roles in 1956, and the article makes clear that the activities were indeed largely community-oriented (PTA, scouting, book drives, etc.). In a second, more complex analysis, based on interviews done in 1986 with the 313 surviving women, Moen, Dempster-McClain, and Williams (1992) find effects on three measures: self-appraised health, time to serious illness, and functional ability. Oman, Thoresen, and McMahon (1999) also examined volunteering and mortality in a 1990–1991 prospective study of 2,025 community-dwelling elderly ages 55 and older in Marin County, California. Mortality was assessed through November 1995. Controlling for health habits, physical functioning, religious attendance, social support, and many

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other factors, those rated “high” on the volunteering scale (those who volunteered for two or more organizations) had 44 percent lower mortality than nonvolunteers.

A number of excellent studies employ the Americans’ Changing Lives data set (House 1995). Using the first two waves of those data, Thoits and Hewitt (2001) discover that both the number of volunteer hours at time 1 (in 1986) and the change in volunteer hours to time 2 (in 1989) show significant effects on six measures of well-being: happiness, life satisfaction, self-esteem, mastery, depression, and physical health at time 2. There is also a small effect of well-being at time 1 on volunteering at time 2. Controls for demographic factors as well as for other forms of community participation (and change in participation), such as church attendance and participation in other organizations, do not eliminate these effects.

The present research extends this literature by testing the relationship between volunteering and well-being by using longitudinal data never before used for this purpose: the Wisconsin Longitudinal Study (WLS). Although previous research has used longitudinal samples, only Moen et al. (1989) followed their respondents for a long period (30 years), and they had a very small sample, all of them women. The WLS began in 1957 with a one-third sample of all graduating high school seniors in the state of Wisconsin. Respondents were re-interviewed in 1975, 1992, and 2004 (Sewell, Hauser, Springer, and Hauser 2004). Social participation information is available from all three reinterview waves, and data on psychological well-being and self-reported health are available from the last two, allowing us to analyze the impact of volunteering on well-being and the mediating role of “psychological resources” on perceived health.

We are focusing on these two measures because (1) there is good evidence for the importance of self-perceived health for the prediction of “harder” health measures of morbidity and mortality, above and beyond medical indicators (Benyamini et al. 2000), (2) psychological well-being is associated with physical health outcomes and is important in its own right as an aspect of mental health (Keyes 2005; Keyes and Haidt 2003), and (3) at the age of 64 in the most recent wave, the WLS sample is too young to have experienced much mortality (about 10%), and their health is, on the whole, quite good.

This study contributes to our understanding by pursuing the questions: *Why* is volunteering different from other forms of social engagement? *For whom* is the effect of volunteering most beneficial? *How much participation* is optimal? *Through what mechanisms* does the beneficial effect operate?

## THEORY AND EVIDENCE

Why should volunteering be special? In previous research, there has been little discussion of why *volunteer work* should be particularly beneficial as compared to activities like amateur theater, playing sports, participating in a garden club, or doing informal helping or family caregiving. A number of theories (e.g., role accumulation or activity theory) as well as Durkheim’s social integration hypothesis would propose that *any* form of social participation should have the effect of decreasing alienation. Thus, a variety of kinds of social participation could be seen as equally beneficial. So why not also include community participation of all sorts? The answer stems from both theoretical and empirical evidence.

In early arguments over the costs and benefits of multiple roles, proponents of the scarcity approach (Coser 1974; Goode 1960; Sarbin and Allen 1968) argued that the demands of different roles will conflict, so that more roles would lead to greater strain, but this camp largely lost out to proponents of the role-accumulation approach. Adherents to this view (Sieber 1974; Thoits 1986) argued that social roles provide status, role-related privileges, and ego gratification, and that identities associated with these roles give individuals meaning and purpose; therefore adding roles will enhance psychological well-being. There is evidence that both increasing the number of roles (Miller, Moen, and Dempster-McClain 1991; Thoits 1986) and holding particular roles such as that of spouse (Baruch and Barnett 1986; Gove and Geerken 1977; Menaghan 1989) enhance psychological well-being. There is also evidence of physical health benefits (Adelmann 1994; Moen et al. 1992; Verbrugge 1987; Waldron and Jacobs 1989) contingent on performing spouse, employee, and parent roles.

Thoits (1992, 2003) suggests that voluntary roles such as friend or group member may be more responsible for the positive effects of multiple roles than are obligatory roles such as parent or spouse. In contrast to volunteering as defined in this article, informal helping of

neighbors and friends may carry some sense of obligation. It would be difficult to stop driving one's elderly neighbor to the doctor once one has begun. Caretaking roles with regard to family are also obligatory; thus, we are looking only at volunteering, as a nonobligatory role identity.

The distinction between eudaimonic and hedonic well-being is useful for understanding the impact of different kinds of activities (Ryan and Deci 2001). The concepts of life satisfaction and happiness are measures of hedonic well-being: feeling good about one's situation in life. Eudaimonic well-being, on the other hand, is defined in terms of meaning and self-realization. This involves not only feeling good, but also feeling good *about oneself*. When engaging in social activities or hobbies, one experiences hedonic well-being. But in other-oriented activity such as volunteering, one can enjoy the activity itself but also feel a sense of satisfaction that one is serving society. It is our contention that it is this focus *outside oneself* that provides the greatest benefit to mental health, perhaps in part through enhancing self-esteem and the sense of "mattering." The concept of mattering was introduced in 1981 by Morris Rosenberg and Claire McCullough (Rosenberg and McCullough 1981). It is defined as the perception that, to some degree, we are a significant part of the world around us—that people notice us, care that we exist, and value us. We hypothesize that the sense of mattering will mediate the link between volunteering and psychological well-being. Thus, although all freely chosen activity should increase psychological well-being and have the potential to increase physical health, volunteering should give one an extra boost.

