

Original Research Report

Personality Accounts for the Connection Between Volunteering and Health

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Abstract

Objectives. Existing literature has shown that volunteering is related to better physical and mental health outcomes. The purpose of this study is to examine whether personality traits and volunteering are independent predictors of physical and mental health.

Methods. The current study utilizes data from the St. Louis Personality and Aging Network (SPAN), a representative sample of community-based adults between the ages of 55 and 64. Using hierarchical linear regressions, we test whether volunteering is a significant predictor of both physical and mental health while controlling for personality traits.

Results. We find that volunteering is not significantly related to either physical or mental health while controlling for personality traits. We also find that lower neuroticism is related to better physical functioning and mental health, whereas higher extraversion is related to better mental health.

Discussion. These results indicate that volunteering may be related to health outcomes because of the personality characteristics of volunteers, not the volunteering experience in and of itself. Future longitudinal studies are needed to further explore the relationship between personality, volunteering, and health.

Key Words: Health—Personality—Volunteering

Volunteering is associated with better physical and mental health outcomes in older adults (Cattan, Hogg, & Hardill, 2011; Kumar, Calvo, Avendano, Sivaramakrishnan, & Berkman, 2012; Morrow-Howell, 2010). The question of how older adults spend their time as they transition from full-time work to retirement is an important one, particularly when coupled with the knowledge that volunteering is a viable path to better health. Another important variable to consider when exploring the relationship between volunteering and health is personality. People with certain personality traits are more likely to volunteer (Carlo, Okun, Knight, & de Guzman, 2005)

and also more likely to have better health outcomes (Turiano et al., 2012). Given that existing literature shows that volunteering and personality traits are related, and that both individually predict health, an open question is how personality and volunteering relate to each other to influence physical and mental health.

The associations between volunteering and physical and mental health outcomes have been studied extensively. In terms of physical health, volunteering is associated with reduced mortality (Ayalon, 2008; Musick, Herzog, & House, 1999; Okun, Yeung, & Brown, 2013), better self-rated general health (Morrow-Howell, Hinterlong,

Rozario, & Tang, 2003), and fewer impairments in physical functioning (Lum & Lightfoot, 2005). Volunteering also shows a strong relationship with positive mental health outcomes such as happiness, life satisfaction, self-esteem, sense of mastery, and reduced depression (Thoits & Hewitt, 2001).

Does volunteering lead to better health? Unfortunately, although there is an established relationship between volunteering and health, it is unclear how this association comes about. People with greater initial levels of health may be more physically able to seek out or better able to volunteer in the first place. Another possibility is that volunteering contributes to increases in health either directly or indirectly, possibly through the physical or social components of volunteering. Some studies of volunteering have attempted to tease apart the direction of association. Thus far, these studies indicate that initial differences in health exist between volunteers and nonvolunteers. Interestingly, however, there is still an effect of volunteering on health when initial levels of well-being are taken into account (Hao, 2008; Thoits & Hewitt, 2001). Quasi-experimental study designs have also been employed to test whether volunteering leads to increases in health. In a study of Experience Corps, a national volunteer program that matches older adults with public school students to increase academic achievement, results show that volunteers have decreased physical limitations and decreased depressive symptoms after 2 years of high-commitment volunteer experience (Hong & Morrow-Howell, 2010).

In addition to differences in health, other important antecedents of volunteering exist—although these have yet to be included in studies of volunteering and health. One prominent example involves the personality traits that characterize individuals who volunteer. This research has been described as the search for the “prosocial personality” (Penner, 2002). Two factors differentiate volunteers from nonvolunteers: other-oriented empathy and helpfulness (Penner & Finkelstein, 1998). Other-oriented empathy describes those individuals who care and feel responsible for the well-being of others. Helpfulness identifies those individuals who take action, and it is strongly associated with traits of dominance and assertiveness (Penner, 2002).

