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**Article — Published Version**

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Social Indicators Research

**Provided in Cooperation with:**

Springer Nature

*Suggested Citation:* Kelle, Nadiya; Bünning, Mareike; Simonson, Julia (2025) : COVID-19 Pandemic, Volunteering, and Well-Being: Volunteering's Role in Mitigating Depressive Symptoms, Loneliness, and Perceived Social Exclusion during the Pandemic, Social Indicators Research, ISSN 1573-0921, Springer Netherlands, Dordrecht, Vol. 180, Iss. 1, pp. 49-68, <https://doi.org/10.1007/s11205-025-03566-1>

This Version is available at:

<https://hdl.handle.net/10419/330906>

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# COVID-19 Pandemic, Volunteering, and Well-Being: Volunteering's Role in Mitigating Depressive Symptoms, Loneliness, and Perceived Social Exclusion during the Pandemic

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Accepted: 18 February 2025 / Published online: 6 March 2025  
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## Abstract

The COVID-19 pandemic and its associated containment measures presented significant challenges in personal and social spheres, prompting the reorganization of prosocial activities. Despite the recognized buffering function of volunteering on well-being of older adults, it remains uncertain whether this function was maintained during the pandemic. Drawing on the framework of weak ties, this study investigates how starting, continuing, and stopping volunteering during the pandemic relate to changes in three aspects of well-being – depression, loneliness, and perceived social exclusion – compared to pre-pandemic times. It also examines differences in the buffering function of volunteering for people with lower levels of education compared to those with high levels of education. Utilizing data from the German Ageing Survey (DEAS), a representative study of the population aged 40 and above, three survey waves (2014, 2017, and winter 2020/21 when Germany experienced its second lockdown) were used to track changes across pre-pandemic and pandemic stages. Employing first-difference regressions, the study finds no general pandemic effect on depressive symptoms but identifies a negative impact on loneliness and perceived social exclusion. However, while the pandemic effect on loneliness did not differ between volunteer and non-volunteer groups, initiating volunteering protected against heightened feelings of social exclusion. This was particularly pronounced among new volunteers with lower levels of education. Continuous volunteers (with lower education) also tended to report lower social exclusion levels during the pandemic than non-volunteers. Theoretical and policy implications are discussed.

**Keywords** COVID-19 · Volunteering · Well-being · Depressive symptoms · Loneliness · Perceived social exclusion · German ageing survey (DEAS)

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## 1 Introduction

Extensive research has explored the impact of volunteering on mental health and social well-being. The majority of studies establish a positive association between volunteering and different aspects of individual well-being such as decreased levels of depressive symptoms (Hong et al., 2009; Hong & Morrow-Howell, 2010), loneliness (Carr et al., 2018; Cho & Xiang, 2022; Niedzwiedz et al., 2016) or perceived social exclusion (Davies et al., 2024; Son & Wilson, 2012). At the same time, a growing body of research argues that the well-being benefits of volunteering are not universal but rather specific to certain volunteer groups (de Wit et al., 2022; Hansen et al., 2018; Lawton & Watt, 2019; Russell et al., 2019; van Tienoven et al., 2020). Thereby, it is imperative in which life stage the volunteering takes place, which socio-economic group a volunteer belongs to and how continuous the volunteering is (Morrow-Howell, 2010). A “buffering effect” of volunteering on well-being (Russell et al., 2019) was found specifically for mid-aged and older adults, which was explained by “role identity absences” or losses in this life stage (Greenfield & Marks, 2004), such as lack of parenting responsibilities, a transition from paid employment or diminishing social networks (Jang et al., 2018; Lühr et al., 2022; Tabassum et al., 2016; Van Willigen, 2000). Additionally, the existing evidence points to specifically strong effects of volunteering on the well-being of those from lower socio-economic groups (Fujiwara et al., 2018; Lawton & Watt, 2019). Moreover, volunteering has also shown to have positive and increasingly beneficial impact on well-being when it is sustained over time (Binder & Freytag, 2013), but its beneficial effect on well-being appears to stop when volunteering is discontinued (Matthews & Nazroo, 2021; Meier & Stutzer, 2008). Likewise, volunteering was shown to only be beneficial if the conditions of the voluntary engagement are positive (Matthews & Nazroo, 2021; Windsor et al., 2008).

While the overall effects of the pandemic on increasing levels of loneliness (Huxhold & Tesch-Römer, 2023; Kasar & Karaman, 2021), depressive symptoms (Bäuerle et al., 2020; Lakhani et al., 2020) and social exclusion (Hajek & König, 2022; Seifert et al., 2021) have been extensively documented, little research has focused on how the buffering effect of volunteering on well-being has changed in the pandemic. Existing research has, on the one hand, discussed that the buffering effects of the volunteering might have diminished during the pandemic, due to factors such as weakened ties and lower well-being benefits due to reduced in-person interactions, increased vulnerability of older adults, and potential time constraints from temporary closures of schools and day-care services (Dederichs, 2023; Grotz et al., 2020; Luksyte et al., 2021; Simonson & Kelle, 2023). On the other hand, other findings underscored positive aspects of the pandemic on volunteering’s buffering function, including expanded time resources from changes in work situations, such as remote working, and the increased value of volunteering as a means of staying connected to society during the pandemic (Bowe et al., 2022; Gray et al., 2022; Mao et al., 2021).