Who will benefit most from volunteering? Thus far, the positive effects of volunteering on physical and mental health appear to be particularly strong among the elderly and other adults with limited social networks. Van Willigen (2000) demonstrates the benefits of volunteering for the well-being of the elderly and compares it with its impact on younger adults, using the first two waves of the Americans' Changing Lives data. For both older and younger adults, volunteering predicts greater life satisfaction and better perceived health, regardless of what measure of volunteering is used. However, the relationships are significantly stronger in the elderly sample for two of the three measures. Oman et al. (1999)

also found—and report on studies by others—that the impact of volunteering on mortality increases with increasing age; that is, those more at risk are helped more. Musick, Herzog, and House (1999) tracked respondents aged 65 and older at the first wave of the Americans' Changing Lives data set, using the National Death Index from the year of the survey (1986) through March 1994. The protective effect of volunteering on mortality was found only among those with low informal social interaction (measured by how often they talk on the telephone with friends, neighbors, or relatives in the typical week and how often they get together with them).

How much volunteering is optimal? Amounts of volunteering can be considered on at least three different dimensions: the number of different organizations (*diversity*), the amount of effort or time spent per week, year, or month (*intensity*), and how regularly one volunteers across the lifespan (*consistency*). Friedland et al. (2001) make the useful distinction between diversity and intensity of involvement in activities in general. They find that the diversity of engagement (i.e., number of different activities) at midlife across the three categories of passive, intellectual, and physical is protective against Alzheimer's disease at age 70. Intensity of intellectual activities at midlife also distinguished between the control group members and the Alzheimer's patients. Controlling for health, race, age, income, physical activity, and initial health and impairment, Musick et al. (1999) found that moderate volunteering (< 40 hours per year or for only one organization) had a protective effect against mortality, but volunteering for additional hours did not contribute further. Luoh and Herzog (2002) find that volunteering leads to better health and lower mortality but that "the quantity of volunteer and paid work beyond 100 annual hours is not related to health outcomes" (p. 490).

The third dimension of volunteering, consistency, can be defined as the extent to which one has engaged in the activity regularly over a period of time. Using three waves of the ACL data set, Musick and Wilson (2003) find positive effects of volunteering on depression, mainly in the over-65 group, with a dose-response effect over time. Volunteering in only one wave has no effect; volunteering in two waves has some effect; and volunteering in three waves has a large positive effect. This is consistent

with van Willigen's (2000) findings, mentioned previously, but with different dependent variables.

What are the mediating mechanisms? Thoits and Hewitt (2001) note that an important question is "how the positive effects of volunteer work on well-being are generated. What are the mechanisms through which happiness, life satisfaction, self-esteem, a sense of control, good health and lower depression result from volunteer work?" (p. 128). Musick et al. (1999) suggest that one mechanism mediating their finding that volunteering led to better physical and mental health among those with low social interaction could have been through preventing alienation and anomie, because the index measures social integration. Musick and Wilson (2003) also find very small mediating effects of psychological and social resources on the relationship between volunteering and depression.

So, what might be the actual process by which volunteer participation generates health and well-being? The sequence we propose is that volunteering leads to both hedonic well-being—just feeling good—and, through the mechanism of mattering, eudaimonic well-being—feeling better about oneself. Current research by psychologists on hedonic well-being indicates that "good feelings alter people's bodily systems" (Fredrickson and Losada 2005:678). Davidson et al. (2003) have found that positive affect increases immune function. Prospective longitudinal studies have demonstrated that frequent positive affect predicts, among other outcomes, psychological growth (Fredrickson et al. 2003), lower levels of cortisol (Steptoe, Wardle, and Marmot 2005), resistance to rhinoviruses (Cohen et al. 2003), and even how long people live (Danner, Snowdon, and Friesen 2001; Ostir, Markides, Black, and Goodwin 2000).

Eudaimonic well-being should result from volunteering by making people feel that they matter in the world. It is because of this path that the effects of volunteering on well-being should be strongest among those who have fewest other sources of well-being, such as employment, social ties, and social support. Elliott, Colangelo, and Gelles (2005) have demonstrated that, among adolescents, those with higher scores on a measure of mattering have significantly lower levels of suicide ideation. Mattering appears to be related to higher self-esteem and in turn to lower depres-

sion, which directly affects thoughts of suicide. The final result of both pathways should be decreased morbidity and mortality. Since we have no way to measure the actual physiological links postulated, and because effects on morbidity and mortality have largely been shown in those older than 65, we concentrate more on psychological well-being than on physical health.

### **Hypotheses**

In our analysis, we address the following five hypotheses:

*Hypothesis 1:* Volunteering will be positively related to psychological well-being and self-reported health, and more strongly related than self-oriented organizational participation.

*Hypothesis 2:* Volunteering for more organizations, and more continuous involvement in those organizations, will lead to more positive effects.

*Hypothesis 3:* The relationship between volunteering and psychological well-being will be moderated by level of social integration: Those who are less well integrated will benefit the most.

*Hypothesis 4:* The impact of volunteering on well-being will be mediated by the sense of mattering.

*Hypothesis 5:* The relationship of volunteering to self-reported health will be mediated by psychological well-being.

