

Volunteering and Subjective Well-Being in Midlife and Older Adults: The Role of Supportive Social Networks

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Objective. This study examined the extent to which associations between volunteering and subjective well-being (SWB) could be related to volunteers having more supportive social networks relative to nonvolunteers.

Method. The sample consisted of 561 midlife and older adults (aged 55–94 years) from the TRAnsitions In Later Life study. Multiple mediation analyses examined associations between hours spent volunteering per week; availability of social support from friends, relatives, and neighbors; positive and negative social exchanges; and SWB.

Results. The results indicated that the higher life satisfaction and positive affect reported by those who volunteer at moderate levels (up to 7 hr per week) are related to their higher levels of positive social exchanges and greater availability of social support from friends and family, relative to nonvolunteers. Those who volunteer at higher levels (7 hr or more per week) also reported greater levels of positive affect in comparison to nonvolunteers, and this was related to their greater availability of social support from friends. Availability of support from friends accounted for the greatest proportion of the volunteering–SWB associations.

Discussion. The findings suggest that the positive SWB associated with volunteering is related to volunteers' more extensive friend and family networks.

Key Words: Older adults—Social exchanges—Social support—Subjective well-being—Volunteering.

FORMAL volunteering (willingly giving unpaid help, in the form of time, service, or skills, through an organization or group) offers broad benefits to the community, including increases in social capital and significant economic benefits (Australian Bureau of Statistics [ABS], 2008). Volunteering has also been associated with a range of positive health-related and psychosocial outcomes for individuals, including enhanced subjective well-being (SWB). For example, engaging in volunteer work has been associated with higher levels of satisfaction with life (Thoits & Hewitt, 2001; Van Willigen, 2000; Windsor, Anstey, & Rodgers, 2008), happiness (Thoits & Hewitt, 2001), and positive affect (Greenfield & Marks, 2004; Windsor et al., 2008). Despite growing empirical evidence for benefits associated with volunteer activity, the factors underlying links between volunteering and SWB remain unclear, and determining how volunteering might promote SWB has been identified as a key research priority (Morrow-Howell, 2010). Clarifying the nature of associations among both positive and negative aspects of social exchanges, volunteering and SWB will advance our understanding of how volunteering might contribute to SWB in later life. The goal of the present study was to examine the extent to which associations between volunteering and SWB can be accounted for by volunteers reporting more supportive social networks relative to nonvolunteers.

Social Support, Volunteering, and Subjective Well-Being

There is broad consensus that supportive social ties are beneficial for mental health and SWB (House, Umberson, & Landis, 1988; Kawachi & Berkman, 2001), both through their promotion of positive emotions and by acting as a buffer against stress (Berkman, Glass, Brissette, & Seeman, 2000; S. Cohen & Wills, 1985; Fiori, Antonucci, & Cortina, 2006). The desire to strengthen social relationships is identified by a number of theorists (e.g., Clary & Snyder, 1999; Prouteau & Wolff, 2009) as a key motivation for engagement in volunteering. Empirically, studies have shown volunteering to be positively associated with frequency of informal social interaction (Musick & Wilson, 2003; Van Willigen, 2000), number of social ties (Rook & Sorkin, 2003), and an individual's sense of community (Okun & Michel, 2006). Longitudinal studies have also shown that becoming a volunteer leads to an increase in availability of social support (Van Ingen & Kalmijn, 2010) and number of social ties (Rook & Sorkin, 2003; Tang, Choi, & Morrow-Howell, 2010).

Causal links between volunteering and social support are likely to be bidirectional. Although volunteering may promote opportunities for forming new friendships, people with preexisting supportive social networks are also more likely to become volunteers due to greater exposure to recruitment by others (Paik & Navarre-Jackson, 2011). Australian data (ABS, 2008) indicated that a substantial

proportion of volunteers who had commenced volunteering within the past 10 years did so either because they were asked by someone (35%) or knew someone who volunteered (29%). Supportive social networks may also enable and maintain engagement in volunteer work due to the instrumental and emotional support they provide. There is also evidence to suggest that personality characteristics could underlie both quality of social relations and the likelihood of taking part in voluntary work. For example, people with high levels of social anxiety are less likely to become volunteers (Handy & Cnaan, 2007), whereas individuals high in prosocial motivation are more likely to become involved (Midlarsky & Kahana, 2007).

Despite the conceptual and empirical links between volunteering, supportive social relationships, and SWB, the few empirical studies that have examined associations among these constructs have produced inconsistent findings. For example, Musick and Wilson (2003) found that the association between volunteering and lower levels of depressive symptoms was partially explained by the frequency of formal social interaction (how often respondents attended meetings) but not by informal social interaction (how often respondents saw relatives or friends or contacted them on the telephone). Tang and colleagues (2010) asked respondents to indicate whether they felt their social circle had expanded and whether they engaged in an increased amount of social activity and social interaction as a result of joining a volunteer organization. These measures of social network change were not found to be significantly associated with volunteers' mental health.

One possible explanation for the inconclusive findings of previous studies concerns limitations in the measures used to operationalize different aspects of social support and social network characteristics. A comprehensive investigation of the possible role of social networks in mediating the volunteering–SWB association requires consideration of structural characteristics (e.g., size of network or frequency of contact), the extent to which network members provide instrumental and emotional support, the relevance of different sources of support (e.g., family vs. friends), and the quality of social exchanges. The assessment of social networks based solely on one-dimensional structural measures provides an incomplete picture of the complexity of social relations in terms of the quality and nature of support provided (Fiori et al., 2006; O'Reilly, 1988). Similarly, the importance of distinguishing between types of social ties (e.g., friends, relatives, neighbors) has been recognized by a number of researchers (Glass, Mendes de Leon, Seeman, & Berkman, 1997; Kahn & Antonucci, 1980; Seeman & Berkman, 1988).

