

**A State-of-the-Art Review of the Socioecological Correlates of  
Volunteerism among Older Adults**

## **Abstract**

The health and social benefits of volunteering behaviors by older adults are well acknowledged. However, few review articles were concerned with the correlates/dimensions of older adults' volunteerism. Some focused only on the North American context or reviewed studies only through 2008. This study reviewed the recent global literature in the past decade about the correlates of older adults' volunteerism. We carried out a literature search in PsycINFO, Social Services Abstracts, Sociological Abstracts, and Google Scholar to identify empirical journal publications about the correlates of older adults' (age 60+) volunteerism from 2008 to 2019. Among 112 initially eligible papers, 41 were selected. Findings were synthesized using the framework of the Socioecological Model. Existing studies mainly have used quantitative methodologies and were conducted within the context of a single Western country. Motivations included higher education, morale and mentality, previous experiences, social network, community cohesion, and organizational management. Major barriers were health and financial constraints. Few studies focused on macro-level correlates. Irrelevant and confounding correlates were also discussed. We suggest practitioners recruit and retain older volunteers by identifying their needs and optimizing management within the organization. Policymakers should create a supportive environment and increase resource accessibility. Future research could conduct cross-cultural comparisons, use diverse methodologies, and embrace more correlates especially at the macro level.

*Keywords:* volunteer, state-of-the-art review, Socioecological Model, motivation and barriers, older adults

## Introduction

Volunteerism in later life is a common phenomenon around the world. In the United States, according to the Bureau of Labor Statistics, over 42% of American older adults aged above 55 volunteered in 2016 (Bureau of Labor Statistics, 2018). In contrast, in 2016, the participation rate of older adults aged above 50 in 12 European countries varied greatly from 12% to 47% (Hansen et al. 2018); and older adults (50+) accounted for 9% of the total volunteers in Korea (Lee and Yeung 2019). Volunteering has been suggested to benefit older adults' health and well-being. Volunteerism is associated with lower morbidity rate, reduced mortality risk, better functioning health, fewer depressive symptoms, and higher life satisfaction (Anderson et al., 2014; Gottlieb and Gillespie, 2008; Okun, Yeung, and Brown, 2013; Onyx and Warburton, 2003). In addition, volunteers also benefit the organizations by saving labor costs, improving service provisions, promoting community relations and public support, among others (Handy and Mook, 2011).

However, the causal mechanism of volunteerism affecting older adults' health remains inconclusive (Jenkinson et al., 2013). For examples, Anderson et al. (2014) suggested a beneficial health effect was caused by the host of biopsychological mechanisms and improved physical, social, and cognitive functioning. Gottlieb and Gillespie (2008) argued that the health and morale of older volunteers improved because they felt they were valued and needed by helping others. Besides, the social capital of older volunteers was bolstered through the social interaction process during volunteering activity (Onyx and Warburton, 2003). Wheeler, Gorey, and Greenblatt (1998) suggested that not only did older volunteers' well-being improve, but the people they served also reported better scores in functional and mental health measures.

Despite the well-acknowledged benefits of volunteerism (e.g., Anderson et al., 2014; Gottlieb and Gillespie, 2008), fewer review articles have focused on the factors correlating

with or influencing older adults' volunteering behaviour. In other words, what are the motivation and barriers of older peoples' engagement in volunteering activities? This study is framed from the integrative perspective driven by the Socioecological Model, a well-developed and commonly-used theory in aging studies (Bengtson and Settersten, 2016). The Socioecological Model suggests individuals are embedded in their surrounding environment and therefore are affected by the contexts of community/organization and socio-political levels (Bengtson and Settersten, 2016). Using the person-in-environment and multilevel approach, the Socioecological Model considers that individuals' value and behaviour are determined not only by their intrapersonal characteristics, but also are shaped by their interaction with social environments, including interpersonal, institutional, organizational, community level, and structural characteristics (Bengtson and Settersten, 2016). Correspondingly, we divided the correlates and impact factors of volunteerism into three levels.

At the individual level, the motivations can be functional, particularly identified as enhancement, values, and social functions (Dunn, Chambers, and Hyde, 2016). At the organization level, variables like management practices and instruments, organizational attitudes and dedication, and volunteers' action space and coordination played important roles (Studer and Von Schnurbein, 2013). At the macro level, policy support and advocacy also facilitated the volunteering environment (Smith and Cordery, 2010). Therefore, the Socioecological Model can direct this study to consider the motivation and barriers of older adults' volunteerism from an integrative and multilevel perspective. This study did not use Continuity Theory and Socioemotional Selectivity, two of the most commonly-used psychological theories, to explain why people volunteer in existing studies because it is narrowly focused on individuals' psychological traits and would not be able to consider impactful variables beyond the individual level.