In addition to this conflicting evidence, caution is needed in interpreting the results as much of the existing research relied on convenient sampling and/or used (cross-sectional) data collected during the pandemic, without a pre-pandemic baseline (e.g., Gray et al., 2022; Sin et al., 2021; Succi et al., 2023). Furthermore, this research is primarily confined to the initial stage of the pandemic, marked by the shock of its onset and the introduction of containment measures, including contact restrictions and limited operability of essential services. However, findings based on this early pandemic period might be not representative

of the later stages. On the one hand, people may have adapted to the new circumstances; on the other, as the pandemic persisted, negative effects might have become more pronounced. Extending beyond the initial pandemic stage using SHARE data, a study shows that being a volunteer during the second pandemic period as well as before and during this period was negatively associated with the likelihood of feeling lonely (Torres et al., 2023). Another study shows that being a volunteer during the first pandemic stage was not associated with being less lonely or having fewer depressive symptoms in the second pandemic stage (Weziak-Bialowolska & Bialowolski, 2023). Even though these studies offer important insights, they primarily focus on interindividual changes (between-person level), potentially confounded by selection effects and unobserved time-invariant variables.

To overcome these shortcomings, in our study, we employ longitudinal data from the German Ageing Survey (DEAS) collected before and during the pandemic (survey waves 2014, 2017 and winter 2020/21). To determine the pandemic's effect on various aspects of well-being, we conduct first-difference regressions, analyzing within-person pandemic-specific changes in well-being (from 2017 to 2020/21) compared to changes in an entirely pre-pandemic period (changes from 2014 to 2017). We aim to capture different dimensions of well-being by including loneliness, depressive symptoms and perceived social exclusion. Depressive symptoms serve as an indicator of mental well-being (Linton et al., 2016) while loneliness and social exclusion reflect social well-being at the interpersonal and societal level, respectively (Huxhold et al., 2022a). The key research questions are: (1) How has the buffering effect of volunteering on well-being impairments changed due to the pandemic for those who started, continued, and stopped volunteering? (2) How has the volunteering's buffering effect changed among individuals with lower levels of education compared to those with high levels of education? We focus on Germany, a country in which, as in many other European countries, a positive association of volunteering with various aspects of well-being such as loneliness or depressive symptoms was found before the pandemic (Meier & Stutzer, 2008; Pavlova & Silbereisen, 2012; Richardson et al., 2023). However, it has also been shown that these positive associations were rather weak compared to, for example, countries with lower economic development and lower volunteering rates (Lühr et al., 2022; Pavlova & Silbereisen, 2012). To our knowledge, it has not yet been investigated how the relationship between volunteering and well-being has changed with the pandemic in Germany.

This study contributes to the existing literature in three main ways. Firstly, we investigate how volunteering, as a means to establish and maintain ties with acquaintances or club members (weak ties), is linked to well-being almost one year into the pandemic compared to before the pandemic. Secondly, acknowledging that volunteering is a dynamic process, we examine changes in volunteering's buffering effect for different volunteer groups: continuous, new, and ceased volunteers. Lastly, we recognize the unequal access to volunteering as an important resource for gaining and maintaining weak ties. We examine how the pandemic may have affected well-being based on educational level, as volunteering may offer greater benefits to individuals from disadvantaged social backgrounds (McGarvey et al., 2019). The findings from this study will contribute to a deeper understanding of the role of volunteering and weak ties in fostering well-being, particularly in the context of the COVID-19 pandemic, and can offer valuable insights to inform strategies aimed at supporting the well-being of different social groups in times of crisis.

## 2 Theoretical Considerations

### 2.1 The Importance of Weak Ties for Individual Well-Being (in the Pandemic)

We argue that the COVID-19 pandemic could have impacted the buffering effects of volunteering on individuals' depressive symptoms, feelings of loneliness and perceived social exclusion. Theoretically, our considerations are guided by the concept of weak ties introduced by *network theory* (Granovetter, 1973) and the *convoy model of social relations* (Antonucci, 1985), as previous research has shown that weak ties are fostered by volunteering (e.g., Reynolds et al., 2020). In addition, we employ the *effort-reward imbalance model* (Siegrist, 1996) and the *social identity approach* (Jetten et al., 2011) in order to investigate how the buffering effect has changed due to the pandemic.

The concept of weak ties originates from Granovetter's (1973) *network theory*, distinguishing weak ties as relationships characterized by less intimate connections and a focus on functional relationships, such as acquaintances or club members, in contrast to strong ties that involve close family members or friends with strong emotional bonds and mutual support. While previous studies have predominantly explored the role of strong ties on peoples' well-being (e.g., Cavallini et al., 2021; Liu & Hsieh, 2023), emerging evidence suggests that weak ties can be particularly significant for certain social groups in maintaining their well-being. Weak ties facilitate learning and personal growth by providing individuals with access to new information and resources that are not typically available through strong ties (Huxhold et al., 2020; Reynolds et al., 2020). Additionally, interacting with individuals who share similar experiences but come from diverse backgrounds contributes to a sense of belonging and enhances general social identity, thereby promoting psychological well-being (Reynolds et al., 2020; Wright & Miller, 2010).

Another relevant theory for this study is the *convoy model of social relations*, which also distinguishes between different types of social ties and acknowledges the impact of life events on these relationships throughout the lifespan (Antonucci et al., 2010; Fuller et al., 2020). According to this model, weak ties may become increasingly important for individuals in later life when contact with strong ties declines due to factors such as children moving out or the loss of a partner (Huxhold et al. 2022b). In fact, research suggests that weak ties may be a more effective means for promoting well-being among older adults compared to strong ties (Huxhold et al., 2020). Additionally, the convoy model recognizes that social relationships are influenced by changing times and contexts across all age groups. The COVID-19 pandemic has created a shared history wherein all people have been affected by the social and economic circumstances of the time (Fuller et al., 2020). In this climate of social distancing, individuals' living situations have undergone drastic changes, shifting from environments rich in opportunities for social interactions to ones that may offer more opportunities for engaging with close ties but clearly fewer opportunities to interact with weak ties (Fingerman et al., 2020). Although this scenario could potentially have adverse effects on the well-being of older adults, our understanding of the development of weak ties during the pandemic and the effects of pandemic-induced changes in volunteering on well-being is limited.

