

Do predictors of volunteering in older age differ by health status?

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Abstract It has been widely recognised that poor health is one of the main barriers to participation in volunteer activities in older age. Therefore, it is crucial to examine the participation of older people in volunteering, especially those in poor health. Based on the resource theory of volunteering, the aim of this study is to better understand the correlates of volunteering among older people with different health statuses, namely those without health problems (neither multimorbidity nor disability), those with mild health problems (multimorbidity or disability), and those with severe health problems (multimorbidity and disability). Data were drawn from the fourth wave (2011–2012, release 1.1.1) of the Survey of Health, Ageing and Retirement in Europe, which includes European people aged 50 years or older. The results showed

that variables linked to volunteering were generally similar regardless of health status, but some differences were nevertheless identified. For older people with mild or severe health problems, for instance, depressive symptoms were negatively associated with their involvement in volunteer activities. We found a positive association of being widowed (rather than married) with volunteering in older people with particularly poor health, whereas high income was associated with volunteering in the case of mild health problems only. These results demonstrate that variables associated with volunteer participation partially differ between older people depending on their health status. These differences should be considered by policy makers in their attempts to promote volunteering in older people, as a means of preventing their social exclusion.

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Introduction

The ageing of the European population will pose several societal challenges in the future. The European Union has identified a major goal in this regard of increasing healthy life expectancy by 2 years by 2020 (European Commission 2013). This ambitious aim is jeopardised by evidence that although Europeans currently live longer than in previous generations, there is hardly any improvement in terms of healthy life years in older age (Luijben et al. 2013). It can therefore be argued that increased life expectancy may imply living more years with some kind of disease, activity limitation, or disability, the latter being the final stage of the disablement process (Verbrugge and Jette 1994). Therefore, a major challenge is to find ways to promote active ageing, particularly in older people with diseases or disability.

The concept of active ageing has received increasing interest in recent years at the European policy level. Active ageing is defined as the process “of optimising opportunities for health, participation and security in order to enhance quality of life as people age” (WHO 2002). The concept applies not only to the individual level; instead, a threefold effort at the individual, organisational, and societal levels is needed to maximise participation and well-being as people age (Foster and Walker 2013).

Volunteering has been identified as one of the main domains in which active ageing can be realised. It embraces a range of unpaid activities that benefit individuals, the wider community, or society. Volunteering may be formal (i.e. it can take place in an organisational setting) or informal (although care of immediate family members is not usually considered volunteering; see Jensen and Principi 2014 for an overview). The importance that volunteering assumes within the active ageing perspective suggests that it is an activity that can usefully be pursued and enhanced in later life. It has been described as a win–win solution, because it benefits both society and older volunteers (Morrow-Howell 2010). Volunteers provide useful services in place of, or that are not guaranteed by, social institutions (Stephens et al. 2015). They also report a wide range of individual benefits linked to their volunteering, including increased socialisation and self-worth (Connolly and O’Shea 2015), as well as health-related benefits. Given its capacity to have a positive influence at different levels, volunteering by older people has been identified as a major mechanism in helping to address the challenges posed by the ageing population in Europe (Walker 2011).

Health and volunteering

The health status of older people can vary greatly and this may affect their decision to volunteer and their volunteering patterns. Functional limitations reduce volunteering (Herzog et al. 1989), and poor physical and mental health conditions are barriers to volunteering in older age (Li and Ferraro 2006). Acknowledging poor health as a barrier to volunteering, authors report a significant relationship between health and volunteering, with volunteering being explained by better health. This positive association emerged when health was self-rated (Choi 2003; Erlinghagen and Hank 2006; Erlinghagen 2010; McNamara and Gonzales 2011), measured in terms of functional limitations (Choi 2003; Hank and Stuck 2008; Suanet et al. 2009), or in terms of mental health (Butrica et al. 2009; Ahn et al. 2011; Thomas 2011). The relationship between volunteering in older age and the number of chronic diseases was less evident in terms of its statistical significance (Erlinghagen and Hank 2006; Okun and Michel 2006; Ahn et al. 2011).

The studies cited above demonstrate that it is important not only to increase volunteering among older people in general, but also among those in poor health who participate less and whose number is increasing (Parker and Thorslund 2007). Institutions and organisations at the macro and meso levels can increase volunteering opportunities for older people by activating specific strategies depending on the health status of older people. Given the importance of both altruistic and self-expressive volunteering (Principi et al. 2014), this would apply to organisations such as churches, voluntary organisations in the health sector, and policy makers in community care, as well as to stakeholders involved in the promotion of volunteer activities, e.g. in the educational, cultural, and recreational sectors. For this reason, the main aim of this paper is to study different groups of older people according to their health conditions, in order to identify possible differences between health groups in terms of the individual predictors associated with volunteering. To our knowledge, this topic has not been addressed by previous authors.