Social support from friends, family, and neighbors are likely to be differentially related to the volunteering–SWB association. However, we are not aware of studies that have examined associations of volunteering with social support across these domains. The availability of social support

from friends is likely to be most relevant to understanding the association between volunteering and SWB, as volunteering fosters new friendships (Van Ingen & Kalmijn, 2010) and preexisting friendships increase the likelihood of becoming a volunteer (Paik & Navarre-Jackson, 2011). The less discretionary nature of familial ties means that the size of family networks and contact with family members is unlikely to be increased through volunteering. However, higher quality social relations with immediate family might result from a sense of purpose engendered by volunteering (Pinquart, 2002), particularly during retirement when older adults may seek to establish new role identities (Greenfield & Marks, 2004), thereby promoting a more positive day-to-day social environment. In addition, the capacity for family ties to provide emotional and instrumental support may enable individuals to engage in volunteer work. It seems feasible that volunteering in local community organizations could be associated with stronger social ties with neighbors. However, it is also the case that contact with friends and family is more important for SWB than contact with neighbors (Fiori, Smith, & Antonucci, 2007; Powdthavee, 2008).

An assessment of the extent to which the association between SWB and volunteering is related to differences in the social network characteristics of volunteers and nonvolunteers also requires consideration of the quality of social contact that may be associated with the volunteer experience. Social relationships involve both negative and positive social exchanges, which each have different implications for SWB (Rook, 1984, 1997). Although SWB researchers have typically focused on the benefits of supportive relationships, a growing body of evidence suggests that the detrimental effects of negative exchanges on SWB are more strongly felt (Newman, Nishishiba, Morgan, & Rook, 2003). The relevance of the quality of social exchanges to the association between volunteering and SWB has been demonstrated by Rook and Sorkin (2003), who showed that involvement in a voluntary foster grandparent program facilitated the formation of both positive and negative social ties. In this study, volunteering was not associated with an increase in self-esteem or decrease in loneliness or depression, leading Rook and Sorkin to suggest that any psychological benefits gained from the emergence of new positive social ties may have been cancelled out by the parallel increase in negative social exchanges.

The Current Study

Our aim in the present study was to examine interrelationships among volunteering, social network characteristics, and SWB in a large sample of midlife and older adults. As our data were cross-sectional, we were not able to establish temporal precedence among the variables and therefore could not make inferences about causal relationships. However, by using analysis of mediation (see *Statistical analysis*) we were able to determine the extent to which volunteering

was associated with higher SWB in keeping with previous research (Greenfield & Marks, 2004; Mellor et al., 2008; Thoits & Hewitt, 2001; Van Willigen, 2000; Windsor et al., 2008) and the extent to which direct associations of volunteering with SWB were accounted for by differences in the social network characteristics of volunteers and nonvolunteers. In keeping with previous studies (Diener, 2009), we operationalized SWB using measures of life satisfaction, positive affect, and negative affect. It was anticipated that volunteer hours would be, up until a point, positively associated with the positive components of SWB, positive affect, and life satisfaction. On the basis of research indicating that volunteering does not necessarily prevent people from experiencing negative emotions (Greenfield & Marks, 2004) and volunteers may experience higher levels of negative social exchanges (Rook & Sorkin, 2003), volunteers were expected to report higher levels of negative affect than nonvolunteers.

We extended previous research concerned with mediators of the volunteering–SWB association by examining whether the volunteering–SWB association was mediated by availability of social support from different sources (friends, relatives, and neighbors) or differences in the reported experience of positive and negative social exchanges. We expected the availability of social support and positive social exchanges to be higher among volunteers relative to nonvolunteers and that these social support variables would be associated with higher SWB. Consequently, it was predicted that positive social exchanges, and the availability of social support, would mediate the positive association between volunteering and SWB (Hypothesis 1). On the basis of research suggesting that the association between volunteering and social networks would be stronger in the friendship domain than in other social domains, it was further hypothesized that the availability of social support from friends would be a more important mediator of the volunteering–SWB association than the availability of support from family or neighbors (Hypothesis 2).

Finally, we expected volunteers to report not only more frequent positive exchanges but also more frequent negative exchanges (Rook & Sorkin, 2003). Given that we also expected negative exchanges to be related to lower SWB, statistical adjustment for negative exchanges would be expected to lead to an increase in the size of the volunteering–SWB association (reverse mediation cf. J. Cohen & Cohen, 1983). Consequently, we predicted that negative social exchanges would have a reverse mediation effect on the associations between volunteering and SWB (Hypothesis 3). All analyses were conducted controlling for age, gender, partner status, physical health, years of education, financial status, and employment status, as previous research has shown associations between these variables and SWB (Mroczek & Kolarz, 1998).