## **METHODS**

### **Sample**

The WLS began with a one-third random sample ( $n = 10,317$ ) of women and men who graduated from Wisconsin high schools in 1957. Follow-up surveys were conducted with the graduates via telephone and mail surveys in 1964, 1975, 1992, and 2004. We use information collected by both telephone and mail instruments. Although exceptional sample retention is a major strength of the WLS, sample sizes do decline over the years. In our analyses, sample sizes fluctuate due to participant attrition and variation in responses to telephone and mail surveys.<sup>1</sup> Nonetheless, our final model is based on a large sample ( $n = 4,000$ ). To retain the maximum number of participants, we



used ipsative substitution when constructing scales if a participant was missing only one or two items. One weakness of the WLS is that the sample reflects Wisconsin of the late 1950s, in that very few minority group individuals are included. Also, because the sample members are all high-school graduates, the level of education, occupational status, and income are above average. On the other hand, these characteristics describe nearly two-thirds of Americans in this age cohort.

### **Independent Variables**

In this study, volunteering is defined as taking actions, within an institutional framework, that potentially provide some *service* to one or more *other people* or to the community at large. The key independent variable of volunteering is based on respondents' self-reported involvement in five types of organizations deemed to be clearly "other-oriented" in nature: parent-teacher associations, youth groups, neighborhood organizations, community centers, and charity or welfare groups. In 1975, volunteer involvement was measured as "none," "some," and "very much" (coded 0, 1, 2); the 1992 and 2004 waves used a five-point scale, from "not involved" to "involved a great deal" (coded 0–4). Variables measuring volunteering in 1975, 1992, and 2004 are the sums of the answers regarding these five kinds of organizations at each time period. Initial scores ranged from 0 to 10 in 1975 and from 0 to 20 in the other two waves.

One distinction we made earlier is between *intensity* and *diversity* of activities (Friedland et al. 2001). Our basic measure conceptually and operationally combines these. We have been able to construct dummy variables to measure diversity, based on the number of different types of organizations (out of five) in which respondents took part. We were unable to devise a separate measure of intensity, as these data lack information on hours contributed. Attempts to use respondents' degree of involvement to construct such a measure proved either conceptually inadequate or statistically problematic; the measures of intensity that we devised were too highly correlated with the measure of diversity. We have constructed a set of dummy variables for *consistency* of volunteering, which indicate the number of waves in which respondents did any volunteering.

### **Dependent Variables**

*Psychological well-being.* The 1992 and 2004 waves include the six scales of psychological well-being developed by Ryff and her colleagues (Ryff 1989). Scale items are measured on six-point Likert-type scales, from "agree strongly" to "disagree strongly," with no midpoint. Each scale in 1992 has seven items; in 2004, five or six items. Springer and Hauser (2006) found that the six Ryff scales do not form distinct factors in the WLS sample; rather, four scales essentially load on one factor. Therefore, we created indexes by combining the four scales of environmental mastery, personal growth, purpose in life, and self-acceptance. Alpha reliabilities are .912 in 1992 and .902 in 2004.

*Self-reported health.* Our measure of self-reported health is based on a single survey item that asks, "How would you rate your health at the present time?" The alternatives are "very poor," "poor," "fair," "good," and "excellent," coded 1 to 5. Because the measure is highly skewed toward the negative end, we use a square-root transformation.

### **Moderating and Mediating Variables**

*Social integration.* An index of social integration was created from the sum of five variables as measured in 1992: current marital status (0, 1), work status (0, 1), rural-urban residence (1, 2, 3), visits with friends (1, 2, 3),<sup>2</sup> and social support (0, 1, 2). The social support component is the sum of yes/no responses to the two questions, "Is there a (person in your family/friend outside your family) with whom you can really share your very private feelings and concerns?" (no = 0, yes = 1, respectively). The index has a range of 2–10. A score of 2 reflects an unmarried, nonworking individual living in a rural area who has no kin or friends they can count on for support and few social visits.<sup>3</sup>

*Mattering.* Elliott, Kao, and Grant (2004) devised a 26-item measure of three dimensions of mattering: awareness, importance, and reliance. The measure in the 2004 WLS questionnaire is the sum of four awareness items (e.g., "People are usually aware of my presence.") and two reliance items (e.g., "People tend to rely on me for support."). The items are measured on a five-point "agree strongly" to "disagree strongly" scale. Alpha reliability is .760 for the mattering index.

### **Additional Variables**

*Controls for social participation.* The most important control variable, other organizations, is a measure of self-oriented organizational involvement. It is the sum of respondents' participation in veterans' organizations, fraternal organizations, organizations of the same nationality, sports teams, and country clubs in 1975, 1992, and 2004. Other controls for social participation in 1975 include participation in church-related groups (coded 0, 1, 2, respectively, for "none," "some," and "very much"), church attendance (coded 1 to 6, from never to weekly), marital status (1 = currently married, 0 = not), work status (1 = any employment, 0 = none), and visits with friends.<sup>4</sup> The number of children ages 6–12 in 1975 is included, because participation in many types of organizations is related to having children.

*Controls for past psychological well-being.* The initial 1957 questionnaire has no direct measures of psychological well-being or health, but a dummy variable is used as one proxy for psychological well-being. This variable is based on a survey item asking, "How sure are you that you will be doing what you plan?" with response options for "certain" (coded 1) and "uncertain" (0). This survey item taps into one's sense of control, a concept central to psychological well-being; one of the six Ryff scales is a measure of environmental mastery. Hunter and Csikszentmihalyi (2003) include "locus of control" as one measure of well-being. House (2002) includes "lack of self-efficacy/control" and "negative affect/hopelessness/pessimism" in his "broad range of psychosocial risk factors for health" (p. 125). A large literature on self-efficacy (Bandura 1977) indicates that perceptions of the ability to control one's outcomes have positive mental and physical health outcomes. A meta-analysis of 56 studies of self-efficacy and health-related outcomes (exercise, smoking cessation, etc.) published between 1977 to 1989 (Holden 1991) found strong evidence for a relationship, with an overall effect size of .276. In addition, an index of perceived support in high school was made from the sum of two items concerning the encouragement of parents and teachers for college studies. A supportive environment for an adolescent should be predictive of later psychological well-being.