A conceptually similar approach has relied on identifying the Big Five traits that characterize volunteers, although the research on this topic is limited. The Big Five traits of agreeableness, extraversion, openness, neuroticism, and conscientiousness capture broad personality patterns of thoughts, feelings, and behaviors (Costa & McCrae, 1992). Carlo et al. (2005) argued that the two traits that are theoretically linked to volunteering are agreeableness and extraversion. Agreeableness includes the facets of altruism, straightforwardness, trust, tendermindedness, modesty, and compliance (Costa & McCrae, 1992). Several studies have demonstrated that trust plays a critical role in the decision to volunteer and that individuals who score high on trust are more likely to volunteer (Musick & Wilson, 2007). Extraversion includes the facets of warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotion (Costa & McCrae, 1992), and it is linked to volunteering through the social nature of volunteering (Carlo et al., 2005). The theoretical implication that extraversion is related to volunteering is confirmed by Penner's (2002) findings that people who are assertive, a facet of extraversion, are more likely to volunteer. Also, previous studies have reported that people with higher levels of the broad trait of extraversion are more likely to volunteer (Musick & Wilson, 2007; Okun, Pugliese, & Rook, 2007). Finally, people who volunteer score higher on the traits of conscientiousness and openness (Carlo et al., 2005). People high in conscientiousness are likely to volunteer

(especially during retirement) given their proclivity to keep busy and accomplish tasks (Jackson et al., 2010). Openness may be related to volunteering because people high on openness tend to seek out new activities with novel people (McCrae & Sutin, 2009), experiences they are likely to find through volunteering.

Personality traits not only play an important role in identifying those individuals who are more likely to volunteer but also show a relationship with health. Personality trait levels predict health outcomes (Turiano et al., 2012). Most research in this area has focused on two broad topics: (1) the role of high neuroticism (also known as negative emotionality) predicting onset of illness and mortality, and (2) the relationship between conscientiousness in both longevity and disease onset (Friedman, Kern, Hampson, & Duckworth, 2012; Lodi-Smith et al., 2010; Mroczek & Spiro, 2007). However, previous studies have also shown links between mortality and the traits of agreeableness and extraversion (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). Additionally, positive affect is one facet in the domain of extraversion, and there is a well-documented relationship between positive affect and mortality, illness onset, and self-reported pain (Cohen & Pressman, 2006). Personality traits are also related to mental health outcomes. A robust literature shows that higher levels of extraversion and lower levels of neuroticism are associated with better mental health and well-being (Lamers, Westerhof, Kovács, & Bohlmeijer, 2012).

In sum, previous studies have identified similar personality profiles for individuals who volunteer and those who have better health outcomes. Both groups have higher levels of extraversion, agreeableness, and conscientiousness. Neuroticism has been shown to be an important trait in health research, and openness is related to volunteering. The evidence also indicates that individuals who volunteer have better physical and mental health outcomes than those who do not. Given the connection between personality characteristics, volunteering, and health, it is not clear if volunteering contributes to better health when personality differences are taken into account (although see Konrath, Fuhrel-Forbis, Lou, & Brown, 2012, for a study that includes personality as one of many covariates). One study that did include personality traits in the study of volunteering and health points to the importance of personality traits in this relationship. Martin, Baenziger, MacDonald, Siegler, and Poon (2009) found in a study of centenarians that high levels of the personality traits of emotional stability, extraversion, openness, and conscientiousness moderated the relationship between an engaged lifestyle (including volunteering) and better mental status. Thus, there is evidence to suggest that personality traits may be important variables in the study of volunteering and health.

There are at least two reasons why personality has rarely been studied in relation to volunteering and health. One is that these literatures have been separate historically; personality researchers have studied the relationship between personality and health outcomes, whereas social and public health researchers have studied volunteering and health. Another reason is that longitudinal studies of volunteering have been drawn from large, nationally representative studies that often do not have comprehensive data regarding personality variables. Our study is uniquely poised to integrate these separate literatures and has collected comprehensive information on personality, health, and volunteering.