METHOD

Participants and Procedure

Participants comprised 561 community residents recruited from the Australian Capital Territory (ACT) as part of a study investigating late life transitions. Initially 1,973 participants aged 55 years and older, randomly selected from the Australian Electoral Role, were mailed invitations to participate in the study. Self-report questionnaires mailed to respondents were completed and returned to the research team (response rate 28.4%). The sample comprised 272 men and 289 women, with a mean age of 65.2 years ($SD = 8.1$). Demographic characteristics of the sample are shown in Table 1. Respondents were predominantly female (51.5%), partnered (73.3%), had less than 15 years of education (52.9%), and were not in full-time employment (69.4%). *Z* tests comparing demographic characteristics of the sample to those of the ACT population (ABS, 2007a) indicated no significant differences in age (assessed in 5-year bands) or gender. The sample comprised a marginally higher proportion of people in partnered relationships relative to population statistics for those in a comparable age range residing in the ACT (68.7%; ABS, 2007b). Ethics approval was obtained for the study from the Australian National University Committee for Ethics in Human Research.

Measures

Life satisfaction.—Global life satisfaction was assessed using the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). The scale comprises five items (e.g., “In most ways my life is close to my ideal”) to which respondents indicate their level of agreement on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Total scores are obtained by summing items. Scores range from 5 to 35, with a higher score indicating a higher level of satisfaction ($\alpha = .89$).

Positive and negative affect.—Affect was assessed using the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS is composed of a list of adjectives designed to assess the respondent’s emotions over the past 30 days. Positive affect is represented by 10 items, which include “interested,” “excited,” and “inspired”. Negative affect is represented by 10 items, which include “distressed,” “scared,” and “hostile”. Items are responded to on a 5-point scale from 1 (*very slightly or not at all*) to 5 (*extremely*). Total scores for each subscale were obtained by summing the responses for the respective items. Scores range from 10 to 50, with higher scores indicating greater levels of positive affect ($\alpha = .90$) or negative affect ($\alpha = .87$).

Table 1. Descriptive Statistics by Volunteer Status

Attribute	Total sample	Volunteer status		
		Nonvolunteers	Moderate level volunteers	High level volunteers
<i>N</i>	561	286	220	55
Annual volunteer hours, <i>M</i> (<i>SD</i>)	243.63 (242.93)	—	149.40 (87.00) ^a	635.61 (274.73) ^a
Annual volunteer hours, <i>Mdn</i>	156.00	—	104.00	520.00
Sociodemographic variables				
Age, <i>M</i> (<i>SD</i>)	65.44 (8.29)	65.63 (9.02)	64.59 (7.38)	67.90 (7.35)
Female (%)	51.5	51.0	50.5	58.2
Less than 15 years education (%)	53.1	59.1 ^a	47.3 ^a	45.5
Partner status				
Married/de facto (%)	73.3	71.7	79.1 ^a	58.2 ^a
Separated/divorced (%)	14.1	14.3	12.7	18.2
Widowed (%)	8.7	10.5	5.0 ^a	14.5 ^a
Never married (%)	3.9	3.5	3.2	9.1 ^a
Financial status (%)	94.7	95.1	95.0	90.9
Employed (%)	40.8	43.7	44.1	12.7 ^a
Retired (%)	52.4	51.4	49.1	70.9 ^a
Physical health <i>M</i> (<i>SD</i>)	47.21 (10.84)	45.65 (11.83)	49.66 (8.85) ^a	45.55 (11.00)
Subjective well-being				
Life satisfaction, <i>M</i> (<i>SD</i>)	25.43 (6.95)	24.35 (7.31)	26.83 (6.14) ^a	25.45 (7.15)
Positive affect, <i>M</i> (<i>SD</i>)	32.08 (7.63)	30.65 (7.95)	33.36 (6.80) ^a	34.36 (7.74) ^a
Negative affect, <i>M</i> (<i>SD</i>)	14.05 (5.08)	30.65 (7.95)	13.61 (4.62)	14.81 (6.63)
Availability of social support				
Friends	8.03 (3.74)	7.08 (3.61)	9.12 (3.55) ^a	8.68 (3.86) ^a
Neighbors	5.12 (3.27)	4.41 (3.13)	5.84 (3.14) ^a	5.88 (3.77) ^a
Relatives	9.05 (3.24)	8.75 (3.27)	9.45 (3.08) ^a	9.00 (3.58)
Quality of social exchanges				
Positive social exchanges, <i>M</i> (<i>SD</i>)	2.50 (0.90)	2.40 (0.02)	2.62 (0.84) ^a	2.52 (0.95)
Negative social exchanges, <i>M</i> (<i>SD</i>)	0.56 (0.60)	0.59 (0.62)	0.53 (0.54)	0.56 (0.68)

Notes. Moderate level volunteers reported engaging in voluntary work for up to 7 hr (inclusive) per week. High level volunteers reported engaging in more than 7 hr per week of volunteer work.

^aFor dichotomous variables, indicates cells with adjusted standardized residuals greater than or equal to 2, and $p < .05$ for associated chi-squared test. For quantitative variables, indicates that the mean is significantly different from nonvolunteers (post hoc Bonferroni test).

Availability of social support.—Social support available from family, friends, and neighbors was measured using a subset of items from the Lubben Social Network Scale (LSNS-18; Lubben & Girona, 2003). Each subscale comprised three items that referred to number of network members providing regular (at least monthly) contact; the number of network members who were felt sufficiently “close to, such that they can be called on for help”; and number of network members who “can be confided in about private matters”. Participants responded on a 6-point scale from 0 (*none*) to 5 (*nine or more*). An index for each domain was obtained by calculating the mean of the three items, with higher scores representing a larger number of social ties available for social support (family, $\alpha = .83$; neighbors, $\alpha = .83$; friends, $\alpha = .89$).