We contend that, on one hand, the COVID-19 pandemic has presented challenges in building and sustaining weak ties through volunteering, given the limitations on in-person interactions and increased reliance on digital communication. This situation aligns with

the *effort-reward imbalance model*, which highlights the strong connections between activity, reciprocity, and well-being (Siegrist, 1996, 2010). It is possible that these pandemic-induced changes have weakened the rewards and disrupted the balance of reciprocity in volunteering, potentially leading to “high costs-low gain” conditions. Such imbalances may be associated with increased stress and declines in overall well-being. On the other hand, volunteering might have been among the limited options available to maintain weak ties and partake in social activities. According to the *social identity approach*, relationships marked by belonging, trust, and support are crucial for effective pandemic responses and act as psychological resources safeguarding the mental health and well-being of community members (Bowe et al., 2022; Elcheroth & Drury, 2020; Jetten et al., 2020; Templeton et al., 2020). Some indications suggest that this was evident during COVID-19. Similar to other emergencies, the pandemic witnessed a general increase in neighborliness (Addley, 2020) and elevated levels of reported and anticipated support (Mao et al., 2021), potentially yielding positive effects on well-being.

## 2.2 Dynamic Nature of Volunteering and Well-Being during the Pandemic

Another important aspect of this study is that we acknowledge the dynamic nature of volunteering, recognizing that it is not a static measure that remains consistent over time. Instead, it is a process that can change as middle-aged and older adults choose to initiate, discontinue, or maintain their volunteer activities (Butrica et al., 2009; Hank & Erlinghagen, 2010). In line with the weak ties theoretical framework, if we argue, on the one hand, that volunteering has become even more important for maintaining well-being during the pandemic, it would be plausible that continuous volunteers with established social contacts to club members and other volunteers would derive significant benefits from their voluntary activity. Also, new volunteers should benefit from their weak ties, even though their contacts are not as established as those of continuous volunteers and may therefore reap fewer well-being resources. For past volunteers, a loosening of weak ties from former volunteering and a reduction in access to resources from these ties might be expected. However, even if the connections made through volunteering were still active, it is questionable to what extent they were able to draw on these contacts under the pandemic conditions. On the other hand, if we argue that the pandemic has weakened the buffering effect of volunteering, we would expect to observe weak or no differences between volunteer and non-volunteer during this time.

Previous research has demonstrated that individuals who consistently participate in volunteering tend to experience higher levels of well-being, which they can maintain and establish over time (Hong et al., 2009; Huo & Kim, 2021; Li et al., 2013). Similarly, individuals who initiate volunteering show higher levels of well-being compared to non-volunteers (Li et al., 2013). However, continuous volunteers tend to have slightly superior well-being outcomes than those who are new to volunteering (Choi et al., 2017; Matthews & Nazroo, 2021; van Ingen & Kalmijn, 2010). Individuals who stop volunteering are likely to experience a decline or even cessation of the improvements in well-being (Binder & Freytag, 2013; Magnani & Zhu, 2018; Matthews & Nazroo, 2021; Meier & Stutzer, 2008). However, some studies indicate that they still fare better than constant non-volunteers (Choi et al., 2017; Magnani & Zhu, 2018). This highlights the importance of considering the duration and continuity of volunteering engagement when assessing its impact on well-being.

*Given all that, we hypothesize that compared to non-volunteers, volunteers were more likely to show higher levels of well-being in the pandemic than prior to the pandemic. Thereby, continuous volunteers have benefited the most, followed by new volunteers and then past volunteers (H1.1). As a competing hypothesis, we assume that volunteer groups may have experienced fewer or no benefits from their voluntary activity for their well-being compared to the pre-pandemic time (H1.2).*

## 2.3 Volunteering by Disadvantaged Social Groups and Well-Being during the Pandemic

The buffering effect of volunteering varies among different social groups. From the theoretical perspective, it can be expected that more disadvantaged social groups benefit more from volunteering because weak ties might be particularly important for them, bridging different networks and improving access to inequality-relevant resources. This has been shown to be particularly important for people with lower education or socio-economic status (Fujiwara et al., 2018; Lawton & Watt, 2019; Piliavin & Siegl, 2007) as such resources are less likely to be available in closer relationships than with people with higher levels of education (Antonucci et al., 2014; Granovetter, 1973). Accordingly, volunteering is deemed an important resource for people with lower levels of education as they usually have less access to weak ties than people with higher levels of education (Knabe et al., 2021). The German context accentuates the role of education as a “sorting machine” (Leopold & Leopold, 2018, p. 97), where the selective and rigid school system translates into educational degrees, occupational positions, and income levels. Therefore, during the COVID-19 pandemic, particularly volunteers with lower education may have experienced a greater preservation of their well-being than in pre-pandemic times. However, if the buffering effect of volunteering has indeed overall decreased, volunteers with low levels of education may have experienced less or no benefits from their voluntary activity for their well-being compared to pre-pandemic times.

*Against this background, we hypothesize that individuals with lower education levels derived higher levels of protection from volunteering on their well-being during the COVID-19 pandemic than prior to the pandemic. Thereby, continuous volunteers with lower levels of education have benefited the most, followed by new volunteers and then by past volunteers compared to the group of non-volunteers (H2.1). As a competing hypothesis, we assume that volunteer groups with lower levels of education may have experienced fewer or no benefits from their voluntary activity for their well-being compared to pre-pandemic times (H2.2).*