*Controls for other sources of well-being.* The variables of IQ measured in high school, the Duncan socioeconomic index of the head of

household in 1957, respondent's achieved educational level, the 1970 occupational education score,<sup>5</sup> and combined family earnings in 1974 were included on the assumption that all these factors contribute to well-being.

*Measures of health behaviors.* Measured in 1992, these include body mass index, smoking status, number of packs a day smoked, and extent of exercise, the sum of two questions: "How often do you participate in (light physical activity/vigorous physical exercise or sports)?" Each question has four possible responses, from "three or more times a week" (coded 4) to "less than once per month" (coded 1).

Percentages for categorical measures and means and standard deviations for continuous variables are presented in Tables 1 and 2.

## **RESULTS**

Our overall conceptual path model first assumes that family background factors and demographic and personal factors predict volunteer participation. Volunteering, social integration in 1992, and the interaction of integration and volunteering, in addition to the background factors, predict psychological well-being in 1992. All of these factors, mediated through the sense of *mattering*, then predict psychological well-being in 2004. Health habits such as smoking, weight control, and exercise, along with all of the foregoing variables, are expected to predict self-reported health.

### **Predicting Volunteering**

What are the factors that predict involvement in volunteering? The literature tells us that volunteers come from the wealthier, more educated segment of society, that they are more likely to be female than male, to be married and have children, and to be active in their religion. Evidence for a reciprocal causal role of psychological well-being and volunteering (Thoits and Hewitt 2001) also suggests including our proxy measures of well-being. We carried out regressions of the log of volunteering in 1975 and volunteering 1992 to verify that relationships are similar in our data to prior findings (results not presented).

The strongest predictors of volunteering in 1975 are being female, church attendance, marital status, and number of children, quite consistent with the research in this area. Also significant are several measures of social class:

**TABLE 1. Major Independent and Control Variables; Means and Standard Deviations of Continuous Variables, and Percentages of Categorical Variables**

Independent Variables	Score Range	Central Tendency	Standard Deviation	Valid Sample Size
Categorical (percentages):				
Female	0–1	53.6	—	6,875
High school certainty of plans	0–1	74.7	—	7,785
Married 1975	0–1	89.3	—	6,536
Working 1975	0–1	76.2	—	6,546
Continuous (means):				
High school support	2–7	3.07	.95	8,004
Visits with friends in last four weeks, 1975	0–69	5.32	4.87	6,520
Family annual earnings, 1974/100	0–1650	166.21	112.46	6,537
1970 occupational education score	15–995	387.91	286.78	6,596
Duncan SEI of head of household in 1957 <sup>a</sup>	10–960	348.79	233.76	6,719
IQ in high school	61–145	102.09	14.62	6,875
Years of education	12–21	13.69	2.30	6,874
Number of kids ages 6–12, 1975	0–6	1.26	1.08	6,875
Frequency of church attendance, 1975	1–6	4.81	1.58	6,533
Involvement in church-connected groups, 1975	0–2	.54	.82	6,529
Other organizations index, 1975	0–10	.86	1.19	6,529
Other organizations index, 1992	0–20	1.44	2.03	6,593
Volunteer index, 1975	0–10	1.28	1.60	6,526
Volunteer index, 1992	0–20	1.79	2.43	6,601
Volunteer index, 2004	0–20	1.50	2.06	6,138
Index of integration, 1992	2–10	7.27	1.28	6,127
Mattering index, 2004	6–30	22.91	2.90	6,176

Note: SEI = socioeconomic index.

<sup>a</sup> Duncan SEI scores range from 10 to 960, with higher scores indicating higher-status jobs (household labor to professional occupations).

occupation of the head of the respondent's family of origin, and respondent's family earnings and occupation education score. Finally, one of the proxy measures of psychological well-being, high-school support, is significant, supporting Thoits and Hewitt's contention that well-being predicts volunteering in addition to the reverse. The analysis of 1992 volunteering is similar but shows some interesting differences. Marital status and socioeconomic status of family of origin no longer have effects, whereas education, not significant in 1975, is now the variable most highly correlated with volunteering. The number of children is now a significant negative predictor; for most of these respondents, the children will be either in high school or gone.<sup>6</sup>

### *Relationship of Volunteering to Well-Being and Health*

Hypothesis 1 proposes first a significant relationship between volunteering and well-being, and that this relationship will be stronger than the relationship between self-oriented activities and well-being. As a test of this, we calculated partial correlations between the measure of volunteering and well-being, controlling for sex<sup>7</sup> and other organizations. Partial correlations for the relationship of other organizations and well-being, controlling for sex and volunteering, were also calculated. In every case tested (concurrent measures at the last two waves, and lagged measures of 1975 and 1992 participation with well-being at the following wave), the correlation for volunteering was higher than the correlation for other organizations (see

**TABLE 2. Dependent Variables (means and standard deviations)**

Independent Variables	Score Range	Mean	Standard Deviation	Valid Sample Size
Psychological well-being, 1992 <sup>a</sup>	52–168	134.39	18.71	6,745
Psychological well-being, 2004 <sup>b</sup>	43–126	102.77	13.42	6,128
Self-reported health, 1992	1–5	4.15	.679	6,862
Self-reported health, 2004	1–5	4.02	.674	6,255

<sup>a</sup> The psychological well-being scale is the sum of items from four of the Ryff subscales: purpose in life, personal growth, self-acceptance, and environmental mastery. In 1992, these subscales comprised seven items each, for a total of 28 items. All items used a six-point scale (1–6).