Positive and negative social exchanges.—The quality of respondents’ social exchanges was assessed using the two subscales derived from the Positive and Negative Social Exchanges scale (Newsom, Rook, Nishishiba, Sorkin, & Mahan, 2005). The scale comprises 24 items and represents positive exchanges as companionship, informational support, emotional support, and instrumental support; whereas negative exchanges is represented as unwanted advice or intrusion, failure to provide help, unsympathetic or insensi-

tive behavior, rejection, or neglect. Respondents were asked to consider the people in their life (partner or spouse, family members, friends, neighbors, in-laws, or others) and to indicate on a 5-point scale from 1 (*never*) to 5 (*very often*) how often various exchanges occurred over the past month. Total scores were obtained for positive and negative subscales by calculating the mean responses. Higher scores indicate a greater level of positive ($\alpha = .94$) or negative ($\alpha = .90$) social exchanges.

Volunteering.—Volunteer status was assessed by a single item asking respondents “Do you ever do any voluntary work?” (no = 0, yes = 1), with time spent volunteering measured by a follow-up question asking respondents to indicate how many hours, on average, they engaged in volunteer work per week (Windsor et al., 2008).

Sociodemographic characteristics.—Sociodemographic information was obtained relating to age (centred at 65 years), gender (male = 0, female = 1), partner status (not partnered = 0, partnered = 1), total years of education, and employment status (unemployed/not in labor force = 0, full-time/part-time = 1). Financial security was assessed using a single item taken from Wrosch, Heckhausen, and Lachman (2000), which asked respondents whether they

had had enough money to meet their needs over the past 12 months (yes = 1, no = 0).

Physical health.—Self-rated physical health was assessed using the RAND-12 Physical Health Component (PHC) score (Hays, Price-Embury, & Chen, 1998). The RAND-12 PHC uses six items to provide a total score of physical health standardized to a mean of 50 with a standard deviation of 10 based on the U.S. population data. A higher score is indicative of better physical health. The RAND-12 PHC is a short-form of the RAND-36 PHC, which has demonstrated sound validity and reliability within adult populations (Hays et al., 1998), obtaining an alpha coefficient of .86 in the present study.

Statistical Analysis

Data analysis was conducted using IBM SPSS Version 19.0 and STATA Version 12. A missing values analysis revealed low levels of missingness (<5%), with the exception of negative (7.1%) and positive affect (7.3%). Missing data were imputed via the PASW EM algorithm (Schafer & Graham, 2002). As previous studies have demonstrated an inverted u-shaped relationship between volunteering and SWB (Morrow-Howell, Hinterlong, Rozario, & Tang, 2003; Tang et al., 2010; Windsor et al., 2008), we tested for non-linearity by fitting loess lines to bivariate scatterplots of the associations of annual hours spent volunteering with the standardized measures of SWB (J. Cohen, Cohen, West, & Aiken, 2003; figures available upon request). The loess lines did not suggest substantial nonlinearity in associations between volunteer hours and positive and negative affect. However, a nonlinear relationship between volunteer hours and life satisfaction was evident, with life satisfaction showing a positive association with volunteering up until 300–400 hr per year, at which point the association begins to decline, with a positive trend reemerging at higher levels. Therefore, we created a categorical variable (dummy-coded for regression analyses) that compared nonvolunteers ($n = 286$; the reference category), moderate volunteers (those who volunteer seven or less hours per week; $n = 220$), and high level volunteers (those who engage more than 7 hr per week; $n = 55$). The cutoff of 7 hr per week corresponds to approximately 360 hr of volunteer work per year.

The extent to which associations of volunteering with SWB were accounted for by differences in the social network characteristics of volunteers and nonvolunteers was tested using the product of coefficients test for mediation (Mackinnon, Lockwood, Hoffman, West, & Sheets, 2002). This method has lower Type 1 error rates and superior statistical power compared with other tests of mediation (Mackinnon et al., 2002). Figure 1 illustrates the multiple mediation models outlined in the hypotheses. We tested the significance of the cross products representing indirect

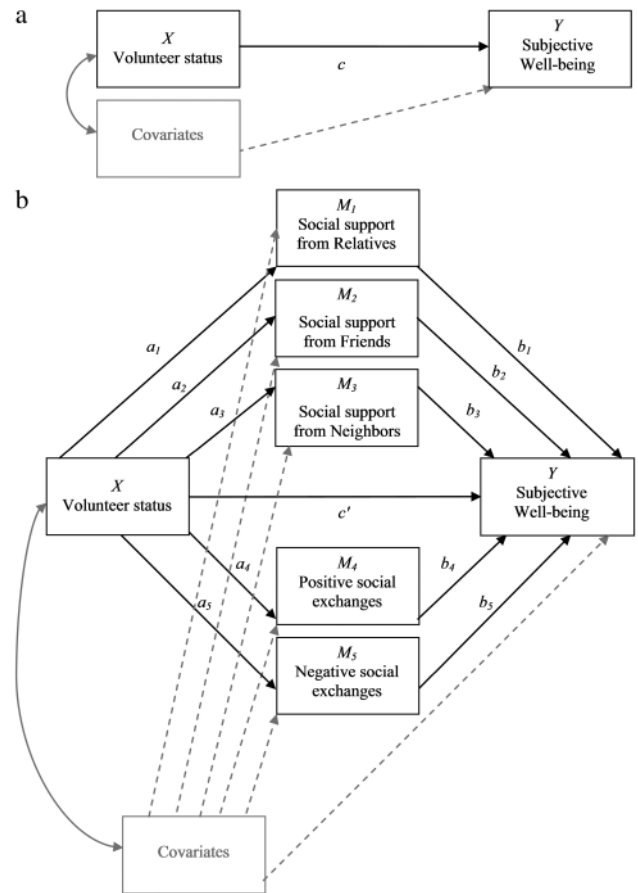


Figure 1. Diagram showing the indirect effects between volunteering and SWB. Notes. (Panel a) The direct effect between volunteering and SWB. (Panel b) Multiple mediation model. In this figure X represents the predictor variable, M the mediating variable, and Y the outcome variable. In Panel (a), the direct effect of X on Y is indicated by c . In Panel (b), a is the coefficient for X predicting M , b is the coefficient for M predicting Y adjusting for X , and c' represents the total effect of X on Y adjusting for M .