The goal of the present analyses is to examine if personality traits and volunteering are independent predictors of physical and mental health. One question that we intend to answer is if volunteering is related to health because people who volunteer share personality characteristics with those people who experience better

health outcomes? Or are personality characteristics and volunteering both separate and significant predictors of health? Another goal of our paper is to explore the Big Five personality traits of volunteers because few studies have examined the traits of volunteers. Our study of personality and health in adults from ages 55 to 64 will allow us to explore how personality traits add to our knowledge about the relationship between volunteering and health. Furthermore, our sample is younger than the typical age range that has been included in studies on volunteering. Later middle age includes many individuals who are still working but also some who are retired and others who are making the transition from work to retirement. All might be described as being “on the cusp of later life.” Considered in conjunction with data from previous studies of older people, evidence regarding transition periods may provide a more complete picture of the connection between volunteering and health outcomes in later life.

Method

Design

The current study utilizes data from the St. Louis Personality and Aging Network (SPAN), a representative sample of community-based adults from the ages of 55–64. The SPAN study is an investigation of personality, health, and aging. Participants were recruited from the St. Louis area using listed phone numbers that had been cross-checked for age using census data. African American households were oversampled to more accurately represent the demographics of the St. Louis area (Spence & Oltmanns, 2011). For a full description of recruitment and other procedures, see Oltmanns and Gleason (2011). All data included in these analyses are from the baseline assessment, a 3-hr battery of interviews and questionnaires.

Participants

A total of 1,630 participants completed the baseline assessment. Participants were 55% female ($n = 890$) and 65% Caucasian ($n = 1,060$). The average age of the participants was 59.5 (standard deviation [SD] = 2.7). The majority of the participants had some secondary education (mean = 14.93, $SD = 2.70$), and the median household income was between \$40,000 and \$59,000.

Measures

“Volunteering” was assessed at baseline with a series of questions developed specifically for this study. Volunteer status was assessed with the question “Do you currently participate in community service or volunteer activities?” To gain insight into the type and duration of current volunteer experiences, information was collected on up to three volunteer organizations. Participants were asked to record the number of places they volunteered, the names of the volunteer organizations, and the number of years and hours per week spent at each organization. Dichotomous volunteer status was used as the primary predictor variable. However, the hours per week variable was also used as a predictor variable in the final two models. The continuous hours per week variable was log transformed to normalize the skewed distribution. Seven cases were excluded from the hours per week analyses because the hours reported were substantially larger than the mean number of hours volunteered (>40 hours per week).

“Personality traits” were assessed at baseline using the NEO Personality Inventory-Revised (NEO PI-R) (Costa & McCrae, 1992). The NEO-PI-R is a self-report measure that assesses the

Five-Factor Model of personality, as well as six facets within each of five domains, resulting in 30 total facets. Participants were asked how much they agree with 240 items on a five-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). The NEO-PI-R is a commonly used measure that has been shown to have good reliability and validity (Costa & McCrae, 1992).

“Health” was assessed at baseline with the RAND-36 *Health Status Inventory* (RAND-36 his; Hays, 1998). The RAND-36 HSI is a 36-item measure that assesses eight domains of health: physical functioning, role limitations caused by physical health problems, role limitations caused by emotional problems, social functioning, emotional well-being, energy/fatigue, pain, and general health perceptions. The physical functioning scale is composed of 10 items that assess health limitations in everyday physical activities. Physical functioning is often used as an outcome in volunteering studies, and our scale is similar to the scale used in the Experience Corps study (Hong & Morrow-Howell, 2010). A mental health composite (MHC) score is computed that combines the four scales of role limitations caused by emotional problems, social functioning, emotional well-being, and energy/fatigue. Higher scores on the scales indicate better health. The RAND-36 HSI has been shown to be a reliable measure in older adults and to discriminate between patients with different severities of physical and mental health problems (Hays, 1998).

“Covariates” of gender, education, marital status, and employment status were included in the analyses. Previous research has shown that these demographic variables distinguish between those who volunteer and those who do not, that is, women, people with more education, and people who are married are more likely to volunteer (Morrow-Howell et al., 2003). For these analyses, current marital status and current employment status were measured with a dichotomous yes/no variable. The “not married” category included individuals who were divorced, widowed, or never married. “Currently employed” included individuals who were working either full or part time, and “not currently working” included individuals who were either retired or unemployed. For education, the nine categorical response options were transformed to a continuous variable with a possible range of 6.5–20 years of education. Response options were as follows (years of education in parentheses): Elementary or Junior High (6.5), GED (12), HS Diploma (12), Vocational Tech Degree (14), Associate Degree (14), RN Diploma (15), Bachelor Degree (16), Master Degree (18); and Doctorate: MD, PhD, JD, and so forth (20). Years of education and household income were strongly correlated, $r(1,550) = .48$, $p < .001$, and therefore education was used as a general proxy for socioeconomic status, and household income was not included as a covariate. Race and age were not significantly associated with volunteer status when gender and education were controlled, and they were dropped as covariates.