Health conditions may be approached from different angles, for example self-rated health, mental health, functional limitations, etc. In the present study, we combine multimorbidity and disability to distinguish between levels of health. Multimorbidity implies the coexistence of two or more chronic diseases (van den Akker et al. 1996). The likelihood that people with multimorbidity will encounter difficulties in their daily living is higher compared with people who have just one disease (Marengoni et al. 2011). Furthermore, multimorbidity is a pre-disability condition in the disablement process pathway (Verbrugge and Jette 1994). In this pathway, disability is defined as the gap between an individual’s capacity and the demands of the environment, so it is the level of disability that is in particular a barrier to volunteering (Herzog et al. 1989; Kahana et al. 2013). Therefore, the measure of health we employ in this study combines multimorbidity and disability into three groups to describe increasing levels of health problems. The importance of multimorbidity and disability across health indicators has been largely recognised (e.g. Wouterse et al. 2013), and these two states have been found to reduce volunteer opportunities for older people (Kahana et al. 2013).

Individual capital and volunteering

To identify individual predictors associated with volunteering in older people, this study centres on the resource theory of volunteer work (Wilson and Musick 1997). According to this theory, volunteering depends on three forms of individual capital: human capital (i.e. resources that strengthen participation in productive activities), social

capital (i.e. resources that encourage participation in collective actions), and cultural capital (i.e. attitudes that favour ethical behaviour and a culture of benevolence). Health conditions are one component of human capital, and other examples include educational level and economic status. Whilst economists consider economic status as an effect of human capital (Becker 1964), according to Wilson and Musick's theory it should be treated as human capital because it qualifies individuals for voluntary work. The literature generally underlines, in agreement with resource theory, that older people with more human capital tend to volunteer more than those with less (Cutler and Hendricks 2000; Erlinghagen and Hank 2006).

Social capital refers to resources that encourage participation in collective actions (Wilson and Musick 1997). These resources depend on the extent to which individuals possess a large social network and thus concern the relationships among individuals. According to Putnam (1995), the availability of networks positively affects participation in collective actions. Examples of indicators of social capital, all of which increase the possibility of undertaking volunteering, include being married, having children, working in the labour market, and informal caregiving. These characteristics could also limit volunteering by decreasing the amount of time available, but according to resource theory, their effect on volunteering is positive (Wymer 1999; Warburton et al. 2001; Erlinghagen and Hank 2006; Butrica et al. 2009; McNamara and Gonzales 2011; Principi et al. 2013). However, the role of informal caregiving is controversial in that there are some cases where a negative association with volunteering in older age has been reported (Burr et al. 2005). Other types of social activities in the educational and cultural/recreational domains also increase social capital.

Cultural capital refers to ethical behaviour (i.e. attitudes that favour ethical conduct and a culture of benevolence), and is usually measured in terms of religiousness. Indeed, church attendance and religious affiliations have been found to be positively related to volunteering in older age (Wymer, 1999; Warburton et al. 2001).

Men volunteer more than women in Europe, and volunteering is considered a tool to reduce the social isolation of older European women, who are over-represented among older people who live alone (Foster and Walker 2013). However, the relationship between gender and voluntary work is not univocal (Principi et al. 2012), and gender is not considered as a form of capital, but rather as an exogenous characteristic (Wilson and Musick 1997).

Although volunteering in older age depends on different individual characteristics, few studies have assessed whether these characteristics differ for people in poor or good health. Previous studies have underlined that, in agreement with the resource theory of volunteer work (Wilson and

Musick 1997), a greater availability of human, social, and cultural resources is positively associated with volunteering in older people. However, the situation may be different for older people in poor or very poor health. In order to compensate for the lack of resources, in case of poor health conditions other resources could be more important drivers for volunteering, than in the group of older people in good health. For example, people with mobility limitations might benefit more from a higher income with which they can afford their own car or public transportation, as compared to people without these limitations. A clarification of this issue could provide valuable information for stakeholders and policy makers attempting to increase the currently low level of volunteering of older people in poor and very poor health.