effects (a_1b_1 through a_5b_5) using bootstrap sampling via methods developed by Preacher and Hayes (2008). This method allows for the indirect effect to have an asymmetric distribution and demonstrates higher levels of power and better validity than other methods (MacKinnon, Lockwood, & Williams, 2004; Williams & MacKinnon, 2008). The relative contribution of each of the mediators was expressed as the percentage of the total effect accounted for by each of the specific indirect effects ($ab/c \times 100$; Fairchild, Mackinnon, Taborga, & Taylor, 2009). All tests for mediation were calculated based on unstandardized coefficients. Linear regression analyses examining negative affect as the dependent variable violated the assumptions of linearity and homoscedasticity. Therefore, we used regression with robust standard errors (Chen, Ender, Mitchell, & Wells, 2003) to examine predictors of negative affect. Confidence intervals (CIs) around R^2 were calculated using Smithson's (2003) noncentral F syntax.

Table 2. Regression Analysis Examining Predictors of Life Satisfaction ($N = 561$)

Predictor variables	Step 1			Step 2		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	18.67***	1.34		22.46***	1.29	
Volunteer hours						
>0 to ≤ 7	1.42*	0.59	.10	0.34	0.56	.02
>7	1.12	0.95	.05	0.20	0.88	.01
Covariates						
Age	0.13***	0.04	.15	.08*	0.04	.09
Female	0.97	0.56	.07	-0.12	0.53	-.01
SF-12 physical health	0.19***	0.03	.29	0.15***	0.03	.23
Partnered	2.88***	0.65	.18	2.06***	0.60	.13
Years of education	0.23*	0.10	.10	.21*	0.09	.09
Employed	-0.62	0.66	-.04	-0.77	0.61	-.05
Financial status	3.95***	1.21	.13	1.77	1.14	.06
Availability of social support						
Friends				.25**	0.08	.13
Neighbors				0.11	0.09	.05
Relatives				.36***	0.09	.17
Quality of social exchanges						
Positive social exchanges				1.07***	0.30	.13
Negative social exchanges				-1.83***	0.44	-.16
R^2		.18			.32	
Adjusted R^2		.16			.30	

Notes. Volunteer hours were represented as two dummy variables with 0 volunteer hours serving as the reference group.

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

RESULTS

Descriptive Analyses by Volunteer Status

Descriptive statistics for the total sample and by amount of time spent volunteering are displayed in Table 1. The sample appeared to have a higher proportion of volunteers than is typical of similar age groups in the Australian population (Volunteering rates among 55- to 84-year-olds range from 22.4% to 33.6%; ABS, 2006). Volunteers in the current study reported participating in voluntary work for greater amounts of time relative to others in their age range (Median annual volunteer hours reported by 55- to 84-year-olds range from 80 to 104; ABS, 2006). Chi-square and post hoc bonferroni tests indicated that volunteers reported significantly higher levels of positive affect and availability of social support from friends and neighbors, relative to nonvolunteers. Moderate level volunteers reported higher levels of physical health, life satisfaction, positive social exchanges, and availability of social support from family in comparison with nonvolunteers and high level volunteers.

Life satisfaction.—Results of the hierarchical regression analyses examining the mediation effects of the availability of social support and quality of social exchanges on the association between volunteer hours and life satisfaction are shown in Table 2. Moderate level volunteering was associated with higher life satisfaction at Step 1, $R^2 = .18$, $F(9, 551) = 13.00$, $p < .001$, 95% CI = 0.11, 0.22. Volunteering at higher levels was not significantly associated with life satisfaction. At Step 2, with all predictor variables and covariates in the model, 32% of the variability in life

satisfaction was accounted for, $R^2 = .32$, $F(14, 546) = 17.96$, $p < .001$, 95% CI = 0.24, 0.36. Positive social exchanges and availability of social support from friends and relatives were associated with higher levels of life satisfaction. Conversely, negative social exchanges were associated with lower life satisfaction. The association between moderate level volunteering and life satisfaction became nonsignificant after adjustment for the social network variables.