## 3 Data and Methods

### 3.1 Data

To examine how changes in volunteering are related to changes in depressive symptoms, feelings of loneliness and perceived social exclusion, we draw on data from the German Ageing Survey (DEAS, <https://doi.org/10.5156/DEAS.1996-2021.M.002>) (Vogel et al., 2021). DEAS is a cohort-sequential study that is representative of older adults living in



private households in Germany. Baseline samples of persons aged 40 to 85 years (collected in 1996, 2002, 2008, and 2014) were drawn from a random sample of municipalities and stratified by age, gender, and region (Western and Eastern Germany). Respondents were then contacted again for interviews every three years unless they withdrew panel consent or dropped out of the sample due to death, permanent illness, or a move abroad. Data collection consisted of a personal interview and a self-administered questionnaire that was filled out by about 85% of respondents (Vogel et al., 2021). For this study, we used three waves of DEAS (2014, 2017, and 2020/21), which included participants from all baseline samples. The data hence allow us to investigate changes in volunteering and well-being before the pandemic (from 2014 to 2017) and during the pandemic (from 2017 to 2020/21).<sup>1</sup>

For this study we used a balanced panel of respondents who participated in all three waves in order to examine changes in the well-being indicators within the same persons over time. To keep the age range consistent across the times periods (2014–2017 and 2017–2020/21), we restricted the sample to respondents aged 43 to 97 years for a better comparability of results. For analyses on depression symptoms the analyses rely on  $n=4,450$  individuals. For analyses on loneliness and perceived social exclusion we could only consider respondents who had filled out the self-administered questionnaire, as information on loneliness and social exclusion was gathered in this part of the survey. Therefore, these analyses are based on  $n=3,865$  individuals.<sup>2</sup>

## 3.2 Variables

### 3.2.1 Dependent Variables

Depressive symptoms were captured on the basis of nine items retrieved from the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977). The respondents had to rate the items, and those included in the analysis are as follows: (1) I had trouble keeping my mind on what I was doing; (2) I felt depressed; (3) I felt that everything I did was an effort; (4) I felt fearful; (5) My sleep was restless; (6) I was happy; (7) I enjoyed life; (8) I felt sad; (9) I felt that people dislike me. Participants reported on a scale from 1 (rarely or not at all, so less than 1 day) to 4 (most of the time, or all the time, 5 to 7 days). Whenever necessary, agreement scores for single items were recoded so that a higher score indicated higher depressive symptoms. A total score ranging from 9 to 36 was calculated by adding together individual item scores, with higher scores indicating greater levels of depressive symptoms.

Loneliness is captured by the six-item De Jong Gierveld short scale for loneliness (De Jong Gierveld & van Tilburg, 2006). The items are: (1) I miss having people who I feel comfortable with; (2) There are plenty of people that I can depend on if I'm in trouble; (3)

<sup>1</sup> It is important to recognize that there is a strong correlation between volunteering and survey participation (Abraham et al., 2009). Similar to many other surveys, DEAS has experienced a decline in response rates over the years (Vogel et al., 2021). This could lead to an overestimation of volunteer rates, which may be exacerbated by our focus on respondents who participated in all of the three most recent survey waves (2014, 2017 and 2020/21). However, Abraham et al., (2009) also found that non-response bias does not significantly affect inferences about the characteristics of volunteers. Therefore, while the overall level of volunteering may be overestimated, it is likely to be consistently overestimated across the sub-groups surveyed, meaning that estimates of the differences between them may be only marginally affected.

<sup>2</sup> Using listwise deletion, we only kept respondents for whom information on outcomes was available in all three waves. There were also some missing values for the control variables, but these represented a very small percentage, less than 0.2%.



Often, I feel rejected; (4) There are many people that I can count on completely; (5) I miss having a sense of security and warmth; (6) There are enough people I feel close to. Participants reported on a scale from 1 (strongly agree) to 4 (strongly disagree) how much a statement applied to their social lives. Whenever necessary, agreement scores for single items were recoded so that a higher score indicated a higher level of loneliness. A mean score was computed, with higher values indicating more loneliness.

Perceived social exclusion was assessed with four items from a scale developed by Bude and Lantermann (2006) indicating the individual's evaluation of being included in society: (1) I am worried about being left behind; (2) I feel like I do not really belong to society; (3) I feel that I am left out; (4) I feel excluded from society. Participants could indicate their agreement with these statements on a scale from 1 (strongly agree) to 4 (strongly disagree). These scores were rotated, so that higher mean scores across all four items indexed greater perceived social exclusion and a mean score was computed.

### 3.2.2 Explanatory Variables

The main explanatory variable is change in voluntary engagement. In our data, people are considered volunteers if they indicate that they are a member of at least one group or organization and hold at least one function or volunteer position therein. Accordingly, in our study, we only take into account voluntary engagement that is organization-bound, as people who are not members of a group or organization are not asked about their voluntary activities. We use volunteer-group\*period-interactions to compare voluntary engagement across two consecutive waves (2014–2017 for pre-pandemic changes and 2017–2020/21 for pandemic changes) and contrast the non-volunteer population (did not volunteer in two consecutive waves) with three groups of volunteers: continuous (volunteered in both waves), new (started to volunteer in the second wave) and past (stopped volunteering in the second wave). This comparison allows us to see whether well-being changes during the pandemic where any different from those in “regular”, non-pandemic times.

To compare associations across educational groups, we distinguish between low/medium levels of education (ISCED 0–4) and high education (ISCED 5–6).

### 3.2.3 Further Variables

Moreover, we include a number of time-varying control variables to capture important life events that might have happened in parallel. We consider employment status (dummy) because the change from employment to non-employment may influence the well-being of individuals (Gander et al., 2021). In addition, because changes in the composition of strong ties can affect individual well-being (Clark et al., 2008), we adjust our analyses for having a partner (dummy) and number of household members (linear, ranging from 1 to 8). We also control for changes in current disability status, as measured by the Global Activity Limitation Indicator (GALI; limited or not limited), as such changes may affect individual well-being (Luo et al., 2012).

