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ORIGINAL PAPER

Volunteering and Wellbeing Among Ageing Adults: A Longitudinal Analysis

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Abstract Previous scholarship has shown evidence of a positive relationship between volunteering and improved measures of mental and physical wellbeing. It has also been suggested that volunteering may help individuals navigate transitions between different life stages by encouraging them to become more involved in their communities, thereby building new social connections and improving networks of social support. Using Waves 2 and 3 of panel data from the Midlife in the United States Survey, we examined whether volunteering can buffer against the negative effects of low self-esteem on correlates of psychosocial wellbeing in adults from mid- to later-life. Results indicated that participation in volunteering mitigates the negative effects of adults' low self-esteem on their sense of belonging and life satisfaction. In particular, we determined the adverse effect of negative self-esteem at time T1 on our wellbeing measures (belonging to the community and life satisfaction) at T2 above and beyond the effects of the same measures at T1 and the covariates. Furthermore, we found positive evidence for the moderating influence of volunteering on the relationship between negative self-esteem and both measures of wellbeing, although the effect was stronger for life satisfaction than for belonging. These conclusions suggest that volunteering acts as a buffer for ageing adults, with possible public health implications.

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Introduction

Longer life expectancy, combined with lower birth rates, has contributed to increases in both the proportion of the population over 65 and the number of years that individuals are projected to live in retirement (Lee 2014). Indeed, the 65-and-older cohort is projected to grow from about 13% of the population to 20% by 2030 (Poo 2015). While ageing should not be framed as a problem to be solved, it does represent a significant demographic shift with widespread policy implications that must be considered to ensure that older individuals' rights are safe-guarded and that a high quality of life is attainable at any age (e.g. Cox 2015). A common focus of this work is the notion of "productive ageing" and determining which activities and behaviours best support an active and fulfilling life for older adults (Gonzales et al. 2015; Morrow-Howell et al. 2017).

Productive ageing is understood as "the fundamental view that the capacity of older adults must be better developed and utilized in activities that make economic contributions to society—working, caregiving, and volunteering" (Gonzales et al. 2015: 252). With its emphasis on the ways in which older adults engage with formalized social structures within their community (e.g. through participation in organizations and institutions), productive ageing differs from other ageing frameworks such as successful ageing (e.g. Baltes and Carstensen 1996) and positive ageing (e.g. Gergen and Gergen 2001), but its focus on enhancing individual wellbeing and community benefits

can be understood as complementary to these other frameworks.

Several studies have suggested that participating in volunteering activities can act as one facet of productive ageing throughout the life course, especially for older adults and those navigating the transition from work to retirement (Morrow-Howell et al. 2017; Tang 2015; Matz-Costa et al. 2012; Komp et al. 2012; Smith 2004). From a policy perspective, volunteering may also represent an important space, in addition to the domain of paid work, through which to combat ageist attitudes and policies, safeguard the agency of individuals at every age, and provide meaningful opportunities for productive engagement (Gonzales et al. 2015; Boudiny 2013; Hinterlong and Williamson 2007). In examining the impact of volunteering on older adults, quantitative findings reveal a positive relationship between volunteering and improved measures of physical and mental health and wellbeing, including depressive symptoms (Adams et al. 2011; Musick and Wilson 2003), functional ability (Piliavin and Siegl 2007), stress level (Greenfield and Marks 2004), and life satisfaction (Van Willigen 2000).

Undoubtedly, the observed link between volunteering and improved health and wellbeing outcomes is encouraging for researchers and policymakers seeking to address the public health needs of the ageing population. As one facet of productive ageing, volunteering may function as a source of social, physical, mental, and engaging activities, which make up reciprocal points of wellbeing over the lifespan (Gergen and Gergen 2001). As such, being part of a community and doing good for a public cause might bring (back) purpose in life, which is a way to cope with feelings of despair and "existential distress" (Frankl 2006).

The concept of wellbeing is complex and multifaceted, encompassing both physical and mental health outcomes as well as psychosocial factors. This study focuses on two aspects of wellbeing: belonging and life satisfaction, both of which are related to self-esteem. Self-esteem has been conceptualized as a psychological resource (Musick and Wilson 2003) and low self-esteem shown to be a positive predictor of depression and many other psychological problems; however, psychological problems may also be related to individuals' feelings of connectedness to and acceptance by others (Sowislo and Orth 2013; Leary 1999). A question for public health policies is how to protect those with low self-esteem against experiencing negative consequences, especially among older adults, who may be more susceptible to psychological strain as they undergo the numerous social and physical changes that often accompany older age, such as retirement or health concerns (Morrow-Howell 2010; Musick and Wilson 2003; Moen 1996). The purpose of this study is to build upon this existing research regarding the benefits of volunteering behaviour on wellbeing to examine if, and to what extent, volunteering may disrupt the detrimental influences of negative self-esteem on measures of wellbeing.