Considering the unique features of older adults (e.g., age-associated health, retirement status), the motivations and barriers for older adults to volunteer could be different from those of the younger population such as working young and middle-aged adults. Fewer review articles have focused on older adult volunteers. Among them, some concerned only older adults living in Western countries. For examples, Gottlieb and Gillespie (2008) briefly reviewed the characteristics and motives of older volunteers living in North America. Sellon (2014) discussed the recruiting and retaining of older American volunteers by reviewing publications from 2006 to 2014. Petriwskyj and Warburton (2007) performed a critical review about motivation for and barriers to older adults' volunteering using publications from 1996-2006. Principi, Chiatti, Lamura, and Frerichs (2012) systematically reviewed the studies about older adults' volunteering behaviour published from 1999 to 2008. These review articles were concerned with empirical studies conducted a decade ago. New empirical articles have flourished in the past decade and might have new inspirational findings. A new review concerning globe-wide and more current research is warranted to update our view about the motivation and barriers of older adults' volunteerism around the world.

This article aims to help understand the correlates of older adults' volunteerism by picking up on the reviewing efforts of Petriwskyj and Warburton (2007) and Principi et al. (2012) and reviewing the most current empirical studies published from 2008 to 2019. It also expands the literature review to international studies rather than focusing on the U.S. alone or North America (Gottlieb and Gillespie, 2008; Sellon, 2014). This analysis is driven by the following questions: (1) What is known, unknown, and uncertain about the correlates of older adults' volunteerism from the most recent literature? (2) What recommendations can be drawn for practice, policy, and future studies based on the findings in current studies? This study was not designed to provide an exhaustive and retrospective overview of the volunteerism literature on older adults, but addressed more current matters (Grant and Booth,

2009). Results will update the evidence-based findings of what motives or hinders the older adults' volunteering activity, and provide the state-of-the-art implications for professional practitioners, policymakers, and researchers.

## Method

The review process followed the guidelines for conducting a systematic review developed by Peters et al. (2015) and was formatted based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement proposed by Moher, Liberati, Tetzlaff, and Altman in 2009.

### Eligibility Criteria

Studies were included initially if they met the following criteria:

1. Research constructs were the volunteerism of older adults aged 60 and above<sup>1</sup>.
2. Studies were published in peer-reviewed English-language journals from 2008-2019<sup>2</sup>.
3. Studies used empirical evidence, including quantitative, qualitative, mixed methodology, and experimental design studies.

Studies were excluded if:

1. Study objects were general people, such as young adults aged 18-60. Patients were excluded due to the potential effect of their health status on their volunteering behavior, but residents living in facilities without functional disability were included.
2. Studies were not research articles, including review articles, theoretical development, policy analysis without empirical evidence, meta-analysis, or commentary.

### Information Sources

Studies were searched and retrieved from three major academic databases in social and behavioral science disciplines: PsycINFO, Social Services Abstracts, and Sociological Abstracts. Google Scholar was further searched to include more multidisciplinary studies.

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<sup>1</sup> Many current studies on older adults' volunteerism concerned people aged at least 50. However, this study defined older adults to be people aged 60 and above.

<sup>2</sup> The literature search was conducted in February, 2019. Thus the studies were defined to be published between Jan, 2008 and Feb, 2019.

## **Search Strategy**

To include as many eligible studies as possible, the following search terms were used: ab("older adult\*" OR "senior\*" OR "elderly" OR "older people") AND ab("volunteer\*" OR "civic participation" OR "civic engagement") AND ("factor\*" OR "barrier\*" OR "motivation" OR "predictor\*"). The same search strategy was applied to four databases equivalently.

## **Study Selection**

Based on the search results of the four databases, two researchers independently reviewed the title and keywords of all initially included studies. These two researchers are both senior doctoral students in the Gerontology program in a major U.S. university. Both of them have received trainings in social science research methodology and the study of gerontology, which make them qualified for conducting systematic review research. Studies whose title and/or keywords included both “older adult” and “volunteer” were screened in for the second phase of review. If there were not sufficient keywords, the abstract would be reviewed to help decide if the study was relevant. In the second phase of the review, two authors independently reviewed the abstracts and excluded the ineligible studies. Finally, studies meeting all inclusion criteria were included in the full-text review.

## **Data Collection**

For each selected study, information was collected about the authors, country, setting, study population, theoretical models, methodology, and predictor and outcome variables. The setting was concerned with the type of volunteer activity or organization. Formal volunteering refers to the activity conducted in a formal setting, such as religious, educational, medical, or community organizations. Informal volunteering refers to the activity conducted in an informal setting such as caregiving for family members or helping neighbours. Detailed descriptive statistics of the study population were collected, including the number of



respondents, age eligibility, number/proportion of males, and mean and standard deviation of age. Which theoretical models were used to direct the empirical study was also identified for each study, and methodology and variables were identified. Two of the authors of this article reviewed the information many times to reduce entry error. We did not collect the effect size of findings nor assess the study quality, considering that not all the selected studies employed quantitative methods and the studies were conducted in various settings.