Methods

Data are drawn from the Survey of Health, Ageing and Retirement in Europe (SHARE), which provides data on the socio-economic status, health, family, and social relationships of people aged 50 or more years and their spouses. For this study, data from the fourth wave (2011–2012) release 1.1.1. were used. The analytic sample comprised 56,868 subjects aged 50 or older living in 16 European countries. To increase the value of our study for policy applications, we used data from the most suitable (for the study) and recent wave of SHARE. Unfortunately, the differences in wording of questions on volunteering and predictors of volunteering compared with other wave(s) did not allow a longitudinal approach.

Measures

Each participant was first classified on the basis of his/her health condition, i.e. the presence or absence of multimorbidity and/or disability. We defined multimorbidity as having two or more physical chronic somatic diseases (van den Akker et al. 1996) according to the question: "Has a doctor ever told you that you had/Do you currently have any of the following conditions?" We included 10 somatic diseases: heart condition, stroke or cerebral vascular disease, diabetes or high blood sugar, chronic lung disease, arthritis including osteoarthritis or rheumatism, cancer or malignant tumour, stomach or duodenal/peptic ulcer, Parkinson's disease, cataracts, and fractures. We defined disability as having one or more mobility limitations (Kriegsman et al. 1997; Zimmer et al. 2014) causing the following activities to be undertaken "with difficulty" for at least 3 months. We included the following 10 mobility items: walking 100 m, sitting for about 2 h, getting up from a chair after sitting for long periods, climbing several

flights of stairs without resting, climbing one flight of stairs without resting, stooping, kneeling, or crouching, reaching or extending your arms above shoulder level, pulling or pushing large objects such as a living room chair, lifting or carrying weights over 10 lb/5 kilos such as a heavy bag of groceries, and picking up a small coin from a table. To distinguish multiple severity levels of health problems, the three following groups were created: no health problems (i.e. no multimorbidity nor disability), mild health problems (i.e. the presence of multimorbidity OR disability), and severe health problems (the presence of multimorbidity and disability).

Dependent variable

Participation in volunteering was measured with the question: “Have you done voluntary or charity work in the past 12 months?” (answer categories: Y/N).

Independent variables

Human capital Educational level was defined as the SHARE-generated variable ISCED-97, based on the 1997 International Standard Classification of Education (Unesco, 2006). This variable was grouped into three levels: low (ISCED 0 to 2), medium (ISCED 3 to 4), and high (ISCED 5 to 6) education. Household income was calculated for respondents in each country by three levels: low (1st tertile), medium (2nd tertile), and high income (3rd tertile). Home ownership served as a proxy variable for wealth, by distinguishing between two categories: owner and non-owner (the latter including members of a cooperative, tenant, subtenant, and rent free).

Depressive symptoms were measured using the EURO-D depression scale (Prince et al. 1999a, b), which classifies individual feelings (presence or not of the symptom) in the following 12 symptoms: depression, pessimism, suicidality, guilt, sleep, interest, irritability, appetite, fatigue, concentration, enjoyment, and tearfulness. The total score on the scale ranges from 0 = no depressive symptoms to 12 = highest depression.

The presence of cognitive impairment was retrieved from the health status item “Alzheimer’s disease, dementia, organic brain syndrome, senility or any other serious memory impairment (Y/N)”.

Social capital Marital status was classified into married/cohabiting, single, divorced, and widowed. Work status was assessed in terms of current employment situation: retired; employed (or self-employed); and other (unemployed, permanently sick or disabled, homemaker, other). The employed category was split into “employed part-

time” when hours worked were less than 30, and “employed full-time” when hours worked were 30 or more.

Informal care inside the household was measured with the question: “Is there someone living in this household whom you have helped regularly during the last 12 months with personal care, such as washing, getting out of bed, or dressing?”, having answer Y/N. Subjects living alone were classified as not providing informal care inside the household.

The measures of participation in educational or training courses and in sporting, social, or other clubs were based on the questions: “Have you attended an educational or training course/gone to a sport, social or other kind of club in the past 12 months?” (answer categories: Y/N).

Cultural capital Religious participation was assessed by the question: “Have you taken part in the activities of a religious organisation—church, synagogue, mosque etc. in the past 12 months?” (answer categories: Y/N).

Control variables

Age and gender are included as control variables. Country of origin was also controlled, but the country results are not discussed.