Volunteering, it is argued, may help individuals to feel more connected with their communities through an enhanced sense of belonging, especially as they age out of the workforce (Sherman and Shavit 2012; Einolf and Chambré 2011; Caro and Bass 1997). For instance, Moen (1996) notes that volunteering may provide one source of "purpose, identity, and community" that compensates for the "roles and relationships" lost through retirement (133). Belonging, it has been argued, is a critical component of "aging well", and that individuals' sense of belonging signifies the degree to which they feel interconnected and a part of their social networks (Nolan 2011: 318). While retirement, as well as loss of parenting or spousal roles, may threaten older adults' sense of belonging, volunteering represents a social and communal activity that could compensate for these losses. Likewise, volunteering has been shown to have a positive influence on life satisfaction, or individuals' "subjective expression of quality of life" (Wiesmann and Hannich 2013: 912). Life satisfaction is characterized as a "cognitive process" (Mirucka et al. 2016: 207) or "cognitive component" (Wiesmann and Hannich 2013: 911) of evaluating one's own life and is therefore an important part of subjective wellbeing (Huang 2016; Binder 2015; Chen et al. 2014; Haski-Leventhal 2009). We therefore postulate that volunteering may act as a buffer between low self-esteem and belonging and between low self-esteem and life satisfaction, thereby promoting more positive mental health outcomes among older adult volunteers (Lin and Peek 1999).

This study seeks to build on existing studies of the relationship between volunteering and wellbeing in several ways. First, it examines volunteering as a moderator of psychosocial correlates, as most prior research has used it as the independent variable. Second, it examines these effects by incorporating multiple waves of a nationally representative panel study, the National Survey of Midlife Development in the United States (MIDUS), which offers the potential for making stronger inferences than cross-sectional work alone. We elaborate on the MIDUS Survey in greater detail in the methodology section below. Third, the study adds to the literature by sampling adults in mid- and later-life, whereas previous empirical studies have often focused on subsamples only of elderly. Finally, both public policy concerns around the ageing population and public health approaches to ageing well provide grounding and context for the study. Findings from this panel study on the potential buffering effects of volunteering may bolster arguments to use volunteering as an intervention among older adults and other vulnerable groups.

Literature Review

Volunteering and Wellbeing: Theories

The relationship between volunteering and various aspects of wellbeing is documented extensively in the literature. Apart from the potential societal benefits to be derived from older adults volunteering in their retirement, these behaviours may produce positive benefits for the volunteers themselves. Several studies have found that volunteers experience improved physical and mental health and wellbeing outcomes compared to their non-volunteer peers. These studies have used a wide variety of measures to capture individuals' wellbeing, including overall "subjective" wellbeing (Mellor et al. 2008), life satisfaction (Binder 2015; Binder and Freytag 2013), and happiness (Borgonovi 2008). Others have conceptualized physical and mental health outcomes in terms of improved mobility and physical activity (Pillemer et al. 2010), decreased symptoms of depression (Syu et al. 2013; Li and Ferraro 2005; Lum and Lightfoot 2005; Musick and Wilson 2003), improved sense of self-actualization or "eudemonic well-being" (Son and Wilson 2012), increased self-esteem (Brown et al. 2012; Han and Hong 2012), and even decreased risk of mortality (Jenkinson et al. 2013; Ayalon 2008; Musick et al. 1999; Oman et al. 1999).

In theorizing about the mechanisms through which the relationship between volunteering and these dimensions of health and wellbeing arises, researchers have often drawn on role theory, which encompasses the idea of changing social and personal roles as individuals experience transitions throughout the life course (Biddle 1986). According to Rotolo (2000: 1136), "role…typically refers to a social structural position and the behaviours associated with that position"; individuals tend to engage in different roles at various points throughout their lives, such as marriage, parenthood, and retirement. Smith (2004) notes the connection between social role continuity and wellbeing and suggests that engagement in volunteering activities may help individuals to navigate different periods of transition successfully.

Not only the roles that individuals undertake, but also their view of the importance or salience of these roles in their lives often change across the life course. As such, individuals may also ascribe different role identities to their volunteering during different phases of their lives (Penner and Finkelstein 1998). A common theoretical understanding of role theory and volunteering suggests that older adults may be more likely to adopt a "volunteer role" as a substitute for previous social roles experienced in early- and midlife, such as employee, parent, or spouse (Sherman and Shavit 2012). Likewise, Van Willigen (2000) argued that the comparatively greater increases in measures of wellbeing, experienced by older adults as opposed to younger adults observed in their study, could be due to the different ways in which older adults perceive their role as volunteers in the context of other social and professional commitments. Ultimately, volunteer activities may provide an opportunity to network with others, thus helping to compensate for the loss of other social roles as individuals age, buffering against loss of connectedness, and enhancing belonging in later-life (Li and Ferraro 2006).

Benefits of Volunteering in Different Age Cohorts

Studies on the expected benefits of volunteering focus overwhelmingly on older adult populations, with fewer studies devoted to middle-aged adults. One reason for this emphasis on older adults, apart from the obvious link between ageing and increased health risks, could be increased societal expectations for older adults to engage in volunteering activities as part of a successful transition from work to retirement (Caro and Bass 1997). Indeed, Tang (2015) found that adults in phased or full retirement were more likely to volunteer than working adults, making this age group of adults, who approach traditional retirement age, particularly interesting to researchers studying the benefits of volunteering. Studies such as Einolf (2009) attempt to predict future volunteering behaviours of adults approaching retirement age with emphasis on how the impending retirement of many Baby Boomers will impact society in order to learn how to harness the "skills, talent, and energy" of this generation as it ages out of the working population through volunteering (Gonyea and Googins 2007; see also Morrow-Howell 2010). Other studies, such as Tang (2015), have found a correlation between retirement status and engagement in volunteering activities.

Volunteering as a way of enhancing feelings of belonging and introducing new roles in social life may be particularly important for adults ageing out of the workforce, who lose other outlets for social engagement previously accessed through work and/or parental roles (Moen 1996). A recent study by Tabassum, Mohan, and Smith (2016) found that the positive relationship between volunteering and higher levels of wellbeing did not emerge until cohorts of adults reached the age of 40; the relationship then held through old age. These results suggest that volunteering may be particularly beneficial for adults in mid- to later-life.