### 3.3 Analytical Strategy

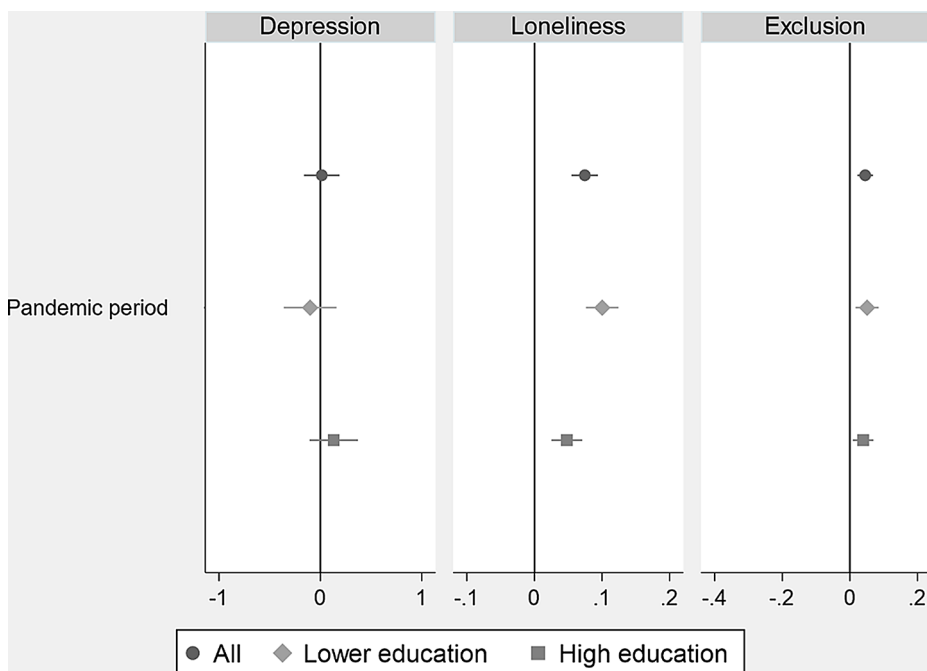
To find out whether and how different groups of volunteers' (continuous volunteers, new volunteers, past volunteers and non-volunteers) well-being has changed due to the COVID-19 pandemic, we analyze changes in well-being in the pandemic phase (from 2017 to 2020/21) and contrast them with changes that occurred in the pre-pandemic phase (from 2014 to 2017). We use linear first-difference regression to estimate the effect of changes in voluntary engagement on changes in the three indicators of well-being. The interaction terms between volunteer status and the period indicator depicting pandemic-specific changes provides us with information whether volunteering makes a difference in the way well-being changes during the pandemic phase or not.

First-difference models focus on the change in an outcome between two time-points disregarding the level of that outcome. Focusing on changes within the same person over time, all observed and unobserved stable characteristics of that person, such as gender, education or personality are netted out of the model and do not bias our results (Allison, 2009). We estimate the following model:

$$Y_t - Y_{t-1} = (\mu_t - \mu_{t-1}) + p_t + \beta_1 Vstart_t + \beta_2 Vcont_t + \beta_3 Vstop_t + \beta_1 Vstart_t * p_t + \beta_2 Vcont_t * p_t + \beta_3 Vstop_t * p_t + \beta_k (X_t - X_{t-1})$$

The dependent variable  $Y_t - Y_{t-1}$  is the first difference of the well-being indicator measuring changes in well-being between time  $t-1$  and  $t$ .  $\mu_t$  and  $\mu_{t-1}$  are different intercepts that allow for a change over time that is unrelated to  $X$ . The indicator for period is  $p_t$  that takes the value of 1 for the period between 2017 and 2020/21 (the pandemic period) and the value of 0 for the period between 2014 and 2017 (pre-pandemic period).  $Vstart$ ,  $Vcont$ , and  $Vstop$  are three dummy variables that indicate whether the person started, continued or stopped volunteering at time  $t$  compared to time  $t-1$ . The reference category consists of persons who did not volunteer at either  $t$  or  $t-1$ . The three volunteering indicators are interacted with period  $p_t$  to assess whether the effects of volunteering on well-being differ between pandemic and pre-pandemic times.  $X_t - X_{t-1}$  captures changes in control variables between time  $t$  and  $t-1$ .

We run stepwise first-difference regressions for the full sample as well as separately for people with lower and higher education. In Model 1, we include a period variable comparing pandemic-specific changes in well-being (from 2017 to 2020/21) to changes in an entirely pre-pandemic phase (from 2014 to 2017) (see Fig. 1 or Table A1 in the online appendix). In Model 2, we add variables for volunteer groups and interaction terms between the period variable and the volunteer groups to analyze whether changes in well-being between 2017 and 2020/21 (pandemic) were different those between 2014 and 2017 (pre-pandemic) (see Fig. 2 or Table A2 in the online appendix). All models include time-dependent control variables to make sure our results are not due to confounders. Descriptive statistics on explanatory variables can be found in Table A3 and Table A4 in the online appendix. To create figures and tables, Stata 17 was used.