Analyses

Analyses were carried out separately for the three health groups of older people (i.e. no health problems, mild health problems, severe health problems). In bivariate analyses, Pearson Chi-square test and *t* test were used to test possible differences between participation in volunteering or not, and each independent variable. These measures were used as independent variables in multivariate analyses. To test variables associated with volunteering, multiple logistic regression models were used for the three health groups of older people separately. When the same model is applied to different groups, unobserved heterogeneity (i.e. variation in the dependent variable, caused by the variables not included in the model) can vary across groups. Since odds ratios do not account for unobserved heterogeneity, to allow a comparison of probability values across groups, Average Marginal Effects (AMEs) were employed, which consider unobserved heterogeneity across groups (Mood 2010).

Additionally, statistical differences between AMEs were tested between the following groups: (1) no health problems versus mild health problems; (2) no health problems versus severe health problems; and (3) mild health problems versus severe health problems. When the AME of one group is not included in the 95 % confidence interval of the AME of the other group and vice versa, the difference is statistically significant. In the analyses, a probability value

of less than 0.05 was considered for statistical significance. Data were analysed using SPSS 16.0 and STATA 11.

Results

Sample characteristics

Table 1 shows the main characteristics of the investigated sample by health status. Twenty percent of the sample suffered from severe health problems, while 36 % had mild health problems. Not surprisingly, poorer health conditions corresponded to higher age and to a greater extent with being female. The proportion of volunteers was also lower among those with mild and (especially) serious health conditions.

Respondents in good health had a greater amount of human capital than respondents with health problems, especially those with severe health problems, i.e. higher education, income and home ownership; fewer depressive symptoms and less cognitive impairment. Those in good health had higher levels of social capital also, e.g. being married and employed (in particular full-time). They also participated more in activities such as educational or training courses and activities in sporting, social, or other clubs. Furthermore, respondents with severe health problems were more often widowed than those with mild or no health problems. They were also more often retired and more often acting as informal carers. Religious participation was less frequent among respondents in good health.

Volunteering

Table 2 shows participation in volunteering according to different health groups, and for the total sample. Regardless of the group, significant differences emerged with respect to all variables considered, except for gender in the group with mild health problems.

In both groups with health problems, volunteers were on average younger than non-volunteers, whereas this was not the case for those in good health. Moreover, in each of the three health groups, greater proportions of volunteers were generally found among people with more resources (e.g. education). There were a few exceptions (e.g. participation in educational or training courses).

Multivariate analyses: variables associated with volunteering

Table 3 presents the results of logistic regression models in terms of Average Marginal Effects (AMEs). If we take as an example the model “no health problems”, with the variable gender, the AME represents the change in the

probability that women will volunteer with respect to the reference category (i.e. men). In this specific case, women have a probability value of 1.4 % less than men of volunteering. In the case of continuous variables, e.g. age, AME represents a good approximation of the change in probability when there is a 1-unit change of the independent variable (in the case of age, the 1-unit change is 1 year). The results show that there are some differences between the three health groups of respondents, in terms of variables associated with volunteering.

With respect to human capital, higher educational level was positively associated with volunteering of respondents in all three health groups. Owning a home was positively associated with volunteering in respondents without health problems, significantly different to both groups with health problems, whose volunteering was not associated with owning a home. Higher income was positively associated with volunteering only for respondents with mild health problems, in significant difference to the groups of respondents in good health and with severe health problems. Depressive symptoms were negatively associated with volunteering of respondents with health problems, but no significant association was found between depression and volunteering in the group of respondents in good health. The presence (or not) of cognitive impairment was not associated with volunteering.

Concerning social capital, the predictors were mostly associated with volunteering of respondents that was independent of their health status. However, significant differences between health groups were found in some cases. For instance, for work status, being employed rather than retired was negatively associated with volunteering regardless of health status. However, in the case of full-time employment, this negative association was significantly stronger for respondents in good health than for those with health problems and, among the latter, significantly stronger in the case of mild rather than severe health problems. Moreover, being retired rather than unemployed, a homemaker, or permanently sick or disabled, was positively associated with volunteering for the two groups of respondents in poor health.