Analytic Plan

Our overall analytic plan was to begin by analyzing the volunteering data, then determining the individual relations between variables (e.g., volunteering and health), and finally testing a model with all variables included. Differences between volunteers and nonvolunteers were examined using independent-sample *t*-tests and chi squares. A binomial logistic regression was conducted to test the relationship between personality and volunteering. A linear regression was run to test the relationship between personality and health. Two hierarchical regressions were conducted to examine the relationship between volunteering and health while including personality variables in the model. Finally, the two final models were rerun

with volunteering measured as a continuous variable of number of hours per week to confirm the results. For each model, we report standardized coefficients. Analyses were conducted using SPSS software.

Results

Volunteering

Thirty-nine percent of participants ($n = 637$) reported volunteer or community service participation. Table 1 presents descriptive statistics for volunteering and shows that on average the volunteer experience in our sample was substantial, both in terms of years volunteered and number of hours per week volunteered. For example, participants who volunteered at three organizations reported volunteering a combined average of 10 hr a week for 11 years at these organizations. Differences between volunteers and nonvolunteers are shown in Table 2. Significantly more women, Caucasians, participants with more education, and participants with higher household income volunteer. Household income was assessed with an ordinal scale ranging from 1 (under \$20,000) to 8 (\$140,000 or more), with an average of 3.61 for nonvolunteers, indicating they fall in the income range of \$40,000 to \$59,000, whereas with an average of 4.34 for volunteers, indicating a range of \$60,000 to 79,000. Also, participants who are currently married and employed volunteer more than those who are not married or not employed.

Table 1. Volunteering Characteristics by Number of Organizations

No. of organizations	Participants, % (N)	Years, mean (SD)	Hours per week, mean (SD)
1	51.96 (331)	9.90 (10.64)	4.62 (6.23)
2	26.06 (166)	10.44 (8.21)	8.78 (10.39)
3	21.98 (140)	10.67 (6.86)	10.43 (12.07)

Table 2. Differences in Volunteers and Nonvolunteers

	Volunteers (39%)	Nonvolunteers (61%)	Statistic
Gender, % (N)			
Male	35.9 (265)	64.1 (473)	$\chi^2 (1, N = 1,626) = 7.73, p = .005$
Female	42.7 (379)	57.3 (509)	
Race, % (N)			
White	42.7 (452)	57.3 (606)	$\chi^2 (1, N = 1,584) = 10.59, p = .001$
Black/other	34.2 (180)	65.8 (346)	
Education, mean (SD)	15.76 (2.64)	14.39 (2.98)	$t(1,595) = -9.44, p < .001$
Household income, mean (SD)	4.34 (2.26)	3.61 (2.10)	$t(1,551) = -6.50, p < .001$
Employment status, % (N)			
Employed	42.3 (427)	57.7 (582)	$\chi^2(1, N = 1,600) = 6.12, p = .013$
Not employed	36.0 (213)	64.0 (378)	
Current marital status, % (N)			
Married	44.3 (344)	55.7 (433)	$\chi^2 (1, N = 1,626) = 13.55, p = .001$
Not married	35.3 (300)	64.7 (549)	
Extraversion, mean (SD)	2.35 (0.37)	2.19 (0.38)	$t(1,501) = -8.03, p < .001$
Agreeableness, mean (SD)	2.76 (0.31)	2.66 (0.32)	$t(1,499) = -6.09, p < .001$
Conscientiousness, mean (SD)	2.62 (0.35)	2.54 (0.36)	$t(1,503) = -3.96, p < .001$
Openness, mean (SD)	2.40 (.39)	2.30 (0.37)	$t(1,497) = -4.58, p < .001$
Neuroticism, mean (SD)	1.43 (0.43)	1.55 (0.43)	$t(1,504) = 5.60, p < .001$
Physical functioning, mean (SD)	51.26 (8.62)	48.48 (10.82)	$t(1,580) = -5.41, p < .001$
Mental health, mean (SD)	61.73 (7.74)	59.56 (9.21)	$t(1,580) = -4.86, p < .001$

Note. Number of participants varies by amount of complete data available.