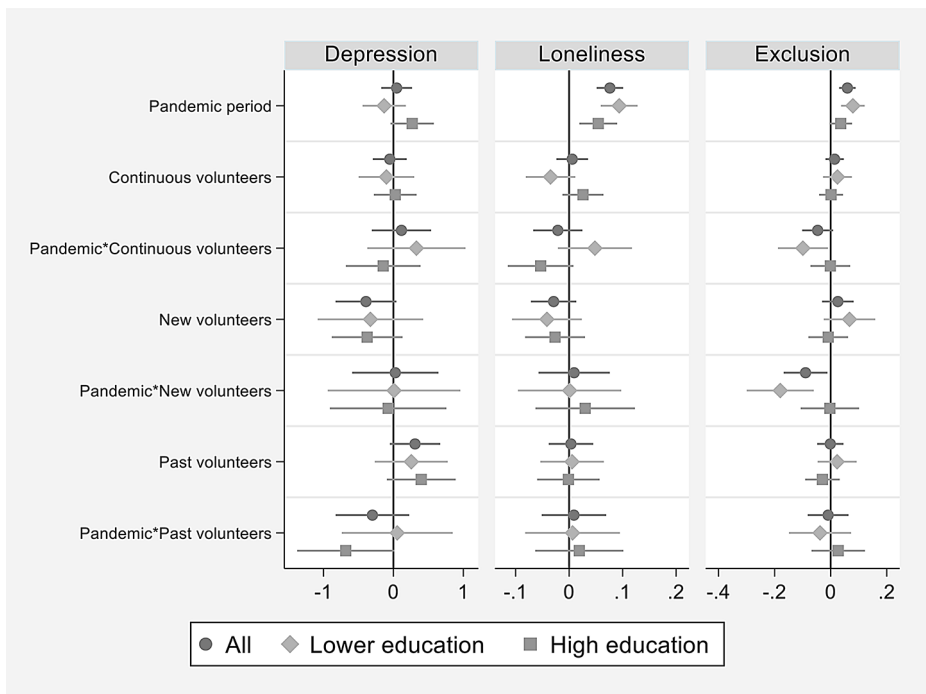
**Fig. 1** Pandemic Changes in Well-Being Outcomes. Source: German Ageing Survey (DEAS), 2014–2020/21, b coefficients, 90% confidence intervals. Note: Displayed is the effect for the pandemic period vs. the non-pandemic period. Controlled for non-employment/employment (dummy), single/partnered (dummy), number of household members, and disability status. The coefficient plot shows results derived from Model 1, displayed in Table A1 incl. control variables in the online appendix

## 4 Results

### 4.1 Pandemic Changes in Well-Being Outcomes

To begin with, we analyze whether there have been pandemic-related changes in well-being outcomes for the whole sample as well as individuals with lower and high education. To do so, we use a period indicator where 1 represents the period between 2017 and 2020/21 (first differences occurring during the pandemic) and 0 represents the period between 2014 and 2017 (pre-pandemic changes). The results on pandemic *changes* in well-being indicators are shown in Fig. 1 (see also Table A1 in the online appendix). Additionally, we provide information on the *levels* of well-being indicators for the years 2014, 2017 and 2020/21 in Table A5 in the online appendix.

Figure 1 indicates that there were no overall pandemic-specific changes in depressive symptoms compared to the pre-pandemic time. Yet, an increase in the levels of loneliness and perceived social exclusion can be observed during the pandemic compared to before. In case of loneliness, there was an increase in the pandemic compared to prior to the pandemic for the whole sample by 0.07 scale points ( $p < 0.00$ ) on a scale ranging from 1 to 4; changes in loneliness were more pronounced for people with lower education (0.10 scale points;  $p < 0.00$ ) than for those with high education (0.05 scale points;  $p < 0.01$ ); the difference of



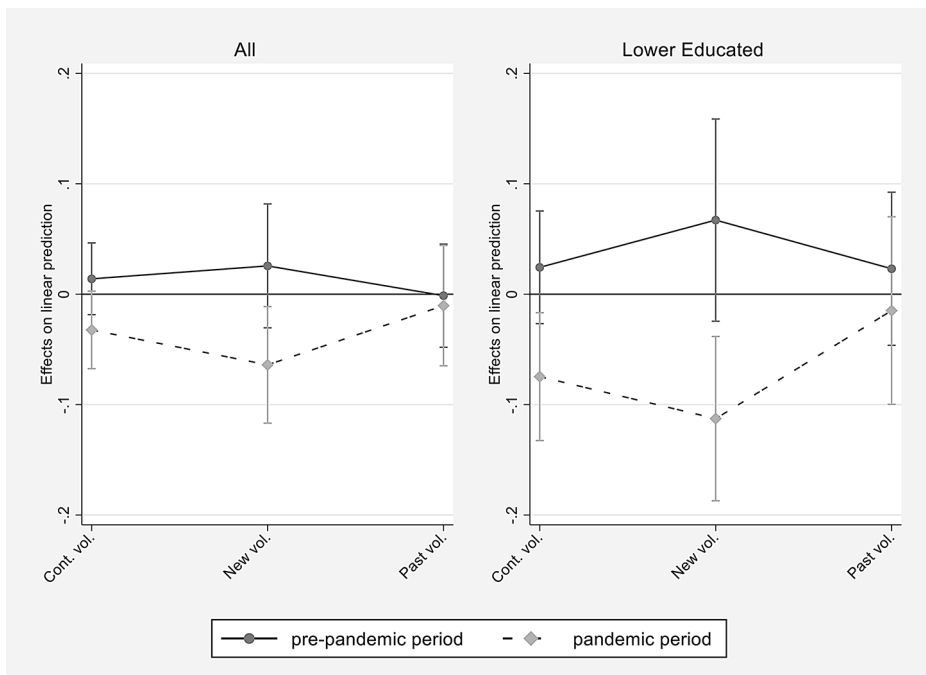
**Fig. 2** Volunteer groups and pandemic changes in well-being outcomes. Source: German Ageing Survey (DEAS), 2014–2020/21, b coefficients, 90% confidence intervals. Note: Controlled for non-employment/employment (dummy), single/partnered (dummy), number of household members, and disability status. The coefficient plot shows results derived from Model 2, displayed in Table A2 incl. control variables in the online appendix

0.05 scale points between the two education groups is statistically significant ( $p < 0.05$ ; tested using seemingly unrelated estimators). Turning to perceived social exclusion, there is an overall increase by 0.05 scale points ( $p < 0.00$ ) on a scale ranging from 1 to 4 in the pandemic compared to before. Similar changes can be observed among the two education groups under study with 0.05 scale points ( $p < 0.05$ ) for lower educated and 0.04 scale points for high educated ( $p < 0.05$ ). There are no statistically significant differences between the lower and high educated group.