Participation in other social domains, such as sporting, social, or educational activities, was positively associated with volunteering in all three health groups. In contrast, the results relating to marital status varied. Compared with being married/cohabiting, being widowed was positively associated with volunteering for respondents with severe health problems only, and the difference was significant between this group with severe health problems and the group in good health, for whom the association with widowhood did not emerge. Being divorced was positively associated with volunteering of respondents without health problems only. Being single was not associated with

Table 1 Sample characteristics, by health status and total sample

	Total sample (<i>N</i> = 56,868)		No health problems (<i>N</i> = 24,949)	Mild health problems (<i>N</i> = 20,717)	Severe health problems (<i>N</i> = 11,202)	<i>p</i> value ^a
	Unweighted <i>N</i>	%—mean (SD)	%—mean (SD)	%—mean (SD)	%—mean (SD)	
Age (years)	56,868	66.49 (10.3)	62.61 (8.3)	67.78 (10.4)	72.82 (10.5)	<0.001
Gender (female)	31,859	54.8	46.6	60.0	63.2	<0.001
Country						<0.001
Austria	5095	2.1	2.2	2.2	1.8	
Belgium	5150	2.8	2.7	2.9	3.0	
Czech Republic	5931	2.7	2.8	2.6	2.6	
Denmark	2218	1.4	1.9	1.1	0.8	
Estonia	6672	0.3	0.3	0.3	0.5	
France	5560	16.2	17.4	15.2	15.5	
Germany	1562	23.3	20.1	27.4	22.8	
Hungary	2989	2.6	1.9	2.6	4.4	
Italy	3512	15.9	16.1	14.8	17.6	
Netherlands	2715	4.2	5.4	3.9	2.0	
Poland	1704	9.3	8.7	9.8	9.7	
Portugal	1994	2.7	2.9	2.5	2.9	
Slovenia	2698	0.5	0.5	0.6	0.4	
Spain	3491	11.2	11.4	9.9	13.3	
Sweden	1941	2.5	3.0	2.4	1.5	
Switzerland	3636	2.0	2.7	1.6	1.1	
Volunteers	8924	15.6	18.3	14.7	11.1	<0.001
<i>Human capital</i>						
Educational level						<0.001
Low	23,025	43.8	35.2	45.4	60.0	
Intermediate	21,400	37.2	39.7	38.3	29.1	
High	11,266	19.0	25.1	16.2	10.9	
Adjusted household income (EUR, median)	56,868	22,189.55	28,694.20	19,979.47	16,136.32	<0.001
Home ownership (yes)	42,048	74.2	79.5	71.3	67.4	<0.001
Depressive symptoms	55,325	2.70 (2.4)	1.81 (1.82)	2.98 (2.39)	4.24 (2.6)	<0.001
Cognitive impairment (yes)	859	1.8	0.4	2.3	4.2	<0.001
<i>Social capital</i>						
<i>Marital status</i>						<0.001
Married/cohabiting	39,673	68.1	75.7	65.7	55.6	
Single	3139	6.7	6.9	7.2	5.1	
Divorced	4937	8.1	8.2	8.3	7.3	
Widowed	8335	17.2	9.3	18.8	32.1	
<i>Work status</i>						<0.001
Retired	32,464	52.0	42.3	56.4	66.0	
Employed part-time	2882	5.5	7.8	4.4	2.5	
Employed full-time	11,787	21.4	33.0	16.1	4.7	
Other	9052	21.1	16.9	23.0	26.8	
Care given inside the household (yes)	3739	6.3	4.9	6.7	8.7	<0.001
Educational or training courses (yes)	6443	9.3	12.8	8.0	3.8	<0.001
Sporting, social, or other clubs (yes)	14,398	23.8	28.3	22.3	16.0	<0.001
<i>Cultural capital</i>						
Religious participation (yes)	7317	14.8	13.5	15.7	16.1	<0.001

Weighted data.

^a Chi-square test for frequencies, independent *t* test for means, Kruskal–Wallis for median

Table 2 Participation in volunteering (YES) of older people according to selected characteristics, by health status and total sample