Volunteering and Personality

Table 2 also shows personality differences between volunteers and nonvolunteers. On average, volunteers are more extraverted, agreeable, conscientious, and open, and they are also less neurotic. This personality profile has been hypothesized to reflect maturity and is consistent with normative personality change in aging (Roberts, Walton, & Viechtbauer, 2006). The correlations between volunteering and personality traits were small but significant and ranged from .20 for extraversion to .10 for conscientiousness (all $p < .01$). Using a logistic binomial regression to test the association of volunteer status and the five personality factors while controlling for years of education, gender, marital status, and employment status, higher levels of extraversion (odds ratio [OR] = 2.50, $p < .001$) and agreeableness (OR = 1.70, $p = .01$) were significantly associated with volunteer status, pseudo $R^2 = .10$, $\chi^2 (9, N = 1,325) = 141.62, p < .001$. In terms of the facets of extraversion, higher levels of assertiveness, activity, and positive emotions (ORs = 1.40, 1.35, 1.30, respectively, $ps < .05$) were associated with volunteer status, whereas lower levels of activity seeking were associated with volunteer status (OR = .71, $p = .003$), pseudo $R^2 = .10$, $\chi^2 (8, N = 1,610) = 173.67, p < .001$. Higher levels of the agreeableness facets of trust, altruism, and compliance were significantly associated with volunteer status (ORs = 1.37, 1.87, 1.30, respectively, $ps < .05$), pseudo $R^2 = .09$, $\chi^2 (8, N = 1,610) = 148.47, p < .001$.

Volunteering and Health

The relationship between volunteering and health was analyzed with independent-sample t -tests. Participants who volunteer have significantly higher scores on physical functioning and the MHC of the RAND-36 HSI (see Table 2), indicating better physical, $t(1580) = -5.41, p < .001, d = -.27$, and mental health, $t(1580) = -4.86, p < .001, d = -.24$. Furthermore, on the remaining scales of the measure, volunteers have significantly better general health perceptions and fewer role limitations caused by physical health problems.

Personality and Health

Next, the relationship between personality and health was examined. A linear regression to test the association between physical functioning and the five personality domains was conducted while controlling for gender, education, marital status, and employment status. Lower levels of neuroticism (stand. $b = -0.17, p < .001$) were associated with better physical functioning, $R^2 = .20, F(1, 1306) = 36.91, p < .001$. Another linear regression was conducted to examine the relationship between personality and mental health while controlling for gender, education, marital status, and employment status. Higher levels of extraversion (stand. $b = 0.09, p < .001$) and lower levels of neuroticism (stand. $b = -0.51, p < .001$) were significantly associated with better mental health, $R^2 = .37, F(1, 1295) = 84.31, p < .001$.

Volunteering, Personality, and Health

Finally, two hierarchical linear regressions were conducted to test the relationship between physical and mental health and volunteering with personality traits in the model as predictors. Table 3 displays the hierarchical linear regression for physical functioning, and Table 4 describes the regression for mental health. In both regressions, volunteering is a significant predictor of health in steps 1 and 2, even when controlling for demographic variables ($p < .01$), but is no longer significantly associated with health when personality traits are added to the model. In terms of physical functioning, lower levels of neuroticism are associated with better health. For mental health, higher levels of extraversion and lower levels of neuroticism were significantly associated with better mental health.