<sup>b</sup> In 2004, the same four subscales were used, but this time three of the subscales had five items, and one of the subscales (purpose in life) had six items, for a total of 21 items. All items used a six-point scale (1–6).

Table 3). Based on this very simple analysis, there does appear to be an extra “boost” to well-being from other-oriented volunteerism.

In Tables 4 and 5 we present tests of hypothesis 2, that the “dose-response curve” will be such that volunteering for more types of organizations (diversity) and more continuous involvement in those organizations (consistency) will lead to more positive effects. In the top panel of Table 4, the dependent variables of self-reported health and psychological well-being in 1992 are regressed on three dummy variables for diversity: participation in one, two, or three or more types of organizations. The omitted category is no participation. The second analysis presented, of consistency, employs a set of two dummy variables, one for participation in one wave (either 1975 or 1992) and a second for participation in both waves (the omitted category is participation in neither of the waves).

The impact of *diversity* appears to differ between the two dependent variables. First, there is a highly significant positive effect of participation at every level in 1975 on 1992 psycho-

logical well-being, which increases linearly as *diversity* increases. For self-reported health, there is a significant effect of working for one type of organization, but the impact of working for two is only about 50 percent larger, and the effect of working for three or more is only slightly greater than that.

In the 1992 *consistency* analysis, the effect on both dependent variables of volunteering in one wave is highly significant, and the effects of volunteering over two waves appear to be additive. For psychological well-being, the effect of the two-waves dummy is about double that of the wave 1 dummy; for self-reported health, it is larger by only 25 percent. There is no evidence for either diversity or consistency that one can get too much of a good thing. That is, there is never a *decrease* in the impact of volunteering as the amount increases.

Table 5 presents analyses of the health and well-being measures from 2004, including controls for the corresponding health measure at the 1992 wave. In the cross-lagged analysis, we again find that increasing diversity has increasing effects on psychological well-being;

**TABLE 3. Partial Correlations of Volunteering with Psychological Well-Being and Health, Holding Constant Gender and Participation in Other Organizations; and Partial Correlations of Participation in Other Organizations with Psychological Well-Being and Health, Holding Constant Gender and Volunteering**

Independent Variable	Well-Being, 1992	Well-Being, 2004	Self-Reported Health, 1992	Self-Reported Health, 2004
Volunteering, 1975	.114***		.045***	
Other organizations, 1975	.032**		.010	
Volunteering, 1992	.161***	.145***	.067***	.058***
Other organizations, 1992	.064***	.036*	.024*	.014
Volunteering, 2004		.144***		.081***
Other organizations, 2004		.042**		.026

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Note: Concurrent and lagged correlations are shown.

**TABLE 4. Regressions of Psychological Well-Being and Self-Reported Health in 1992 on Dummy Volunteering Variables**

	Psychological Well-Being		Self-Reported Health	
Dummy variables for volunteer diversity <sup>a</sup>				
One organization 1975	2.905***	(.527)	.146**	(.049)
Two organizations 1975	4.986***	(.688)	.220***	(.064)
Three or more organizations 1975	7.308***	(1.010)	.257**	(.093)
Adjusted R <sup>2</sup> ; df	.014	3/6403	.002	3/6858
Dummy variables for volunteer consistency <sup>b</sup>				
One wave	4.168***	(.575)	.257***	(.054)
Two waves	8.255***	(.608)	.346***	(.057)
Adjusted R <sup>2</sup> ; df	.028	2/6404	.006	2/6516

\*\*  $p < .01$ ; \*\*\*  $p < .001$

Notes: Cell entries are unstandardized regression coefficients. Standard errors are given in parentheses.

<sup>a</sup> Omitted group is no volunteering in 1975.

<sup>b</sup> Omitted group is no volunteering in either wave.



**TABLE 5. Regression of Psychological Well-Being and Self-Reported Health in 2004 as a Function of Diversity of Volunteering in 1992 and in 2004, and Consistency of Volunteering, Controlling for the Level of the Dependent Variable in 1992**

Dummy Variables	Psychological Well-Being		Self-Reported Health	
	Step 1	Step 2	Step 1	Step 2
<i>Diversity of volunteering</i>				
One organization, 1992	2.339*** (.438)	.394 (.323)	.184** (.058)	.091 (.051)
Two organizations, 1992	3.645*** (.529)	.669 (.391)	.232*** (.071)	.105 (.062)
Three or more organizations, 1992	4.159*** (.636)	.536 (.470)	.164 (.085)	.012 (.074)
Dependent measure, 1992		.489*** (.007)		5.234*** (.127)
R <sup>2</sup> ; df	.015 3/5258	.469 4/5257	.003 3/5425	.241 4/5424
<i>Diversity of volunteering</i>				
One organization, 2004	2.983*** (.425)	1.244*** (.314)	.183*** (.057)	.099* (.050)
Two organizations, 2004	4.356*** (.542)	1.411*** (.401)	.216** (.027)	.093 (.063)
Three or more organizations, 2004	4.645*** (.716)	1.849*** (.528)	.411*** (.036)	.277*** (.084)
Dependent measure, 1992		.486*** (.007)		5.225*** (.128)
R <sup>2</sup> ; df	.020 3/5197	.371 4/5196	.004 3/5339	.242 4/5338
<i>Consistency of volunteering</i>				
One wave	1.670*** (.562)	.399 (.417)	.258*** (.075)	.163* (.066)
Two waves	4.071*** (.562)	.817* (.416)	.334*** (.074)	.172** (.065)
Three waves	6.428*** (.589)	1.975*** (.442)	.478*** (.079)	.260*** (.069)
Dependent measure, 1992		.448*** (.009)		1.971*** (.050)
R <sup>2</sup> ; df	.029 3/4972	.439 4/4971	.007 3/5109	.239 4/5108