	No health problems		Mild health problems		Severe health problems		Total sample	
	%—mean (SD)	<i>p</i> value	%—mean (SD)	<i>p</i> value	%—mean (SD)	<i>p</i> value	%—mean (SD)	<i>p</i> value
Age (years)*	63.09 (7.7)	<0.001	65.37 (8.8)	<0.001	68.90 (9.6)	<0.001	64.7 (8.6)	<0.001
Gender		<0.001				<0.001		<0.001
Female	17.7		14.2		9.4		14.5	
Male	18.9		15.5		14.0		17.0	
<i>Human capital</i>								
Educational level		<0.001		<0.001		<0.001		<0.001
Low	11.7		9.1		7.4		9.6	
Intermediate	17.6		17.1		12.6		16.6	
High	29.4		23.9		28.1		27.5	
Adjusted household income		<0.001		<0.001		<0.001		<0.001
Low	15.3		10.8		8.7		11.8	
Intermediate	18.1		15.0		12.0		15.8	
High	20.5		20.1		15.3		19.8	
Home ownership		<0.001		<0.001		<0.001		<0.001
Yes	18.9		15.3		11.3		16.3	
No	16.5		13.4		10.6		13.8	
Depressive symptoms ^a	1.7 (1.7)	<0.001	2.5 (2.0)	<0.001	3.3 (2.1)	<0.001	2.2 (2.0)	<0.001
Cognitive impairment		<0.001		<0.001		<0.001		<0.001
Yes	3.8		1.1		6.8		3.9	
No	18.4		15.0		11.2		15.8	
<i>Social capital</i>								
Marital status		<0.001		<0.001		<0.001		<0.001
Married/cohabiting	18.6		16.3		11.4		16.7	
Single	15.5		12.9		11.0		13.9	
Divorced	20.8		14.7		18.0		18.0	
Widowed	17.4		8.9		9.0		11.0	
Work status		<0.001		<0.001		<0.001		<0.001
Retired	20.6		14.7		11.6		16.0	
Employed part-time	20.5		18.2		26.4		20.3	
Employed full-time	16.2		17.2		16.9		16.5	
Other	16.0		12.4		7.4		12.5	
Care given inside the household		<0.001		<0.001		<0.001		<0.001
Yes	13.1		12.7		8.6		11.8	
No	18.6		14.9		11.3		15.9	
Educational or training courses		<0.001		<0.001		<0.001		<0.001
Yes	33.5		34.0		46.5		34.6	
No	16.1		13.0		9.7		13.7	
Sporting, social or other clubs		<0.001		<0.001		<0.001		<0.001
Yes	32.8		30.3		29.1		31.4	
No	12.6		10.2		7.6		10.7	
<i>Cultural capital</i>								
Religious participation		<0.001		<0.001		<0.001		<0.001
Yes	37.6		28.0		20.1		30.3	
No	15.3		12.2		9.4		13.1	

Weighted data. Bivariate analyses. Chi-square and *t* tests for independent samples used to compare characteristics of volunteers and non-volunteers within each group (no health problems, mild health problems, severe health problems, total sample). Row percentages refer to volunteers

* Significance was tested against non-volunteers, with a mean value of 62.5 (8.4) years for no health problems, 68.0 (10.5) for mild health problems, 72.9 (10.5) for severe health problems, and 66.6 (10.4) for total sample

^a Significance was tested against non-volunteers, with a mean value of 1.8 (1.8) depressive symptoms for no health problems, 3.0 (2.4) for mild health problems, 4.4 (2.6) for severe health problems, and 2.8 (2.4) for total sample

Table 3 Explanatory variables for volunteer participation of older people, by health status

	No health problems (N = 23,532)			Mild health problems (N = 19,294)			Severe health problems (N = 10,266)			No versus Mild	No versus Severe	Mild versus Severe
	AME	SE	p value	AME	SE	p value	AME	SE	p value			
Age (years)	-0.002	0.0003	<0.001	-0.003	0.000	<0.001	-0.004	0.000	<0.001	*	*	*
Gender (female)	-0.014	0.004	0.005	-0.005	0.005	0.376	0.005	0.006	0.382		*	
<i>Human capital</i>												
Educational level (ref. low)												
Intermediate	0.037	0.006	<0.001	0.042	0.006	<0.001	0.032	0.007	<0.001			
High	0.081	0.007	<0.001	0.076	0.007	<0.001	0.079	0.010	<0.001			
Home ownership (yes)	0.024	0.006	<0.001	0.004	0.006	0.482	0.005	0.006	0.457	*	*	
Adjusted household income (ref. low)												
Intermediate	0.001	0.007	0.824	0.013	0.006	0.032	-0.001	0.007	0.891			*
High	0.009	0.007	0.186	0.029	0.007	<0.001	0.009	0.008	0.309	*		*
Depressive symptoms	0.000	0.001	0.945	-0.005	0.001	<0.001	-0.006	0.001	<0.001	*	*	
Cognitive impairment (yes)	-0.027	0.049	0.587	-0.036	0.025	0.149	-0.024	0.020	0.234			
<i>Social capital</i>												
Marital status (ref. Married/cohabiting)												
Single	-0.001	0.011	0.954	-0.008	0.010	0.460	0.007	0.013	0.570			
Divorced	0.020	0.009	0.024	0.003	0.009	0.709	0.016	0.010	0.108			
Widowed	-0.003	0.009	0.726	0.005	0.008	0.552	0.019	0.009	0.032		*	
Work status (ref. Retired)												
Employed part-time	-0.047	0.010	<0.001	-0.060	0.009	<0.001	-0.041	0.013	0.002			
Employed full-time	-0.086	0.007	<0.001	-0.059	0.007	<0.001	-0.039	0.010	<0.001	*	*	*
Other	-0.013	0.009	0.175	-0.019	0.007	0.011	-0.028	0.008	<0.001			
Care given inside the household (Yes)	0.006	0.011	0.594	-0.008	0.009	0.419	0.003	0.011	0.769			
Educational or training courses (yes)	0.092	0.007	<0.001	0.100	0.009	<0.001	0.104	0.015	<0.001			
Sporting, social, or other clubs (yes)	0.093	0.005	<0.001	0.096	0.006	<0.001	0.089	0.009	<0.001			
<i>Cultural capital</i>												
Religious participation (yes)	0.217	0.009	<0.001	0.173	0.009	<0.001	0.128	0.011	<0.001	*	*	*
Chi-square test	3694.8		<0.001	2724.7		<0.001	1332.44		<0.001			
Nagelkerke R ²	0.160			0.168			0.190					