These analyses were rerun using the number of volunteer hours variable. In steps 1 and 2, controlling for the demographic variables, number of hours volunteered was associated with better physical functioning (stand. $b = 0.12$ and stand. $b = 0.06$, respectively, both $p < .05$), step 2 $R^2 = .17, F(1, 1300) = 54.10, p < .001$. In step 3, with the addition of personality traits, volunteering was no longer associated with better physical health (stand. $b = 0.04$), whereas lower levels of neuroticism were significantly associated with better physical health

(stand. $b = -0.17, p < .001$), $R^2 = .20, F(1, 1300) = 33.30, p < .001$. For mental health, in steps 1 and 2, controlling for the demographic variables, number of hours volunteered was associated with better mental health (stand. $b = 0.09$ and stand. $b = 0.05$, respectively, both $p < .05$), step 2 $R^2 = .06, F(1, 1288) = 17.20, p < .001$. In step 3, with the addition of personality traits, volunteering was no longer associated with better mental health (stand. $b = -0.01$), whereas lower levels of neuroticism (stand. $b = -0.52, p < .001$) and higher levels of extraversion (stand. $b = 0.09, p < .001$) were significantly associated with better mental health $R^2 = .37, F(1, 1288) = 75.70, p < .001$.

Discussion

The primary purpose of the present analyses was to address an open question in the literature about the relationship of volunteering and personality traits to physical and mental health. Previous research has shown that volunteering is associated with physical and mental health (Morrow-Howell, 2010) and that personality characteristics are associated with better mental and physical health outcomes (Lamers et al., 2012; Turiano et al., 2012). However, few studies have examined personality and volunteer status as simultaneous predictors (Konrath et al., 2012; Martin et al., 2009). The relative absence of personality traits in studies of volunteering and health is surprising because the existing literature suggests that personality traits could be driving the relationship between volunteering and health. Our results show that when both volunteer status and personality traits are in the model, volunteer status is no longer significantly associated with either mental or physical health. In other words, when controlling for personality traits, volunteering is not associated with better health outcomes. In both physical and mental health, lower levels of neuroticism are associated with better health; for mental health, higher levels of extraversion are associated with better outcomes. These results are consistent with previous studies showing that neuroticism and extraversion are important traits in health outcome studies (Lamers et al., 2012; Mroczek & Spiro, 2007).

Table 3. Hierarchical Linear Regression Predicting Physical Functioning From Volunteer Status (Step 1), Demographic Characteristics (Step 2), and Personality Traits (Step 3)

Predicting physical functioning	R ²	Stand. b	ΔR ²	Significance change
Step 1: Volunteer status	.02	0.14	.02	.001
Step 2: Demographics	.18		.16	.001
Volunteer status		0.07		
Gender		-0.04		
Education		0.23		
Marital status		0.10		
Employment status		0.24		
Step 3: Personality	.21		.03	.001
Volunteer status		0.04		
Gender		-0.05		
Education		0.20		
Marital status		0.10		
Employment status		0.23		
Extraversion		0.01		
Openness		0.04		
Agreeableness		0.02		
Neuroticism		-0.17		
Conscientiousness		-0.01		

Note. Bold = $p < .01$.

Table 4. Hierarchical Linear Regression Predicting Mental Health from Volunteer Status (Step 1), Demographic Characteristics (Step 2), and Personality Traits (Step 3)

Predicting mental health	R ²	Stand. b	ΔR ²	Significance change
Step 1: Volunteer status	.01	0.11	.01	.001
Step 2: Demographics	.06		.05	.001
Volunteer status		0.08		
Gender		0.00		
Education		0.09		
Marital Status		0.12		
Employment status		0.14		
Step 3: Personality	.37		.31	.001
Volunteer status		0.01		
Gender		0.01		
Education		0.04		
Marital Status		0.10		
Employment Status		0.10		
Extraversion		0.09		
Openness		-0.03		
Agreeableness		-0.02		
Neuroticism		-0.51		
Conscientiousness		0.03		

Note. Bold = $p < .01$.

These results provide insight into the questions posed in the introduction of whether volunteering leads to better health status. In our large community-based sample, volunteering seems to be related to health outcomes because of the personality characteristics of volunteers, not the volunteering experience in and of itself. These results indicate that volunteers have a personality profile that reflects greater maturity (Roberts et al., 2006) and that profile drives the relationship with better health outcomes. These results are an important first step in exploring health outcomes in older adults. Most previous studies that have focused on the relationship between volunteering and health have neglected to take personality traits into account. It is important to note that these analyses do not contradict the previous findings that volunteering is an important pathway to health. Rather, it appears that people who volunteer are those who would have better health outcomes due to already established personality characteristics.