Measures of Psychosocial Wellbeing: Self-Esteem, Belonging, and Life Satisfaction

As previously noted, the extant literature on potential benefits of volunteering has used a wide variety of

measures to capture various dimensions of health and wellbeing, including composite measures of psychological wellbeing such as self-acceptance, relationships, and personal growth (e.g. Choi and Kim 2011). The present study focuses on two measures of psychosocial wellbeing: belonging and life satisfaction. Previous literature has connected both of these dimensions of wellbeing with self-esteem (e.g. Moksnes and Espnes 2013; Ye et al. 2012; Vignoles et al. 2006; Lee and Robbins 1998; Diener and Diener 1995). Leary (1999) argues that while low self-esteem appears to contribute to psychological problems, these connections may be related to deficiencies in social connections and support experienced by individuals with low self-esteem, suggesting a connection between self-esteem and belonging.

In the volunteering literature, the notion that volunteering fosters a greater sense of belonging or facilitates participation in a larger community is not new. These studies often focus on the connection between volunteering and belonging among vulnerable or traditionally marginalized populations. For example, Carlton (2015) and Handy and Greenspan (2009) examine the relationship between volunteering behaviour and belonging among immigrants and refugees; Carlton further emphasizes the connection between belonging and wellbeing among the refugee youth in her study. Because of the difficulties in transitioning between different phases of life and different social roles, the sense of belonging represents a particularly critical dimension of wellbeing for older adults who may feel distanced from their communities and social networks as they move into retirement and beyond. Additionally, in a systematic review, Cattan et al. (2005: 41) included volunteering as one important form of "social activity and group interventions that… can alleviate social isolation and loneliness among older people". Drawing on previous findings (e.g. Li and Ferraro 2006), we theorize that volunteering will act as a buffer against the detrimental effects of the loss of belonging among older adults.

To provide a more comprehensive study of the ways in which volunteering may impact individuals' wellbeing, we also include life satisfaction in our analysis. According to Ye et al. (2012: 546), "Unlike the emotional components of subjective wellbeing…life satisfaction is a more enduring assessment of one's subjective wellbeing". As a result, life satisfaction is a commonly used measure of subjective wellbeing in the volunteering literature. For example, Haski-Leventhal (2009) found a positive correlation between volunteering and life satisfaction among Europeans in mid- and later-life.

In a study of volunteers from Hong Kong, Kwok et al. (2013) found that volunteering behaviours motivated by intrinsic motivations predicted life satisfaction. Indeed, life satisfaction among individuals who performed volunteer activities has been repeatedly confirmed (Duncan and Whitney 1990; Stukas et al. 2014). An increase in life satisfaction has also been noted among those involved membership voluntary associations (Thoits and Hewitt 2001).

In a study of Australian volunteers, Brown et al. (2012) using a cross-sectional data set found that self-esteem, self-efficacy, and social connectedness were significant mediators of the relationship between volunteering. However, they were cautious in interpreting their results and suggested that this relationship be tested using longitudinal designs. Using three waves of Americans' Changing Lives survey data, Musick and Wilson (2003) did not find evidence that volunteering significantly increased self-esteem and could not conclude that self-esteem was a significant mediator of the relationship between volunteering and depression among those 65 and older.

Due to the connection between self-esteem, perceived belonging, and more distal psychological health outcomes (Leary 1999), the potential for volunteering to build individuals' social networks and communities may not only be beneficial from the perspective of organizations using volunteers, but also from a public health perspective of transitioning and ageing adults. Thus, the present study conceptualizes volunteering as an intervention and tests its potential for mitigating the negative effects of low self-esteem on dimensions of wellbeing (life satisfaction and belonging) among adults in mid- and later-life using a panel data set.

Causality and Estimation Techniques

As noted by many authors, the overabundance of cross-sectional studies in the literature makes it difficult to demonstrate a definitive causal order among volunteering and various conceptual definitions of mental and physical wellbeing. Likewise, the introduction of covariates in these studies provides interesting conceptual possibilities, but the explanatory power is limited by the cross-sectional nature of the data. One such example is a cross-sectional study by King et al. (2014), which reports that the relationship between volunteering and health became insignificant once personality trait variables were introduced. Some authors also conceptualize the relationship in the opposite direction, in which wellbeing predicts volunteering. For example, Andersson and Glanville (2016) found that mental wellbeing, moderated by educational attainment, predicted volunteering behaviours among adults surveyed in Waves 1 and 2 of the MIDUS Survey.

Additionally, studies that apply estimation techniques aiming to better address causality, using fixed-effects regression models or propensity score matching estimators, tend to find only small benefits of volunteering, if any (De

Wit et al. 2015; Enjolras 2015). A randomized control trial among students did not find any effect of community service learning on subjective wellbeing (Whillans et al. 2017). These findings raise doubts about the empirical validity of such causal effects. For a comprehensive review of studies of the impacts of volunteering on individual wellbeing and health, see Piliavin and Siegl (2015).

If any benefits of volunteering exist, it is most likely to see it in the medium to long term, when social networks and attitudes towards life have had the chance to change. The endogeneity issues call for sophisticated models using longitudinal data and preferably quasi-experimental techniques to estimate the causal relationships under study.