#### 4.2 Volunteer Groups and Pandemic Changes in Well-Being Outcomes

In Fig. 2, we further introduce variables on volunteer status (continuous volunteers, new volunteers, past volunteers, non-volunteers (reference category)) and interaction terms between the period indicator and volunteer status. It is noteworthy that the pandemic-specific changes in well-being outcomes based on period indicators - which now indicate period effects for non-volunteers (the reference group) - are very similar to pandemic-specific changes in Fig. 1 with the exception that the increase in perceived social exclusion in the pandemic among higher educated individuals is not statistically significant among non-volunteers.

Turning to the findings on volunteer groups, we do not find any significant differences in depressive symptoms or loneliness based on volunteer status before or during the pandemic



**Fig. 3** Pre- and pandemic changes in perceived social exclusion among volunteer groups compared to non-volunteers. Source: German Ageing Survey (DEAS), 2014–2020/21, AME, 90% confidence intervals. Note Controlled for non-employment/employment (dummy), single/partnered (dummy), number of household members, and disability status

(see also Figure A1 and Figure A2 in the online appendix). However, significant effects are found for perceived social exclusion. In the overall sample, there is suggestive evidence that starting volunteering during the pandemic is associated with feeling less socially excluded ( $-0.08$  scale points;  $p < 0.1$ ). While there are no significant effects for highly educated individuals, lower educated individuals who started ( $-0.17$  scale points;  $p < 0.05$ ) or continued ( $-0.09$  scale points;  $p < 0.1$ ) volunteering during the pandemic felt less socially excluded; these effects were not observed prior to the pandemic. In terms of effect size, volunteer status mattered more for social exclusion than all control variables in the model. All models and results of control variables can be found in the online appendix, Table A1 and Table A2.

As we observe differences in social exclusion for both the overall sample and the lower education group, we examine these findings more closely in Fig. 3, which provides a detailed look at pre-pandemic and pandemic changes in perceived social exclusion among volunteer groups compared to non-volunteers (for results on all groups see Figure A3 in the online appendix)<sup>3</sup>. To do this, we calculate average marginal effects by period. First, when comparing continuous, new, and past volunteers to non-volunteers (represented by the zero line), we find that volunteer groups from both the full sample and the lower education group

<sup>3</sup> Additionally, Figures A1 and A2 in the online appendix present the average marginal effects for pre-pandemic and pandemic changes in depressive symptoms and loneliness among volunteer groups compared to non-volunteers. These figures indicate that volunteer groups did not differ from non-volunteers in their levels of depressive symptoms and loneliness either before or during the pandemic.

did not show differences in levels of perceived social exclusion relative to non-volunteers before the pandemic. However, during the pandemic, we observe a decrease in perceived social exclusion for new volunteers in the overall sample relative to non-volunteers, and for continuous and new volunteers in the lower education group. Furthermore, the differences in social exclusion between these groups and non-volunteers became more pronounced during the pandemic, suggesting that volunteer status played a greater buffering role in protecting individuals from social exclusion compared to before pandemic.

## 5 Summary and Discussion

Drawing from previous research indicating a buffering effect of volunteering on well-being, our aim was to examine how this buffering effect has changed in the wake of the second wave of the COVID-19 pandemic. Given that volunteering may offer greater benefits to individuals from disadvantaged social backgrounds (McGarvey et al., 2019), we focused on differences between those with lower and high education levels. For the analyses, we utilized three survey waves (2014, 2017 and 2020/21) from the German Ageing Survey (DEAS) and conducted linear first-difference regressions.

In our study, we confirmed findings from previous research indicating that well-being was impaired not only in the first, but also in the second stage of the pandemic, with increased levels of loneliness and perceived social exclusion (Huxhold & Tesch-Römer, 2023; Kasar & Karaman, 2021). Focusing on the question whether there was a buffering effect of volunteering on well-being, we found that being a continuing, new or past volunteer during the pandemic did not buffer the levels of depression or loneliness. However, we found a buffering effect of volunteering on perceived social exclusion during the pandemic: For lower-educated individuals, starting and continuing volunteering during the pandemic was linked to feeling less socially excluded. Starting volunteering was also positively associated with well-being in the overall sample. In terms of effect sizes, volunteer status was the most relevant independent variable in this model.

Interestingly, before the pandemic, volunteering had no significant association with any of the well-being indicators observed. Volunteer status was not associated with well-being overall or within education groups. While some of the previous research suggested a positive link of volunteering with well-being before the pandemic (Meier & Stutzer, 2008; Richardson et al., 2023), others found this association to be relatively weak (Lühr et al., 2022; Pavlova & Lühr, 2023). For example, Pavlova and Lühr (2023) showed that volunteering in Germany had a weaker positive association on eudaimonic and social well-being compared to other countries. This weaker association is related to Germany's moderate levels of participation and institutional support (Plagnol & Huppert, 2010; Vega-Tinoco et al., 2022), in contrast to countries where volunteering is less common and the well-being benefits tend to be stronger, possibly because volunteers feel more needed and valued (Hansen et al., 2018; Vega-Tinoco et al., 2022).

These findings suggest that the assumption of H1.1 (*compared to non-volunteers, volunteers were more likely to show higher levels of well-being in the pandemic than prior to the pandemic. Thereby, continuous volunteers have benefited the most, followed by new volunteers and then past volunteers*) appears to hold true, rather than the assumption of H1.2 (*volunteer groups may have experienced fewer or no benefits from their voluntary activity*).

for their well-being compared to the pre-pandemic time). However, there are considerable limitations for confirming H1.1. Firstly, volunteers were more likely to show higher levels of well-being in the pandemic than prior to the pandemic, but only with respect to one indicator (perceived social exclusion) but not the others (depressive symptoms and loneliness). Secondly, opposed to what we hypothesized, new volunteers have benefited the most and not the group of continuous volunteers. Previous studies have indicated that volunteering requires some time to unfold effects on well-being (Hong et al., 2009; Kleiner et al., 2022; van Ingen & Kalmijn, 2010). In the context of COVID-19, forming new connections seemed to become increasingly important, potentially contributing significantly to feelings of social integration. Furthermore, individuals who initiated volunteering during the pandemic may have experienced a sense of connection due to shared circumstances.