These findings raise an important question about interventions that focus on increasing volunteering in older adults. More recent volunteering research has focused on teasing apart under which conditions volunteering produces the most positive results for older adults. Questions have been raised about the characteristics of individuals who will benefit the most from volunteering, that is, identifying subgroups to target such as those with limited resources, the type of volunteer experience that is most beneficial for the individual, and identifying the mechanisms of volunteering that promote well-being (Morrow-Howell, 2010). The present results suggest that personality traits are another critical topic to consider with regard to intervention research. If people who volunteer have a specific personality profile and are more likely to have better health outcomes, then it is possible that interventions should target those individuals who are high on neuroticism and low on extraversion. Would the benefits of volunteering be magnified for those individuals who do not have an initial inclination to volunteer? Also, how would interventions target these individuals based on personality characteristics? Future studies should also explore whether personality characteristics are related to the type of organization for which a person volunteers or the person's motivation for volunteering.

Furthermore, another goal of our study was to analyze the volunteering experiences in our sample and also to replicate previous findings on the bivariate relationships between personality, volunteering, and health. First, we established that the volunteer experience in our sample was both substantial in hours per week and years volunteered. Our results also show that, consistent with past research (Morrow-Howell et al., 2003), the profile of volunteers differs from those individuals that do not volunteer. Volunteers are more likely to be female, have more education, higher income, and are more likely to be employed. We replicated past research when we found that extraversion and agreeableness are the strongest personality predictors of volunteer status (Carlo et al., 2005), neuroticism and extraversion are related to better health outcomes (Lamers et al., 2012; Turiano et al., 2012), and volunteers have better physical and mental health (Morrow-Howell, 2010).

Limitations

The main limitation of the present analyses is that the data are cross-sectional, and the direction of this relationship is unclear. Our interpretation of the results is that personality characteristics preceded the volunteer experiences and that the personality traits were the driving force behind both volunteer status and better health outcomes. However, an argument could be made that the volunteer experience contributed to personality change, which in turn produced better

health outcomes. This interpretation is plausible because research has consistently shown that personality change is normative, but it is more likely that personality characteristics preceded both volunteering and better health outcomes for two reasons. First, a meta-analysis has shown that personality change is a relatively slow process. Second, personality is more stable in middle to older age adults with less change found in those samples than in younger adults (Roberts et al., 2006).

A second limitation of the present analyses is that we are not able to determine whether selection effects or causation processes contributed to the better health outcomes we observed. Without longitudinal data, we are unable to explore the issue of directionality. However, these data do allow us to suggest strongly that personality may be an important variable in understanding the relationship between volunteering and health. These limitations should direct the focus of future research. Our findings draw attention to the need for longitudinal studies of volunteering, health, and personality.

Finally, these results focus on a limited age range of adults from the ages of 55 to 64. Other research on volunteering usually focuses on a broader range of older adults, and these results may not be consistent across different age ranges. Specifically, the studies cited in the introduction all have a mean age above the one in this study. It is plausible that the role of personality characteristics may differ at older ages. For example, volunteering may have a greater impact on physical and mental health for adults over the age of 65 due to greater variability in health for older individuals. Thus, our younger age range may have contributed to our relatively modest size of the relationship between volunteering and physical functioning. Although modest, our results suggest a meaningful relationship between personality, volunteering, and health such that personality explained the link between volunteering and health. Nonetheless, issues about the magnitude of the effect highlight the need for a comprehensive longitudinal study to test these associations at different age periods and across different contexts

Conclusions

This study first replicates and then integrates three robust literatures on volunteering, personality, and health. We found that volunteers are more likely to exhibit certain personality traits, that is, volunteers are more extraverted and agreeable, volunteers are more likely to have better physical and mental health outcomes, and finally that certain personality traits, neuroticism and extraversion, are also related to better physical and mental health. We have added to the literature by showing that volunteering is no longer related to health when personality traits are taken into account. These results highlight the importance of accounting for personality traits when examining important outcomes, particularly health in older adults.

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