Hypotheses

To determine whether volunteering severs the relationship between low self-esteem and measures of psychosocial wellbeing, this study tests the following hypotheses at two time periods, time 1 (T1) and time 2 (T2):

H1A Negative Self-Esteem at T1 predicts individuals' sense of Belonging at T2. The direction of the relationship will be negative.
H1B Volunteering at T2 severs the main effect of self-esteem on Belonging, thus buffering the negative impact of low self-esteem on Belonging in T2.
H2A Negative Self-Esteem at T1 predicts individuals' Life Satisfaction at T2. The direction of the relationship will be negative.
H2B Volunteering at T2 severs the main effect of self-esteem on Life Satisfaction, thus buffering the negative impact of low self-esteem on Life Satisfaction in T2.

Methodological Approach

Data

This study draws on data from two waves of the MIDUS study (Ryff et al. 2006, 2014). MIDUS study data are derived from a nationally representative sample of non-institutionalized, English-speaking adults born in the USA between 1920 and 1970, conducted initially in 1995–1996 (MIDUS I) with two follow-up surveys in 2004–2006 (MIDUS II) and 2013–2014 (MIDUS III). The MIDUS study includes several modules intended to measure volunteering and its correlates, including many facets of wellbeing, making it a useful resource to undertake the proposed analysis. MIDUS I and, to a lesser extent, MIDUS II have been widely used in the volunteering literature to explore relationships between volunteering and its correlates (e.g. Andersson and Glanville 2016; Son and Wilson 2011, 2012, 2015; McDougle et al. 2013; Einolf 2010; Taniguchi 2006).

We use the second and third waves of the MIDUS data, which we will hereafter refer to as T1 and T2 in the context of the present analysis. MIDUS I was used for the present analyses because it did not include all the variables of interest in this study. Ryff et al. (2006, 2014) provide details of the MIDUS data collection methods. These data consist of a national sample of Americans ($N = 7108$) whose ages ranged from 25 to 75, in MIDUS I (1995/1996), who were surveyed three times over three decades and provided useful sociodemographic and health and participation data in MIDUS II ($N = 4963$) and MIDUS III ($N = 3294$)

Participants

First, we ascertained whether participants included in the larger sample indicated whether they *had or had not* become involved in a volunteer activity in T2 and completed all items for the measures included in the study. This led to the creation of two reduced data sets containing 976 and 501 cases. A total of 976 cases were included in the data set examining the relationship between self-esteem and Belonging, and 501 cases were included in the data set examining the relationship between self-esteem and life Satisfaction.

Next, we used a propensity score matching (PSM) strategy to cull a subsample of non-volunteer participants that shared demographic characteristics similar to the volunteer participants in each respective data set (Bai 2015; Rosenbaum and Rubin 1983, 1985). The variables included in the PSM model were race, sex, marital status, high school graduate or not, working status, and age as well as several additional variables gauging respondents' religious affiliations (i.e. Protestant, Catholic, and other religious denomination). The variables included in the PSM model were chosen because they are known correlates of volunteer participation and wellbeing (Mollidor et al. 2015; McDougle et al. 2013; Taniguchi and Thomas 2011).

The PSM strategy involved a two-step process whereby a logistic regression model was constructed to predict the likelihood that a participant would become involved in a volunteer activity (= 1) or not (= 0), and then propensity scores produced by the logistic regression model were then used to match volunteers with non-volunteers. Matching was done using a one-to-one "nearest neighbour" approach without replacement. In the data set examining the relationship between self-esteem and Belonging, the PSM algorithm was able to find matches for all 457 (100%) of the participants who indicated they had been involved in a volunteer activity. For the second data set (i.e. self-esteem

predicting Life Satisfaction), the matching algorithm found matches for 245 (96%) of the 256 participants who indicated they had been involved in a volunteer activity. Overall, the matching procedure improved the balance between volunteers and non-volunteers in the two data sets. Importantly, by using this matching strategy we can mimic an experimental design using observational data, which ensures that any differences between the two groups of interest (i.e. volunteers and non-volunteers) are not a result of differences on the matching variables and improves the likelihood that any differences between volunteers and non-volunteers are due to their volunteer status. The matching procedure resulted in final data sets with sample sizes of 914 and 490 matched cases, respectively (see Tables 1, 2).

Measures

Outcome Variables: Dimensions of Wellbeing

To produce a more complete analysis of the potential impacts of volunteering on wellbeing, we generated two separate models using two different measures of wellbeing: community Belonging and Life Satisfaction. In model 1, community Belonging was measured using a 7-point scale ranging from (1) *Strongly Agree to* (7) *Strongly Disagree to rate* the following three items: "I don't feel I belong to anything I'd call a community"; "I feel close to other people in my community"; and "My community is a source of comfort". Two of the items on the scale were reverse-scored so that higher scores indicated a greater sense of Belonging ($T1 \propto = .76$; $T2 \propto = .78$).

In model 2, Life Satisfaction was measured by five items on an 11-point scale ranging from (*0*) *the worst possible to* (10) *the best possible.* The scale measured adults' general satisfaction with their life overall, work situation, health, relationship with their children, and marriage or close relationship ($T1 \propto = .61$; $T2 \propto = .64$).

Predictor Variable: Negative Self-Esteem

Negative Self-Esteem was included as the primary predictor variable in both analyses. In MIDUS II and MIDUS III, self-esteem was assessed using a seven-item scale (Model 1 $T1 \propto = .84$; Model 2 $T1 \propto = .85$) that evaluated participants' general attitudes about themselves. (One item was omitted from the self-esteem scale because it lowered alpha.) Sample items included: "I take a positive attitude toward myself" and "I wish I could have more respect for myself". Items were measured on a 7-point scale ranging from 1= *Strongly Agree to* 7= *Strongly Disagree*. We reverse-scored three of the items on the scale to produce a measure of Negative Self-Esteem, such that higher scores reflect greater Negative Self-Esteem, which makes it easier to interpret correlations with the outcome variables as losses in wellbeing.