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Notes: Cell entries are unstandardized regression coefficients. Standard errors are given in parentheses. Omitted group in diversity analyses is no volunteering in the relevant wave; omitted group in the consistency analyses is no volunteering in any wave.

however, this relationship does not hold true for the impact of 1992 diversity on 2004 self-reported health. In this case, there is an increase and then a decrease in the positive impact of volunteering. What is the impact of controlling for 1992 well-being and health? In this lagged diversity analysis, when the corresponding dependent variable measure from 1992 is entered, all of the effects of volunteering are eliminated. This pattern of results is what one would expect if volunteering earlier has its effect in 2004 *through* its impact on 1992 health and well-being. In the nonlagged diversity analysis—using 2004 volunteering—and in the *consistency* analysis, the impact of volunteering remains robust. This indicates that volunteering between 1992 and 2004 *increases* psychological well-being in 2004 over the 1992 baseline.

In the subsequent multiple regression models for both waves, we measured volunteering with one variable that combines diversity, intensity, and consistency. We do so because our separate diversity and consistency measures have a part-whole correlation and thus should not be used in the same analysis. Our measure is the sum of the indexes for volunteering in 1975 and 1992.<sup>8</sup> Analyses of the 1992 and 2004 measures of psychological well-being use this combined measure and an interaction term

computed by multiplying the volunteering measure by the 1992 index of integration.

Table 6 presents the regression of psychological well-being in 1992 on volunteering (with its predictors),<sup>9</sup> controls for other social participation, current social integration, and the interaction of volunteering and integration. The first step of the regression included all the controls plus the combined measure of volunteering in waves one and two. In the second step, integration and the interaction of volunteering and integration are added. This analysis provides support for hypothesis 1: Volunteering—even when controlling for its predictors and other sources of well-being—contributes significantly to psychological well-being. The analysis also provides evidence for hypothesis 3: The effect of volunteering on well-being is greatest for those who are least integrated in society, as indicated by the negative coefficient.

Table 7 presents the regression of psychological well-being in 2004 on all of the same variables; in addition, the model includes volunteering as reported in 2004 and psychological well-being in 1992. This allows for a stringent test of the causal impact of 2004 volunteering, by holding constant both prior volunteering and prior well-being. Our expectation is that inclusion of the most recent volunteer-

**TABLE 6. Regression of Psychological Well-Being on Control Variables, Combined Measure of Volunteering, and the Interaction of Integration and Volunteering in 1992**

Variables	Dependent Variable: Psychological Well-Being 1992			
	Step 1		Step 2	
Controls <sup>a</sup>				
Female	2.796***	(.607)	2.004***	(.589)
High school certainty of plans	3.363***	(.604)	3.005***	(.561)
High school support	1.585***	(.317)	1.392***	(.309)
Education	.565***	(.137)	.511***	(.134)
Married 1975	2.420*	(.889)	1.401	(.869)
Working 1975	2.242***	(.687)	1.766**	(.671)
Visits with friends, 1975	.303***	(.054)	.168**	(.053)
Family earnings, 1974/100	1.064***	(.244)	.863***	(.238)
Social participation index	.299	(.218)	.129	(.213)
Combined measure of volunteering 1975–1992 (VOL)	1.791***	(.225)	3.679***	(1.172)
Integration 1992			–.331*	(.157)
Integration × VOL			3.788***	(.302)
R <sup>2</sup> ; df <sup>b</sup>	.074***	15/5117	.120***	17/5115

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Notes: Cell entries are unstandardized coefficients. Standardized errors are given in parentheses.

<sup>a</sup> A prior step included all control variables. Controls shown were significant when entered at  $p < .05$ . Other (non-significant) controls were Duncan socioeconomic index of head of household in 1957, IQ in high school, number of kids 6–12, involvement in church-connected groups, frequency of church attendance, and index of social participation, all measured in 1975. Volunteering was added at step 1.

<sup>b</sup> Significance shown is for significance of change in R<sup>2</sup>.

**TABLE 7. Regression of Psychological Well-Being in 2004 on Control Variables, Combined Measure of Volunteering, Integration, Their Interaction, Volunteering in 2004, and Mattering**

Variables	Dependent Variable: Psychological Well-Being 2004					
	Step 1	Step 2	Step 3	Step 4		
Controls <sup>a</sup>						
Female	1.804***	(.478)	1.643**	(.478)	.701* (.343)	
High school certainty of plans	1.630***	(.477)	1.634***	(.475)	.260 (.342)	
High school support	.949***	(.250)	.937***	(.249)	.255 (.189)	
Years of education	.803***	(.106)	.770***	(.106)	.566*** (.080)	
Church attendance, 1975	.381**	(.145)	.368*	(.144)	.169 (.109)	
Visits with friends, 1975	.109*	(.044)	.109*	(.043)	.032 (.033)	
Family earnings, 1974/100	.866**	(.197)	.839***	(.196)	.403** (.149)	
Combined measure of volunteering 1975–1992 (VOL)	3.813***	(.948)	3.699***	(.945)	1.580* (.717)	
Integration (1992)	2.440***	(.250)	2.411***	(.250)	1.395* (.679)	
Integration × VOL	–.428***	(.127)	–.450***	(.126)	.620*** (.192)	
Volunteering in 2004			.522***	(.104)	.253*** (.079)	
Well-being, 1992			.469***	(.009)	.129 (.081)	
Mattering					.410*** (.009)	
R <sup>2</sup> ; df <sup>b</sup>	.107***	17/3983	.112***	18/3982	.491***	19/3981
					.544***	20/3980

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

Notes: Cell entries are unstandardized coefficients. Standardized errors given in parentheses.