Given that there was no direct association between high level volunteering and life satisfaction, we restricted estimation of indirect effects to the association between moderate level volunteering and life satisfaction. The analyses indicated a significant multiple mediation effect between moderate level volunteering and life satisfaction, $ab = 1.18$, 95% CI = 0.68, 1.77. Examination of the specific indirect effects demonstrated that positive social exchanges ($a_4b_4 = 0.19$, 95% CI = 0.04, 0.45) and availability of social support from friends ($a_2b_2 = 0.50$, 95% CI = 0.17, 0.93) and relatives ($a_1b_1 = 0.25$, 95% CI = 0.05, 0.54) contributed significantly to the mediation effect, whereas neighbors ($a_3b_3 = 0.16$, 95% CI = -0.08, 0.44) and negative social exchanges ($a_5b_5 = 0.08$, 95% CI = -0.09, 0.30) did not. In keeping with Hypothesis 1, the results indicated that the higher levels of positive social exchanges and availability of social support from friends and family among moderate level volunteers accounted for the higher satisfaction with life reported by this subgroup, relative to nonvolunteers. Consistent with our second hypothesis, the specific indirect effect of availability of social support from friends accounted for the largest percentage of the association between moderate volunteering and life satisfaction (35%), followed

Table 3. Regression Analysis Examining Predictors of Positive Affect ($N = 561$)

Predictor variables	Step 1			Step 2		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	29.50***	1.43		32.14***	1.44	
Volunteer hours						
>0 to ≤ 7	1.34*	0.63	.09	0.35	.62	.02
>7	3.86***	1.02	.15	3.03**	.98	.12
Covariates						
Age	0.07	0.04	.08	0.04	.04	.05
Female	2.70***	0.60	.18	1.81**	.59	.12
SF-12 physical health	0.26***	0.03	.37	0.24***	.03	.34
Partnered	0.90	0.68	.05	0.30	.67	.02
Years of education	0.31**	0.11	.12	0.30**	.10	.11
Employed	1.30	0.71	.08	1.23	.68	.08
Financial status	-0.98	1.29	-.03	-2.29	1.27	-.07
Availability of social support						
Friends				0.24**	.09	.12
Neighbors				0.12	.10	.05
Relatives				0.31**	.10	.13
Quality of social exchanges						
Positive social exchanges				0.98**	.34	.11
Negative social exchanges				-0.19	.49	-.02
R^2		.22			.29	
Adjusted R^2		.20			.27	

Notes. Volunteer hours were represented as two dummy variables with 0 volunteer hours serving as the reference group.

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

by the availability of social support from relatives (17%), and positive social exchanges (13%). The analyses examining life satisfaction did not provide support for Hypothesis 3, as negative social exchanges did not demonstrate a significant specific indirect effect on the associations between volunteering and life satisfaction.

Positive affect.—Table 3 shows results of analyses conducted to examine the mediation effect of social network variables on the association between volunteer hours and positive affect. Volunteering at both moderate and high levels was associated with significantly higher positive affect at Step 1, $R^2 = 0.22$, $F(9, 551) = 16.90$, $p < .001$, 95% CI = 0.15, 0.26. Addition of the social network variables at Step 2 ($R^2 = 0.29$, $F(14, 546) = 16.10$, $p < .001$, 95% CI = 0.21, 0.33) revealed that positive social exchanges and availability of social support from both friends and relatives were associated with higher positive affect, whereas availability of social support from neighbors and negative social exchanges were not significant predictors. After adjusting for the social network variables, the association between moderate level volunteering and positive affect became nonsignificant.

Mediation analyses demonstrated that the total indirect effects of moderate ($ab = 1.06$, 95% CI = 0.62, 1.60) and high level volunteering ($ab = 0.86$, 95% CI = 0.22, 1.89) on positive affect via the social network variables were significant. Positive social exchanges ($a_4b_4 = 0.18$, 95% CI = 0.02, 0.48) and availability of social support from friends ($a_2b_2 = 0.49$, 95% CI = 0.18, 0.90) and relatives ($a_1b_1 = 0.22$, 95% CI = 0.04, 0.50) contributed significantly to the mediation

effect between moderate level volunteering and positive affect. Neighbors ($a_3b_3 = 0.17$, 95% CI = -0.08, 0.48) and negative social exchanges ($a_5b_5 = -0.01$, 95% CI = -0.04, 0.15) did not demonstrate significant indirect effects. In contrast, availability of social support from friends was the only mediator to contribute significantly to the mediation effect between high level volunteering and positive affect ($a_2b_2 = 0.38$, 95% CI = 0.10, 0.92). Positive ($a_4b_4 = 0.15$, 95% CI = -0.08, 0.57) and negative ($a_5b_5 = 0.01$, 95% CI = -0.06, 0.19) social exchanges and availability of social support from relatives ($a_1b_1 = 0.20$, 95% CI = -0.05, 0.62) and neighbors ($a_3b_3 = 0.13$, 95% CI = -0.03, 0.52) did not demonstrate significant indirect effects on the association between high level volunteering and positive affect.

In partial support of Hypothesis 1, the positive association between volunteering and positive affect was accounted for by the higher availability of social support from friends among both moderate and high level volunteers, relative to nonvolunteers. The higher levels of positive social exchanges and availability of social support from family among moderate volunteers also contributed to the higher positive affect reported by this subgroup, but this pattern did not hold for high level volunteers.

The results provided support for Hypothesis 2, with availability of social support from friends accounting for the largest proportion of the main effect of moderate volunteering on positive affect (37%), followed by availability of social support from relatives (16%), and positive social exchanges (13%). Availability of social support from friends was the only social network variable to significantly mediate the association between high level volunteering and positive

Table 4. Regression Analysis Examining Predictors of Negative Affect ($N = 561$)

Predictor variable	Step 1			Step 2		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Constant	17.09***	1.43	-.00	15.14	1.37	
Volunteer hours						
>0 to \leq 7	-0.00	0.41	.04	0.28	0.44	.03
>7	0.65	0.81	.03	0.92	0.77	.05
Covariates						
Age	-0.11**	0.03	-.18	-0.08	0.03	-.12
Female	0.48	0.42	.05	0.86	0.40	.08
SF-12 physical health	-0.14***	0.03	-.30	-0.12	0.03	-.26
Partnered	-1.06*	0.50	-.09	-0.66	0.49	-.06
Years of education	-0.09	0.07	-.05	-0.09	0.06	-.05
Employed	0.64	0.49	.06	0.78	0.47	.08
Financial status	-3.00*	1.35	-.13	-1.66	1.28	-.07
Availability of social support						
Friends				-0.10	0.07	-.07
Neighbors				0.07	0.08	.04
Relatives				-0.19	0.08	-.12
Quality of social exchanges						
Positive social exchanges				-0.08	0.23	-.01
Negative social exchanges				1.79	0.46	.21
R^2		.14			.21	

Notes. Volunteer hours were represented as two dummy variables with 0 volunteer hours serving as the reference group.