Moderator Variable: Volunteer Status

Although previous studies of the relationship between volunteering and wellbeing have utilized models in which volunteering has served as both outcome and predictor, we theorized a model in which volunteering acts as a moderator, buffering the effects of Negative Self-Esteem and measures of wellbeing.

To assess the effect of participants' involvement in a volunteer activity, we used four variables measured at T2. These variables asked participants to estimate the average number of hours per month spent volunteering at the following: (a) hospitals, nursing homes, or other health care-oriented work; (b) schools or other youth-related volunteer work; (c) political organizations or causes; or (d) any other

Table 1 Descriptive statistics for Sample 1

Variable	*N*	Mean or percentage	SD	Min	Max
Belonging T2	914	4.885	1.324	1	7
Belonging T1	914	4.923	1.328	1	7
Volunteering T2	914	50%	0.5	0	1
Negative Self-Esteem T1	914	2.203	1.138	1	6.833
White T1	914	92.30%	0.266	0	1
Male T1	914	46.3%	0.499	0	1
Married T1	914	73.10%	0.444	0	1
High school graduate T1	914	74.60%	0.435	0	1
Currently working T1	914	55.40%	0.497	0	1
Catholic T1	914	26.80%	0.443	0	1
Protestant T1	914	55.3%	0.498	0	1
Other denomination T1	914	4.90%	0.216	0	1
Age T1	914	54.92	11.052	30	83

Table 2 Descriptive statistics for Sample 2

Variable	*N*	Mean or percentage	SD	Min	Max
Life Satisfaction T2	490	8.084	1.096	2.8	10
Life Satisfaction T1	490	8.019	0.995	4	10
Volunteering T2	490	0.5	0.501	0	1
Negative Self-Esteem T1	490	2.142	1.088	1	6.167
White T1	490	0.935	0.247	0	1
Male T1	490	0.527	0.5	0	1
Married T1	490	0.955	0.207	0	1
High school graduate T1	490	0.7	0.459	0	1
Currently working T1	490	0.563	0.496	0	1
Catholic T1	490	0.263	0.441	0	1
Protestant T1	490	0.567	0.496	0	1
Other denomination T1	490	0.033	0.178	0	1
Age T1	490	53.953	10.408	34	83

organizations, causes, or charities. Participants who indicated that they had volunteered 0 h for all four categories were classified as non-volunteers (coded 0), while participants who indicated they had volunteered in any category were classified as volunteers (coded 1).

Covariates

We also controlled for several well-known correlates of volunteering and health identified in the literature. These include race, which is a dichotomous variable for white (coded = 1) and non-white (coded = 0); sex (coded 1 = male and 0 = female); married or unmarried; whether the respondent is a high school graduate; whether the respondent is currently working; and age. Additionally, dichotomous variables for religious affiliation (Catholic, Protestant, or other denomination) were included, as adherence to a religious faith has been shown to impact one's volunteering behaviours and the potential effects of these behaviours on measures of wellbeing (e.g. Mollidor et al. 2015; McDougle et al. 2013; Taniguchi and Thomas 2011). These variables were measured at T1.

Analytic strategy

We performed a series of multiple regression analyses to determine whether participation in volunteer activities moderates the relationship between Negative Self-Esteem and two measures of wellbeing (i.e. Belonging and Life Satisfaction).

To estimate the main effects of wellbeing on Negative Self-Esteem, we regressed each wellbeing measure at T2 on participants' level of Negative Self-Esteem at T1, while controlling for the same wellbeing measure at T1 (Belonging T1 and Life Satisfaction T1) and our covariates. Shown in Eq. 1 below, this approach allowed us to determine whether there is an observed main effect of Negative Self-Esteem at T1 on our wellbeing measures at T2 over and above the effects of the same measures at T1 and the covariates.

Main Effects

$$\text{Wellbeing}_{T2} = \beta_0 + \beta_1 \text{Wellbeing}_{T1} + \beta_2 \text{Negative Self-Esteem}_{T1} + \text{Controls}_{T1} \quad (1)$$

Given that it is common practice to mean-centre continuous predictors when conducting moderated multiple regression analysis, all continuous predictors (i.e. Negative Self-Esteem at T1, Belonging at T1, Life Satisfaction at T1) were mean-centred.

To estimate the moderation effect of volunteering on the relationship between wellbeing and Negative Self-Esteem, we added a variable that indicated whether participants had been involved in a volunteer activity. We included the interaction of volunteering with self-esteem, which allowed us to examine whether the relationship between Negative Self-Esteem at T1 and the wellbeing measure at T2 depends on participants' volunteer status. This is shown below in Eq. 2.

Moderation Effect

$$\begin{aligned}\text{Wellbeing}_{T2} = {} & \beta_0 + \beta_1 \text{Wellbeing}_{T1} \\ & + \beta_2 \text{Negative Self-Esteem}_{T1} \\ & + \beta_3 \text{Negative Self-Esteem}_{T1} \\ & \times \text{Volunteer status}_{T2} + \text{Controls}_{T1}.\end{aligned} \quad (2)$$

Findings

Descriptive Characterization of the Sample

We first characterize our samples by presenting a series of descriptive statistics. The application of propensity score

matching resulted in two samples. Tables 1 and 2 present the descriptive statistics of all key variables for each sample. In Sample 1, which used Belonging as the well-being measure, the average age of participants was 54.9 years, ranging from 30 to 83 years of age. In Sample 1, 844 (92.3%) participants identified as white, 668 (73.1%) participants indicated that they were married, and 423 (46.3%) participants identified as male. Finally, 74.6% of Sample 1 participants indicated that they had at least a high school education and 55.4% reported that they were currently employed.