<sup>a</sup> A prior step included all control variables. Controls shown were significant when entered at  $p < .05$ . Other (non-significant) controls were Duncan socioeconomic index of head of household in 1957, IQ in high school, work status, married, number of kids ages 6–12, involvement in church-connected groups, and index of social participation all measured in 1975). Volunteering, integration, and their interaction were added at step 1.

<sup>b</sup> Significance shown is for significance of change in R<sup>2</sup>.

ing will add to the prediction of well-being, and that inclusion of the measure of well-being in 1992 will decrease or eliminate the impact of earlier volunteering and the volunteering-in-integration interaction, but that it will not alter

the impact of 2004 volunteering, providing support for the *causal* role of volunteering.

Our expectations are borne out. Before the addition of 1992 well-being and 2004 volunteering, the results are essentially the same as those for the 1992 wave. The combined mea-

sure of 1975–1992 volunteering, integration, and their interaction all have significant effects on well-being in 2004. When 2004 volunteering is added, there are very few changes in the other coefficients, and there is a highly significant effect. As expected, when 1992 well-being enters the equation, the impact of both earlier volunteering and the interaction term decrease greatly in size and significance, but there is a smaller decrease in the size of the coefficient for recent volunteering. It is our contention, of course, that earlier volunteering was causally related to 1992 well-being, and that what we have shown is an indirect effect of earlier volunteering on 2004 volunteering through its effect on 1992 well-being. This cannot be unequivocally demonstrated due to the absence of a 1975 measure of well-being. Coefficients for the proxy measures of well-being from 1957 also become nonsignificant when 1992 well-being is entered, as one would expect if the proxy measures are, indeed, less effective measures of well-being. In any case, the finding that recent volunteering reported in 2004 affects current well-being, controlling for prior well-being, is strong evidence for a causal effect.

The final question regarding psychological well-being is whether the effect of volunteering is mediated by mattering. Does volunteering increase psychological well-being because individuals feel they matter in the world? This is tested in the final column of Table 7. When mattering is entered into the equation, the impact of recent volunteering is reduced by about 42 percent and becomes non-significant. This is, we believe, evidence for the mediating role of mattering.<sup>10</sup> Volunteering increases psychological well-being *in part because* it leads people to feel that they have an important role in society and that their existence is important. The coefficients for 1992 integration and for 1975 visits with friends, church attendance, and family income in 1975 greatly decreased when 1992 well-being entered the equation, and further decreased when mattering was entered. A question for further research may be to what extent connections between people of all kinds, and other contributors to well-being such as income, may have their impact on well-being, in part through the medium of an increased sense of mattering.

Finally, we arrive at the last step in the path, self-reported health. Regressions on perceived health in 1992 (not shown) produced an ac-

ceptable  $R^2$  of .168. It is clear, however, that the bulk of the predictive power comes from the measures of health habits: smoking, obesity, and exercise. Our predictions regarding the impact of volunteering, and the mediating role of psychological well-being, are not supported. The combined measure of 1975–1992 volunteering and the interaction term are of only borderline significance. When well-being is entered into the equation, the impact of volunteering disappears entirely. Given the borderline significance of the initial effect, however, this provides no support for hypothesis 5, that the impact of volunteering on perceived health is indirect, working through psychological well-being.

Others have found that the impact of volunteering on physical health and mortality does not appear until the later years. Thus, we also analyzed the 2004 data, in which respondents are 64 years old on average, expecting that these effects would become stronger. Surprisingly, the findings were weaker (not shown). Initially, both 1975–1992 volunteering and 2004 volunteering had borderline relationships with self-reported health. These disappeared, however, when measures of health habits were entered. It is hard to argue that we have evidence in this data set for the impact of volunteering on self-reported health.

## CONCLUSIONS

Understanding factors associated with the good mental and physical health of aging adults is a major research priority in the United States. Interest is particularly high in factors that may easily be modified, such as physical activity, social engagement, and community participation. Our study supports this research agenda by exploring the contribution of volunteering—defined here as *other-oriented* community participation—to psychological and physical well-being. The unique contributions of this research involve pursuit of the following questions: (1) whether volunteering is greater in its impact than other forms of social engagement, (2) how much participation is optimal, (3) for whom the effect of volunteering is most beneficial, and (4) through what mechanisms it might operate, across the decades of early adulthood, midlife, and into retirement. Previous research has addressed similar questions, but there has been no systematic exploration of all of them with the same data set.

Using the Wisconsin Longitudinal Study, we have once again demonstrated that volunteering is positively related to psychological well-being. In addition, we provide strong evidence that the relationship is *causal*, based on analyses controlling for well-being in 1992 when predicting essentially the same measure in 2004. We made the distinction between eudaimonic and hedonic well-being, arguing that a variety of activities could lead to *feeling good*, but that other-oriented activity such as volunteering was more likely to lead to *feeling good about oneself*. Using partial correlations and controlling for gender, we demonstrated that other organizational participation has a very small—and sometimes negligible—impact on well-being when volunteering is controlled. Because the reverse is not true, we conclude that the beneficial effect is specific to altruistic forms of social engagement. Thus, we advocate caution in combining measures of self-oriented and other-oriented participation into social participation scales.

Our second hypothesis was also borne out: Continuous volunteering for a variety of organizations appears to lead to more positive effects on psychological well-being. Working for three or more types of organizations provided more benefit than working for two, which had more effect than working for one or none. The relationship of *continuity* of involvement also appears to be linear over the range we tested. Participation in both 1975 and 1992 leads to greater benefit measured in 1992 than participation in neither, and participation in three waves led to greater benefit than none, one, or two in analyses of well-being measured in 2004. This is consistent with the research of Musick and Wilson (2003) using the House (1995) data set. These results show that factors associated with positive aging begin early in life.