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

affect (27%). Hypothesis 3 was not supported, as negative social exchanges did not demonstrate significant specific indirect effects on the associations between moderate and high level volunteering and positive affect.

Negative affect.—Results of the hierarchical regression analyses with robust standard errors examining the mediation effects of the availability of social support and quality of social exchanges on the association between volunteer hours and negative affect are shown in Table 4. Step 1 of the model accounted for a significant proportion of variance in negative affect, $R^2 = .14$, $F(9, 551) = 10.00$, $p < .001$, 95% CI = 0.08, 0.18. However, neither moderate nor high level volunteering were significant predictors. Addition of all predictors and covariates at Step 2 ($R^2 = .21$, $F(14, 546) = 10.48$, $p < .001$, 95% CI = 0.14, 0.25) indicated that lower levels of social support from relatives, and higher levels of negative social exchanges were associated with higher negative affect.

Given that there was no direct association between volunteering and negative affect, post hoc tests of mediation were not performed.

DISCUSSION

The results of this study provide broad support for the notion that being a volunteer is associated with SWB because volunteers tend to report more supportive social ties relative to nonvolunteers. Consistent with previous studies (Van Willigen, 2000; Windsor et al., 2008), non-linear associations between time spent volunteering and SWB were evident: Moderate level volunteers (7 hr or less

per week) reported higher levels of positive affect and life satisfaction relative to nonvolunteers. Those who engaged in higher levels of volunteer work (more than 7 hr per week) reported greater positive affect relative to nonvolunteers but did not differ from nonvolunteers in terms of their satisfaction with life. Both moderate and high level volunteers reported similar levels of negative affect to nonvolunteers. While unexpected, the absence of an association between volunteering and negative affect is congruent with volunteers in the current sample reporting similar levels of negative social exchanges to nonvolunteers. Consistent with previous studies demonstrating an association between volunteering and higher levels of social support (Van Ingen & Kalmijn, 2010), both moderate and high level volunteers in the present study reported a larger number of friends and neighbors that they felt they could call on for help or talk to about private matters. Moderate volunteers also reported greater availability of social support from relatives and more frequent positive social exchanges, relative to nonvolunteers.

Our first hypothesis predicted that positive social exchanges and availability of social support would account for the positive association between volunteering and SWB. In partial support of this, our models showed that the higher levels of satisfaction with life and positive affect reported by moderate volunteers were attenuated after adjustment for volunteers' higher levels of positive social exchanges and availability of social support from friends and family. The higher levels of positive affect reported by high level volunteers were partially explained by the greater number of friends they feel able to call on for social support, relative to nonvolunteers. Although a number of researchers have theorized that volunteering is related to SWB due to higher

levels of social support among volunteers in comparison with nonvolunteers, to date empirical support has been limited (e.g., Musick & Wilson, 2003; Tang et al., 2010). Our findings extend previous research by providing support for the notion that the association between volunteering and positive SWB (positive affect and life satisfaction) can be partially attributed to the greater level of support available to volunteers from friends and family.

However, not all of the anticipated mediation effects outlined in Hypothesis 1 were evident. First, despite moderate volunteers reporting higher levels of availability of social support from neighbors relative to nonvolunteers, more extensive supportive social networks in this domain did not significantly contribute to mediation of the volunteering–SWB association. Weak associations between neighbor support and SWB in the current sample appear to underlie this finding. This is consistent with research indicating that contact with friends and family is more important for SWB than contact with neighbors (Powdthavee, 2008).

Second, availability of social support from friends was the only social network variable to significantly account for the higher levels of positive affect reported by high level volunteers relative to nonvolunteers. In contrast to moderate volunteers, high level volunteers did not report having more relatives that they can draw on for support, or more frequent positive social exchanges, than nonvolunteers. The finding that positive social exchanges did not exhibit a significant indirect effect on the high level volunteering–SWB association may reflect the use of a measure that does not differentiate between exchanges with friend, family, and neighbor contacts, thus obscuring any domain specific indirect effects on this association. Another possibility is that other variables not identified in the current study may be important to understanding the volunteering–SWB association at higher levels of commitment to volunteering (Van Willigen, 2000), as those engaging in volunteering at high levels may be likely to perform volunteer work in different contexts and for different reasons than those who volunteer at lower levels (e.g., Windsor et al., 2008).

In line with our second hypothesis, availability of social support from friends (as opposed to relatives or neighbors) was the most consistent mediator of associations between volunteering and positive SWB. These results are consistent with our argument that friendship networks are likely to be a central component of the volunteering–SWB association, as volunteering is more likely to promote new friendships, and friendship networks are more likely to lead to volunteering opportunities relative to family and neighbor networks. Moreover, social exchanges with friends may be more likely to promote SWB than nondiscretionary relationships (Fiori et al., 2007; Powdthavee, 2008).