In Sample 2, which used Life Satisfaction as the well-being measure, the range of participants' age was 34–83 with a mean of 54.0 years. Further, of the 490 participants, 258 (52.7%) identified as male, 468 (95.5%) indicated that they were married, and 458 (93.5%) identified as white during T1. Finally, 56.3% of participants reported they were currently employed and 70% indicated that they had at least a high school education.

Because a propensity score matching method was used, 50% (457) of Sample 1 participants were volunteer participants and 50% (245) of Sample 2 participants were volunteer participants.

Primary Analysis

We expected not only that higher levels of Negative Self-Esteem would be associated with a lower sense of Belonging to the community and decreased feelings of Life Satisfaction among participants 10 years later, but also that involvement in a volunteer activity would sever this relationship.

Tables 3 and 4 show the results of the multiple regression analysis; results for the first set of regression equations (Eq. 1) are in the first column, and the results for the second set of regression equations (Eq. 2) are in the second column.

As predicted, Negative Self-Esteem has an adverse effect on participants' sense of Belonging to the community ($\beta = -0.091$, SE = 0.034, $p = < .01$), as seen in Table 3, and Life Satisfaction ($\beta = -0.136$, SE = 0.041, $p = < .001$), as seen in Table 4. These results suggest that participants' tendency to hold negative conceptions about their self-esteem predicted lower community Belonging and lower satisfaction with life overall.

Having established significant main effects of Negative Self-Esteem on both sense of Belonging and Life Satisfaction, we next assessed whether involvement in a volunteer activity would moderate this relationship. As expected, there was a significant interaction between Negative Self-Esteem and volunteer status for both sense of Belonging ($\beta = 0.069$, SE = 0.117, $p = < .05$; see Table 3) and Life Satisfaction ($\beta = 0.238$, SE = 0.073, $p = < .001$; see Table 4). This indicates that the effect of Negative Self-Esteem on sense of Belonging and Life Satisfaction at T2 depended on whether the participant had been involved in a volunteer activity at T2.

Table 3 OLS regression results (DV: Belonging at time 2)

	I	II
Negative Self-Esteem T1	− 0.091** (0.034)	− 0.155*** (0.042)
Volunteering T2		0.558*** (0.069)
Volunteering T2 * self-esteem T1		0.117* (0.059)
Belonging T1	0.560*** (0.029)	0.505*** (0.029)
White	− 0.316* (0.132)	− 0.331** (0.127)
Male	− 0.161* (0.071)	− 0.137* (0.068)
Married	0.234** (0.081)	0.199* (0.079)
High school graduate	0.084 (0.082)	0.029 (0.079)
Currently working	− 0.033 (0.078)	− 0.046 (0.075)
Catholic	0.240* (0.119)	0.237* (0.115)
Protestant	0.245* (0.109)	0.239* (0.105)
Other religious denomination	0.349^{+} (0.184)	0.332^{+} (0.178)
Age	− 0.004 (0.004)	− 0.002 (0.003)
Constant	5.034*** (0.282)	4.756*** (0.275)
Observations	914	914
R-squared	0.386	0.430

Unstandardized coefficient (SE)

$^{+}p < .1$, $*p < .05$, $**p < .01$, $***p < .001$

Table 4 OLS regression results (DV: Life Satisfaction at time 2)

	I	II
Negative Self-Esteem T1	− 0.136*** (0.041)	− 0.250*** (0.054)
Volunteering T2		0.093 (0.081)
Volunteering T2 * self-esteem T1		0.238*** (0.073)
Life Satisfaction T1	0.588*** (0.045)	0.572*** (0.045)
White	− 0.175 (0.162)	− 0.156 (0.161)
Male	0.122 (0.082)	0.110 (0.081)
Married	0.350^{+} (0.194)	0.316 (0.193)
High school graduate	0.010 (0.087)	− 0.007 (0.088)
Currently working	0.185* (0.088)	0.171^{+} (0.087)
Catholic	0.114 (0.133)	0.085 (0.132)
Protestant	0.077 (0.121)	0.056 (0.120)
Other religious denomination	0.183 (0.244)	0.113 (0.243)
Age	0.002 (0.002)	0.003 (0.004)
Constant	7.54*** (0.352)	7.50*** (0.351)
Observations	490	490
R-squared	0.378	0.393

Unstandardized coefficient (SE)

$^{+}p < .1$, $*p < .05$, $**p < .01$, $***p < .001$

Life Satisfaction

To decompose the interaction effects, we calculated the simple effects for volunteers and non-volunteers on both outcomes of interest. The simple effects are displayed graphically for Belonging and Life Satisfaction in Figs. 1 and 2, respectively.

The simple slopes show that among participants who *had not* been involved in a volunteer activity, Negative Self-Esteem predicted lower community Belonging ($\beta = -0.1440$, SE = 0.046, $p \leq .01$) and lower Life Satisfaction ($\beta = -0.215$, SE = 0.062, $p \leq .001$) at T2. Among participants who *had* been involved in a volunteer activity, however, Negative Self-Esteem did not predict Belonging ($\beta = -0.054$, SE = 0.047, $p \geq .10$) or Life Satisfaction ($\beta = -0.034$, SE = 0.054, $p \geq .10$) at T2.