We also find evidence for the third hypothesis: It appears that the relationship of volunteering to psychological well-being is *moderated* by level of social integration, with those who are less well integrated benefiting the most. This result is consistent with the findings of Musick et al. (1999). This suggests that the psychological well-being of individuals with few social ties may be enhanced by volunteering. Midlarsky and Kahana (1994) carried out such a persuasive intervention with a randomly chosen half of a group of elderly, with significant positive impacts on participation and

self-esteem, morale, and subjective social integration for those who volunteered. Finally, we predicted that the relationship of volunteering to psychological well-being would be *mediated* by mattering. This prediction was also borne out. The direct effect of recent volunteering on well-being was eliminated when mattering was introduced, and the impact of the integration index and of family income on psychological well-being were also reduced.

This study helps clarify the link between volunteering and well-being, but it raises questions about differences between altruistic actions and other forms of social integration. Both contribute positively to psychological well-being; do they both operate via mattering? Or is there a different path for social integration? Do other factors mediate psychological well-being via an increased sense of mattering? This study restricted itself to a definition of formal volunteering, but it may be useful to further investigate the effects of different types of “other-oriented” community activities such as political participation and social protest.

The initial finding that self-reported health was influenced by volunteering was found to be largely illusory once measures of health behaviors were introduced in multiple regression models. However, since the integration measure had a highly significant effect ( $p < .01$ ), it is clear that the general finding that connection to others—as indexed by this measure—is good for one’s health is supported. Although we were unable to further substantiate the link between volunteering and self-reported physical health, both the strong relationship between volunteering and psychological well-being, directly and via mattering, and the known relationship between psychological and physical well-being provide good reasons to pursue this line of questioning.

Others have found a relationship between volunteering and measures of physical health. Why not here? First, it is possible that we employed more controls than previous studies. The respondents in this sample are well above average in a number of respects: they all graduated from high school; based on their self-reported height and weight, WLS participants are below the national average for obesity; very few of them report fair or poor health, even in 2004, at 64 years old. Thus, the power of the measure may simply not be enough to detect a very small effect when controls are in place.



The Wisconsin Longitudinal Survey is not a random sample; it is possible that these findings are unique to this population, so we are cautious about generalizing from these findings. Furthermore, attrition over five waves (and death) has decreased their numbers, and many variables were measured in mailed surveys that had lower response rates than did the telephone interviews. Considering the similarity of our findings to research conducted using a national random sample (House 1995) involving different age cohorts, this is unlikely. Furthermore, both the characteristics of the initial sample and attrition tend to lead to more homogeneity and to a healthier, happier, better-off sample. Thus, we would expect the findings to be weaker than in a more heterogeneous population. We would welcome a replication, using a national random sample, of the pathways we propose, in particular our finding that the effects of volunteering are mediated by a sense of mattering.

As a new generation of Americans approaches older adulthood, the search is on for ways to help them maintain the quality of their mental and physical health. This study demonstrates a direct protective effect of volunteering on psychological well-being, and cautions against the assumption that simply encouraging people to adopt an "active" lifestyle is the best way to promote positive mental health. Our measure of more self-oriented organizational involvement, as well as specifically church-oriented group involvement, did not lead to better mental or physical well-being over and above the impact of volunteering. However, there is evidence that the mental and physical health of older adults benefits from the aspects of social integration included in our index: work, marriage, visiting with friends, et cetera. Therefore, while social connections and organizational involvements of all kinds are important, our research provides stronger support for the idea of "doing well by doing good."

#### NOTES

1. The largest attrition comes in the 1992 mail survey, when our dependent variable for psychological well-being is measured. Further attrition occurs in 2004 for the same reason.
2. This is a trichotomous measure based on a continuous measure of the number of visits with friends in the past four weeks. A score of "1" indicates 0–2 visits; "2" = 3–5, "3" = 6 or more.
3. All five variables were positively related to the measures of mental and physical health; analyses were also conducted using the five variables separately. Reviewers questioned the inclusion of the rural-urban variable, but the lowest level of this measure, a town size of up to 5,000, really reflects considerable isolation, as it includes those living on farms. Results using an index that omits the rural-urban variable show similar, although weaker, findings.
4. This is the number of visits in the past four weeks, which has a range of 0 to 69, with a mean of 5.32.
5. This score is the percentage of persons in the 1970 Census in an occupation/industry/class-of-worker category who completed one year of college or more. A housewife or unemployed person was coded for a previous job, if any. Individuals who had never been in the labor force were coded as missing data.
6. There is a decrease in work with youth groups and the PTA, although the overall level of volunteering remains about the same as in 1975.
7. Women score higher on the volunteering index; men score higher on the self-oriented index, in part because it includes sports participation.
8. The mean and variance of volunteering in 1992 are greater than those in 1975, due to the difference in scoring the separate items. This has the effect of weighting 1992 volunteering somewhat more heavily. If instead of using the sum the two variables are both entered into the equation, the impact of 1975 volunteering is not significant, while 1992 is. Thus, weighting the 1992 measure more heavily, which is what the simple sum does, seems appropriate. The sum of the two measures seems to more appropriately represent the known increase in well-being due to consistency demonstrated in earlier analyses.
9. The variable "Occupational Education 1970" is missing for about 300 women; we exclude this variable in order to retain these respondents in these analyses.
10. In other analyses, volunteering was shown to be a strong predictor of the sense of mattering.

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