Availability of social support from relatives accounted for the second largest proportion of the association between moderate levels of volunteer work and positive indices of SWB. This finding supports the notion that the association

of volunteering with SWB is not solely due to friendships developed or fostered within the volunteering context but may also be attributable to preexisting supportive social networks, such as family members. It is possible that relatives not only link individuals into volunteering opportunities but also promote sustained engagement in voluntary work through the provision of emotional and instrumental support.

There are several possible explanations for the unanticipated finding that availability of social support from relatives accounted for a greater proportion of the volunteering–SWB association than the more general experience of positive exchanges. Our use of a generalized measure of social exchange quality may have obscured any domain specific indirect effects of positive social exchanges on the volunteering–SWB association. Another possibility is that we underestimated the importance of supportive family relationships for SWB in this age group. On the basis of a meta-analysis examining associations between age, SWB, and social networks, Pinquart and Sorensen (2000) suggest that supportive relationships with adult children are more important for older adults' SWB than close friendships. It is also possible that more general aging-related developmental processes such as increases in generativity (Son & Wilson, 2011) and the growing salience of limits to time remaining (Carstensen, 2006) underlie both a motivation to contribute to the welfare of others through volunteering and the desire to cultivate high quality emotionally meaningful social relations with family members. Additional studies are needed to assess the extent to which theoretically relevant variables not included in the present analysis (e.g., generativity, prosocial motivation, future time perspective) promote both volunteering behavior and positive social relationships across multiple domains.

Our third hypothesis, which proposed that negative social exchanges would demonstrate a reverse mediation effect on the association between volunteering and SWB, was not supported. Volunteers did not report significantly higher levels of negative social exchanges relative to nonvolunteers. While some research (e.g., Rook & Sorkin, 2003) has indicated that negative exchanges may arise from volunteer activities, empirical evidence in this area is scarce. Our results suggest that the experience of being a volunteer is more likely to be associated with positive, as opposed to negative social exchanges. Our results may reflect the way the discretionary nature of volunteering allows older adults to opt out of volunteer activities, which elevate negative social exchanges. A preference among older adults to avoid interpersonal conflict and maximize positive social exchanges is consistent with recent perspectives in social gerontology (Charles & Carstensen, 2010).

Although our study offers a valuable contribution to the volunteering–SWB literature, the results need to be interpreted within the context of several limitations. First, the use of a generic measure of volunteer status that does not differentiate between types of volunteer work, limits the

capacity of this research to inform volunteer program development (Morrow-Howell, 2010) and means that we were unable to provide specific information regarding the situational context of volunteering (e.g., Tang et al., 2010). Furthermore, our measure does not distinguish between informal and formal volunteering, despite previous studies demonstrating their differing implications for physical and mental health (Hinterlong, Morrow-Howell, & Rozario, 2007). Further studies using more comprehensive volunteering measures will contribute to clarifying the association between volunteering and SWB. Second, despite the importance of differentiating between types of social ties (Glass et al., 1997; Kahn & Antonucci, 1980; Seeman & Berkman, 1988), our measure of positive and negative social exchanges did not distinguish between exchanges with friend, family, and neighbor networks. Despite this limitation, our measure of positive and negative exchanges is well validated in the context of research on social exchanges and mental health (Newsom et al., 2005) and provided a unique opportunity to compare volunteers' and nonvolunteers' experiences of negative social exchanges. Third, our low response rate, and the relatively high prevalence of volunteers in the sample (consistent with volunteers being more likely to participate in unpaid research; Abraham, Helms, & Presser, 2009), may mean that generalizability of the results is limited. However, comparisons between the sample and the population demonstrated no significant differences on key demographic variables. Furthermore, Abraham and colleagues (2009) suggest that analyses examining the relationship of volunteering to respondent characteristics are unlikely to be affected by response bias. Finally, our cross-sectional study design prevents us from clarifying the causal direction of relationships among volunteering, social relations, and SWB. An important consideration for statistical mediation using cross-sectional data is the possibility of misspecification of the causal relationships between the variables. The extent to which the volunteering–SWB association is related to preexisting social networks, or relationships developed while volunteering, remains unclear. Further research is required to clarify issues of causal direction by using longitudinal data to establish temporal precedence among volunteering, social networks, and SWB and by testing whether the mediation effects found in the current study are stable across time (Mackinnon, Fairchild, & Fritz, 2006). Future longitudinal studies providing support for the hypothesized causal associations are needed to inform the development of effective volunteer recruitment and retention strategies. It may also be useful for future research in this area to build upon previous findings that older adults with few social resources may experience greater enhancements to SWB as a result of volunteering (Piliavin & Siegl, 2007) by identifying whether the higher level of SWB is directly attributable to the formation of new social relationships. Finally, the results highlight the importance of differentiating between sources of social sup-

port, and further work utilizing this approach will be important in clarifying the role of social relationships in the association between volunteering and SWB.

Conclusion

The current study extends previous research by giving empirical weight to the conceptual links between volunteering, social support, and SWB. The main strengths of this study include the differentiation between availability of social support from different sources (friends, relatives, and neighbors) and the assessment of both positive and negative social exchanges in evaluating the extent to which differences in social network resources account for differences in the SWB of volunteers and nonvolunteers. Our findings support the view that volunteering is associated with higher levels of positive SWB in later life. Moreover, the higher SWB of volunteers appears to, at least in part, be accounted for by volunteers' greater social support resources from friends and family relative to nonvolunteers.

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