Similarly, H2.1 (*individuals with lower education levels derived higher levels of protection from volunteering on their well-being during the COVID-19 pandemic than prior to the pandemic. Thereby, continuous volunteers with lower levels of education have benefited the most, followed by new volunteers and then by past volunteers compared to the group of non-volunteers*) appears to be applicable rather than H2.2 (*volunteer groups with lower levels of education may have experienced fewer or no benefits from their voluntary activity for their well-being compared to pre-pandemic times*). Here as well, H2.1 can be confirmed only with respect to one out of three well-being indicators (perceived social exclusion) and there is a limitation that, contrary to what we had expected, among the lower educated, new volunteers benefited more than continuous volunteers and past volunteers did not differ from non-volunteers. Access barriers to volunteering among those with lower education levels (Lawton & Watt, 2019; McGarvey et al., 2019) may explain why individuals who start volunteering experience more immediate benefits, as they encounter new opportunities.

The results support the notion that volunteering during the second wave of the pandemic was more beneficial for well-being than before. This finding is partially consistent with previous research on “crisis volunteering” (e.g., after events such as earthquakes or floods), which suggests that a crisis can foster social identities (Gray et al., 2022), which are known to be important psychological resources that enhance and protect well-being (Jetten et al., 2014; Nissen et al., 2023). However, previous research, especially on the COVID-19 crisis, has yielded mixed results, highlighting both positive and negative aspects of volunteering on well-being (Gray et al., 2022; Grotz et al., 2020; Luksyte et al., 2021; Mao et al., 2021). Further studies analyzing long-term effects are needed to fully understand the impact of the pandemic.

Furthermore, while this study finds no general increase of depressive symptoms in the pandemic, it does identify increased levels of loneliness and perceived social exclusion in the pandemic. However, while the pandemic effect on loneliness did not differ between volunteer and non-volunteer groups, starting to volunteer during the pandemic protected people with lower levels of education against heightened feelings of social exclusion. This may be because social exclusion is more likely to be related to a lack of weak ties, whereas loneliness is more likely to be related to a lack of both strong and weak ties (Huxhold et al. 2022a). Perceived social exclusion involves a sense of disconnection from society at a broader level, whereas loneliness arises when existing social ties at a personal level are perceived as inadequate, either in quantity or quality. Thus, weak ties appear to be crucial in preventing perceived social exclusion, while strong ties may be more important in combating loneliness.



This study is not without limitations. Firstly, there are three-years gaps between the survey waves, and information only available for the second wave of the pandemic and not the first. Thus, we cannot trace possible changes between the survey waves. Secondly, although individuals indicated being volunteers during the pandemic, our focus on long-term, membership-bound volunteering means that some respondents may have reported being volunteers even if they were not actively volunteering during the second lockdown. However, a study using the same data showed that the number of hours people reported contributing weekly to volunteering did not change when comparing pre-pandemic and pandemic periods (Simonson & Kelle, 2023). Analyses based on future survey waves will reveal whether volunteering decreased. Thirdly, this study does not differentiate between different intensities of volunteering or the number of voluntary activities (Matthews & Nazroo, 2021). While research suggests that the buffering effect may vary depending on the intensity of volunteering (Bjälkebring et al., 2021), it has also been shown that even individuals engaging in minimal volunteering activities experience better mental well-being compared to those who are not involved at all (Hansen et al., 2018; Tabassum et al., 2016). Nevertheless, given that very extensive volunteering may potentially defer well-being, this area warrants further research. Finally, although the study focuses on mid- and later-life stages to examine the buffering effect of volunteering, the age range within these stages remains broad. Future research should consider examining these effects across distinct life stages to provide a more nuanced understanding of how the effects of volunteering may differ throughout the life course.

## 6 Conclusion

In times of crisis, volunteering seems to be a relevant factor in promoting a sense of social inclusion. This finding underscores the importance of weak social ties and highlights the need to maintain and strengthen these ties, particularly during crises, through volunteering initiatives. Policies should take lessons from current and past crises to effectively support and encourage volunteering opportunities.

Moreover, while individuals with lower levels of education are significantly less likely to engage in volunteering than those with higher education levels (Lawton & Watt, 2019), they appear to benefit the most from volunteering. This suggests that volunteering initiatives and efforts may be important to promote more inclusive and accessible opportunities for individuals from diverse socio-economic backgrounds, to prevent social structures of inequality from being reproduced in volunteering. Furthermore, tailored support mechanisms aimed at promoting volunteering among socially disadvantaged groups may have the potential to enhance well-being in times of crisis and potentially in general. However, to strengthen these conclusions, further research focusing on the pandemic period is necessary to establish causality between volunteering and well-being.

Furthermore, as the study shows that the buffering effect of volunteering does not extend to all aspects of well-being, further research is needed to understand, for example, what alleviates feelings of loneliness instead. Additionally, to understand the long-term impact of the pandemic, longitudinal studies are needed to examine changes in volunteering behavior and well-being before, during and after the pandemic.

**Supplementary Information** The online version contains supplementary material available at <https://doi.org/10.1007/s11205-025-03566-1>.

**Funding** Open Access funding enabled and organized by Projekt DEAL.

**Data Availability** Data from completed waves of the German Ageing Survey are available for the scientific community free of charge. However, for reasons of data protection, signing a data distribution contract is required before data can be obtained (see <https://www.dza.de/en/research/fdz/german-ageing-survey/access-to-deas-data>).

## Declarations

**Conflict of Interest** No potential conflict of interest was reported by the authors.

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