Multiple logistic regression on volunteering (Y/N). Average marginal effects (AMEs) represent the probability discrete change from the base level. Statistically significant associations are shown in bold

* $p < 0.05$; significant differences between health groups (i.e. no health problems versus mild health problems; no health problems versus severe health problems) are calculated by checking that AME of one group was reciprocally not included in the 95 % confidence interval of the other group. Adjusted by country, findings available on request

volunteering and neither was informal caregiving inside the household.

Regarding cultural capital, participation in religious activities was positively associated with volunteering independent of health status. However, similarly to what was observed in regard to full-time work, there were differences between health groups in terms of the strength of this association. The positive association was significantly

stronger for respondents in good health compared to those with health problems, and significantly stronger in the case of those with mild health problems than for those with severe health problems.

As for the control variables of age and gender, getting older was negatively associated with volunteering in all three groups, this negative association being significantly stronger with poorer health status. Being female was

negatively associated with volunteering in respondents in good health only, in significant difference to the group with severe health problems.

Looking in general at the AMEs, it may be observed that across health groups, the predictors having the strongest association with volunteering are religious participation (with the highest probability value occurring for the group in good health, i.e. 21.7 %), participation in educational courses (with the highest probability value for the group with severe health problems, i.e. 10.4 %), and in sporting or social clubs (with the highest probability value for the group with mild health problems, i.e. 9.6 %).

Discussion

At the individual level, ageing actively, including volunteering, contributes to improvement in various domains, including health (Walker 2011; Zaidi et al. 2013). Thus, healthy life expectancy and active ageing may be linked. Based on the evidence that poor health conditions are one of the main barriers to volunteering (Li and Ferraro 2006; Hao 2008; King et al. 2015), the main aim of this study was to understand whether volunteering in older people with different levels of health was associated with different indicators of human, social, and cultural capital (Wilson and Musick 1997). An understanding of these relationships is important for policy makers and stakeholders wishing to increase the particularly low level of volunteering among older people in poorer health, because such an understanding can allow them to propose specific strategies to further this aim.

The results of this study demonstrate that in line with resource theory and together with the results of other studies (Choi 2003; Tang 2006; Hank and Stuck 2008; Suanet et al. 2009), some of the considered variables are associated with volunteering independent of health status. This was the case for age, although the negative association between age and volunteering is stronger in older people with more severe health problems. In other cases, the greater the level of individual capital, the greater the probability that the person will volunteer; this includes high educational level and high levels of participation in educational, sporting, social, or religious activities, the last of these being especially important for older people with no health problems. Participation in other kinds of activities was among the elements that were more strongly linked to volunteering in all three health groups of older people. This is not surprising and may be explained by the fact that social domains such as the church, and educational or recreational organisations, are contexts in which people are likely to volunteer. Another similarity across health groups concerned work status. The available evidence from the

literature about the relationship between work status and volunteering of older people is contradictory (see Principi et al. 2013, for an overview). The results of this study suggest that multiple roles can hamper participation in volunteer activities (Burr et al. 2005), because independent of their health status, older people have been shown to be more likely to volunteer once retired than when they still have paid work commitments. According to the results of this study, this was true especially for those with no health problems working full-time, perhaps because they can work for a higher number of hours in view of their good health.