Overall, the hypotheses of main effects between Negative Self-Esteem and measures of wellbeing (Belonging and Life Satisfaction) over time, as well as the hypotheses of the moderation effect of volunteering on these relationships, were supported. The evidence for the moderating influence of volunteering on the relationship between Negative Self-Esteem and wellbeing was stronger for the model using Life Satisfaction as the outcome than for the model using Belonging as the outcome, as illustrated by Tables 3 and 4 and Figs. 1 and 2, but both interaction terms

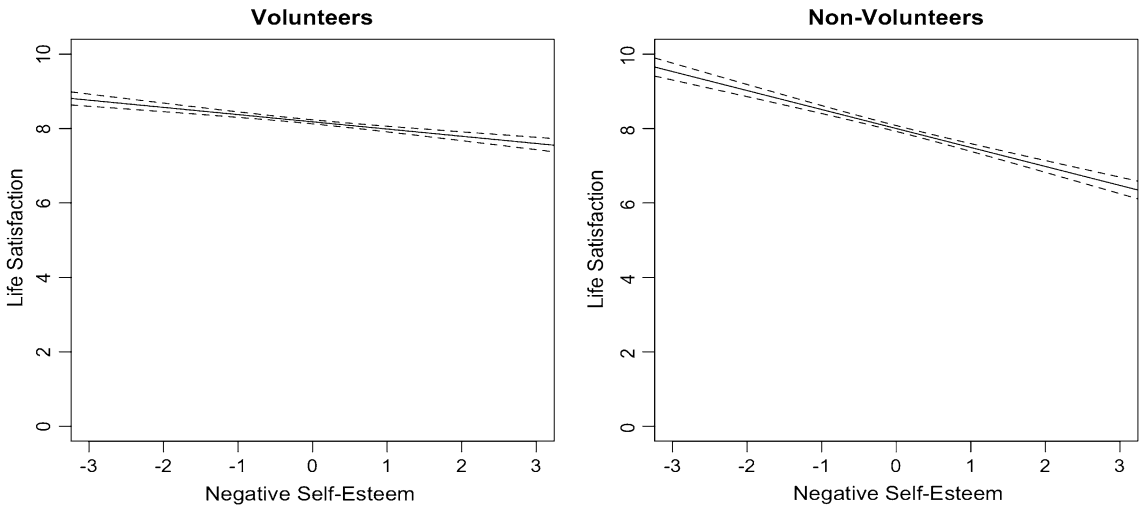

Fig. 1 Simple effects: Life satisfaction and Negative Self Esteem for volunteers and non-volunteers

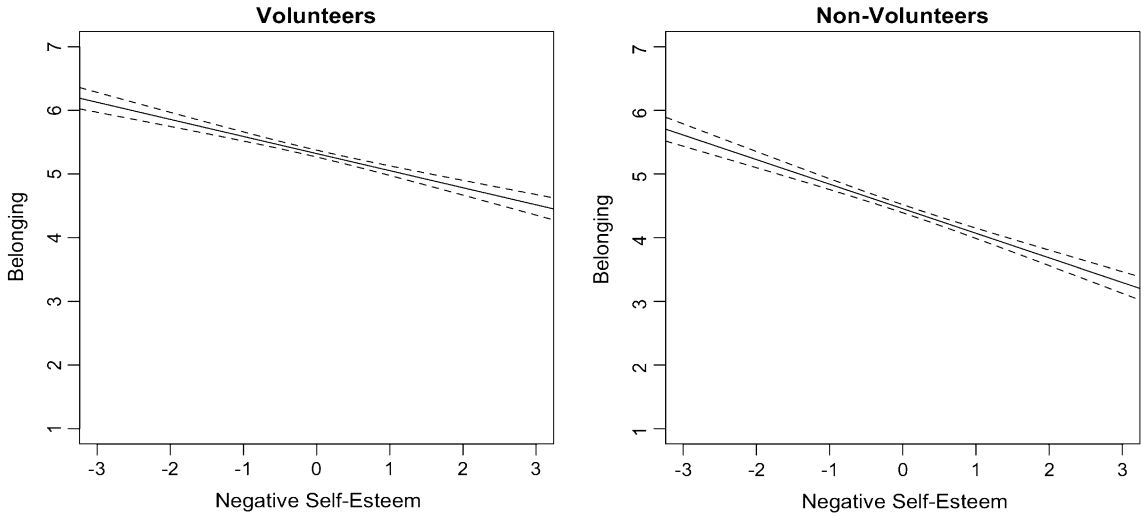

Fig. 2 Simple effects: Belonging and Negative Self Esteem for volunteers and non-volunteers

Table 5 Summary of findings

Hypothesis	Supported?
H1A: Main effect of Negative Self-Esteem (T1) on sense of Belonging (T2)	Yes; $p < .01$
H1B: Moderation effect of volunteering (T2) on relationship between Negative Self-Esteem (T1) and Belonging (T2)	Yes; $p < .05$
H2A: Main effect of Negative Self-Esteem (T1) on Life Satisfaction (T2)	Yes; $p < .001$
H2B: Moderation effect of volunteering (T2) on relationship between Negative Self-Esteem (T1) and Life Satisfaction (T2)	Yes; $p < .001$

were statistically significant. Table 5 summarizes these findings.

Post-hoc Check

This study explored the question of whether participants who had greater Negative Self-Esteem at T1 were equally likely to be involved in a volunteer activity at T2. This question is particularly important because a relationship between Negative Self-Esteem and volunteer involvement would point to potential collinearity among the predictors in our models. To examine whether this was a possibility, we conducted a logistic regression model with Negative Self-Esteem as the main predictor and volunteer status as the outcome. The results from the logistic regression indicated that Negative Self-Esteem did not predict volunteer involvement for both samples (Sample 1: $\beta = -0.087$, SE = 0.058, $p \geq .10$; Sample 2: $\beta = -0.061$, SE = 0.083, $p \geq .10$). Specifically, participants were equally likely to be involved in a volunteer activity at T2, regardless of their cognitions about their Negative Self-Esteem.

Discussion

This research explored whether engagement in volunteering buffered the influence of Negative Self-Esteem on two measures of wellbeing: Belonging and Life Satisfaction. Given the difficulties of transitioning from the working life to retirement and the potential for volunteering to ameliorate some of these negative effects as noted in the literature (e.g. Matz-Costa et al. 2012; Sherman and Shavit 2012; Van Willigen 2000), we utilized a subsample of middle- and older-aged adults derived from waves MIDUS II and MIDUS III of a nationally representative survey conducted in 2004–2006 and 2013–2014 to explore how volunteering buffered these transitions in ageing adults.

Consistent with our expectations, we found a significant main effect of Negative Self-Esteem on both Belonging and Life Satisfaction over time. Importantly, this effect was disrupted when volunteering was introduced as a moderator. These findings lend credence to the extant literature surrounding volunteering and wellbeing, in which volunteers have been found to report higher scores on measures of physical and mental wellbeing than non-volunteers.

Our study adds to this literature by conceptualizing volunteering as a moderator of the relationship between Negative Self-Esteem and two dimensions of wellbeing, Belonging and Life Satisfaction, rather than being examined as a primary predictor of an individual's wellbeing in and of itself. Framing the relationship between volunteering and dimensions of subjective wellbeing allows us to posit with greater confidence that volunteering could be an effective intervention to protect against the detrimental effects of Negative Self-Esteem.

Although the potential application of volunteering as an intervention has been explored in previous studies, a recent systematic review and meta-analysis by Jenkinson et al. (2013: n.p.) indicated that the underlying "causal mechanisms remain unclear". Our results suggest one possible mechanism and direction for future research on the efficacy of volunteering as an intervention to improve psychosocial outcomes among adults in mid- and later-life. The conceptual framing presented in this study yields a parsimonious model that can be readily interpreted and easily adapted to future explorations of the potential buffering effects of volunteering against the impact of mental and physical distress on dimensions of wellbeing.

Additionally, the use of multiple waves of data allows us to draw more meaningful conclusions about the directionality of the relationships among the variables in the models. The literature on volunteering and wellbeing typically utilizes cross-sectional data, which are less informative about the ways in which volunteering relates to measures of wellbeing. The present analysis finds that self-esteem at T1 is a significant primary predictor of Belonging and Life Satisfaction at T2, reducing some of the ambiguity of the findings from previous studies on the relationship between wellbeing and volunteering. Furthermore, a post hoc test of the effect of self-esteem at T1 on volunteering revealed that self-esteem at T1 was not a significant predictor of volunteering at T2, lending further support to our findings that volunteering is a significant moderator of the relationships among these psychosocial variables over time.

As noted above, several studies have explored the age and cohort effects on the relationship between volunteering and wellbeing and have found these effects to be significant (notably, Tabassum et al. 2016). By contrast, we failed to find a significant effect of age in either of the models, indicating that the buffering effect of volunteering was present for adults in both mid- and later-life in our sample. Because of our focus on the transition period from working age to retirement, this sample was suitable for the present study. However, this sample is not suitable for a genuine exploration of age and cohort effects on volunteering due to the negative skewness of the age variable, which resulted from the study's focus and design. Therefore, future analyses that make use of data from a wider range of age cohorts are needed to study potential age effects of both the main and moderated relationships presented in this study in greater detail.

Because key variables used in the models were not measured in MIDUS I, we were limited to using only two waves of data in our analysis. Likewise, our measure of volunteering did not include aspects of informal volunteering behaviours, such as helping neighbours and other pro-social activities often undertaken at a relatively high level by older adults, as compared to the rest of the population (Zedlewski and Schaner 2005). Therefore, this variable may not accurately account for all voluntary activities undertaken by study participants.

Conclusion

Our research examined whether volunteering could buffer against the negative effects of low self-esteem on correlates of psychosocial wellbeing in adults from mid- to later-life. Our findings suggested volunteering does act as a safeguard for ageing adult volunteers. While our findings provide evidence for promoting volunteering among ageing adults, it is of importance to note that notwithstanding our findings there exist benefits to the communities in which volunteers serve, which are often not delineated. However, when designing policies promoting volunteering, the amalgam of benefits, to both the volunteer and the organization/community receiving those benefits, should be considered in formulating holistic policies.

Future studies of older adults' engagement in voluntary activities should endeavour to capture both formal and informal types of volunteering. Furthermore, as volunteering is not a homogeneous activity, scholars should also investigate whether certain types of volunteer activities are more beneficial than others. Future studies could aim to employ longitudinal analyses on more than two waves of survey data (if such a panel is available) or design experimental studies with participants who voluntarily enlist for volunteering projects, but can be randomly assigned to different moments at which they start working in order to compare their psychosocial development.

Despite these limitations, our findings offer support for the claim that volunteering plays a role in bolstering subjective wellbeing among middle-aged and older adults. Future scholarship can build upon these findings by designing quasi-experimental studies to test the efficacy of volunteering as an intervention among adults in different age cohorts and at different stages of the life course.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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