This study also demonstrates that there are some differences in predictors of volunteering between health categories. Among predictors that are positively associated with volunteering in the two groups of older people with health problems but not for older people in good health are being widowed (for the group with severe health problems) and high income (for the group with mild health problems), while the presence of depressive symptoms was negatively associated with volunteering in both groups of older people in poor health. On the one hand, and consistent with resource theory, having a high income and fewer depressive symptoms were found to be important elements for older people in poor health. Because depressive symptoms are negatively associated with volunteering of older people in poor health, a key message for stakeholders, including voluntary organisations, is to target depressed older people with health problems specifically, to prevent their social exclusion, by emphasising for instance, that volunteering is useful to overcome depression (Li and Ferraro 2005; Anderson et al. 2014). On the other hand, older people with particularly poor health conditions (i.e. with both multimorbidity and disability), who are also widowed rather than married, this in contrast with resource theory, could engage in volunteering as a way to increase their resources and overcome their “double” negative circumstances of having lost their partner and being in poor health, and in general to avoid social exclusion. This is in line with the results of previous studies which found that lower amounts of individual capital, including poor health and being widowed, are associated with a higher propensity to volunteer in order to enhance one’s own self-esteem, to avoid thinking about personal problems, and for social reasons (Principi et al. 2015). In light of this evidence, special recruitment campaigns might be activated for widowed older people in particularly poor health, to foster their social inclusion and related health benefits. This finding is important theoretically, because when heterogeneous samples are investigated in terms of health conditions, volunteering is very often positively associated with being married (e.g. Choi 2003; McNamara and Gonzales 2011). Future longitudinal studies should therefore further clarify

the causality between widowhood and volunteering in reference to different levels of health in the older population.

According to the results of this study, other predictors are linked to volunteering but only for older people in good health. Among these, and in accordance with previous literature on this matter (e.g. Wymer 1999), is home ownership as a proxy of wealth, although high income level was found also to be positively associated with volunteering in the group of older people with mild health problems. Therefore, there is a need for future studies to elucidate the links between economic aspects and volunteering of older people when their different health conditions are considered. Another element is gender. In general, the relationship between gender and volunteering of older people is not univocal (Principi et al. 2012). According to the results of the present study, being male is positively associated with volunteering for people in good health, this effect being particularly strong in comparison with older people with severe health problems. This is in line with the interpretation that men tend to devote themselves to activities outside the home, whereas women focus more on activities inside it (Rotolo 2000). However, this association is absent in older people in poor health, perhaps because with increased health problems men find it increasingly difficult to engage outside the home.

Study limitations and strengths and future research

This study has several limitations. First is that, although longitudinal analyses are necessary for studying the effect of the different predictors in view of the bidirectional association between health and volunteering in older age, the SHARE dataset did not allow a longitudinal approach for this particular aspect of social participation. Further research is warranted to confirm the results of this study, and to examine if causal relationships between the dependent and independent variables exist. Second, we chose to define three severity levels of health problems. Because our category “mild health problems” implies that either multimorbidity or disability is present without distinction between the two, we acknowledge that four groups (i.e. combining multimorbidity yes/no and disability yes/no) could also have been analysed. However, we tested these four models (data not shown) and results did not substantially differ. A third limitation lies in the very general definition of volunteering adopted, measuring only participation versus non-participation and disregarding the intensity and type of volunteering. On the grounds that poor health may place restrictions on an individual’s ability to participate in some types of volunteering while not doing

so for others, or could limit the intensity of volunteering in which individuals engage, these elements should be considered in future studies, together with other important variables associated with volunteer activities (for example, previous participation in volunteer work—Mutchler et al. 2003).

A strength of this study, nevertheless, is that it investigated volunteering patterns separately for older people with different levels of health problems, and its results have clear policy implications. Indeed, this study contributes to the literature by demonstrating that some variables associated with volunteering in older people differ depending on their health status. For older people with health problems in particular, depressive symptoms proved to be negatively associated with volunteering. Moreover, a high income was positively associated with volunteering among those with mild health problems, whereas when health conditions are more severe, e.g. due to the concomitant presence of multimorbidity and disability, volunteering was positively associated with widowhood.

Conclusion

This study provides findings that may be used by national and local governments as well as organisations that rely on volunteers such as churches and other organisations that are, for example, active in the healthcare, educational, cultural, or recreational sectors. For instance, within their initiatives to increase volunteering opportunities for older people with health problems, they could consider that widowed older people may engage in volunteering for social reasons to avoid social exclusion, emphasise that volunteering is useful to overcome depression, and take into account that more opportunities could be offered to less affluent individuals.

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