### **Synthesis of results**

First, we divided the correlates into four categories: incentive/motivation, obstructive/barrier, irrelevant/insignificant, and confounding/mixed variables. The Socioecological Model was employed to guide the synthesizing process of organizing findings from all selected studies. This integrated model can help researchers identify correlates/impact variables comprehensively. Accordingly, this study identified and synthesized the results into three levels: micro-level (e.g., individual, family), meso-level (e.g., community, organization), and macro-level (e.g., policy, culture).

### **Risk of bias**

Bias in this study could come from the process and assessment of researchers in selecting studies and synthesizing results. When including and excluding the studies based on the inclusion/exclusion criteria, two independent researchers might make different decisions due to their understanding of the concepts employed in the studies. The researchers also had disagreements about proper categorization of the findings according to the Socioecological Model. The researchers discussed such situations thoroughly and set up screening and coding agreements. Cohen's Kappa coefficient was computed to examine the degree of agreement between two researchers' judgment on assigning various correlates into different categories of the Socioecological Model (McHugh, 2012). There was high agreement between the two researchers' judgements, with kappa = 0.825 (95% CI: 0.693 to 0.957,  $p < 0.001$ ).

## Results

### Characteristics of selected studies

Figure 1 shows the process and results of the search. The majority of studies were excluded because of a mismatch to the research topics, leaving 112 relevant studies. The abstracts of these studies were then reviewed to see if they met the inclusion criteria. In the stage of abstract review, 71 out of 112 studies were excluded mostly because they were not concerned with older adults aged at least 60 or did not use empirical evidence. Some were excluded because they studied non-human subjects such as policies and volunteer programs. Finally, 41 studies were included in the stage of full-text review.

[Figure 1 is about here.]

[Table 1 is about here.]

Table 1 shows the descriptive information of all 41 studies, of which 19 (46.34%) were concerned with American older volunteers and one-third were conducted in European countries. Thus the majority of publications in the past decade were centered on the Western perspective. None were cross-national comparative studies. The settings were ambiguous in some studies, without specifying the type of volunteering organization or work. Some studies did not distinguish formal and informal settings. The study population was diverse. Twelve studies did not use theory, although Continuity Theory and Socioemotional Selectivity Theory were the two most commonly-used theories to explain older adults' volunteering from the psychological perspective (e.g., Donnelly and Hinterlong, 2009). Regarding methodology, the majority (69.05%) were quantitative studies (Figure 1). Among all 29 quantitative studies, 18 used cross-sectional data. The most common correlates or predictors were socioeconomic

status (SES), health, social capital, and religious/spiritual measures. The outcome variables were about the participatory status or experiences of older adults' volunteering.

[Table 2 is about here.]

### **Motivations to volunteer**

Table 2 shows the correlates of older adults' volunteerism framed in the Socioecological Model. Most studies were concerned with the motivation of older volunteers. At the micro level, which refers to the individual and family, higher SES, especially higher education, was strongly associated with older adults' volunteering behaviours (e.g., Cramm and Nieboer, 2015; Sabbath et al., 2016; Tang, 2008). This relationship was verified in different volunteering settings such as long-term care (Leedahl et al., 2017) and religious organization (Myers et al., 2013). Older adults with higher education were not only more likely to start volunteering (Van Groenou and Deeg, 2010), but also less likely to stop volunteering (Okun et al., 2016). However, the correlate of higher education was confounded among older Chinese volunteers. Lin (2017) reported a positive association, which is consistent with the majority of studies, while Li et al. (2010) found Chinese community-dwelling older adults with primary school education were more likely to volunteer compared to their counterparts with a college education.

Personality traits are important in providing the incentive to volunteer. Characteristics like altruism, generativity, and risk-orientation, sense of self-control, resilience, and belief that volunteer work is valuable, interesting, and pleasant were identified as incentives (Dury et al., 2015; Grano et al., 2008; Heist et al., 2019; Yamashita et al., 2019). Morale and mentality also mattered. Older volunteers described their choices and behaviours to be driven by a sense of responsibility, unfinished business, a "calling," positive perception of aging,

and the needs to improve their mental well-being (Grano et al., 2008; Kruse and Schmitt, 2015; Leedahl et al., 2017; Lorentzen et al., 2014; Withall et al., 2018; Yamashita et al., 2019). Previous experience was also an important correlate. Individuals who enjoyed the sense of satisfaction and achievement (Okun et al., 2016) and had built connections with others in previous volunteering activity (Varma et al., 2015) were more likely to volunteer again and re-experience the feelings of belonging and personal satisfaction.

Four main categories emerged at the meso-level of community and organization environment or context. First, a strong social network played a role in volunteering intention by encouraging people to expand their social network (Lin, 2017; Yamashita et al., 2019) and supporting them via the existing network (Dury et al., 2015; Fukuzawa et al., 2019; Kruse and Schmitt, 2015). Older adults could be invited by their network members to volunteer (Withall et al., 2018), or felt they were being supportive of their network by volunteering (Lorentzen et al., 2014). Dury, De Donder, et al. (2016) suggested that volunteering activity was highly correlated with other types of leisure and cultural activity because of older adults' strong social network. Second, from a broader perspective, the sense of community, the availability and accessibility of resources (such as various volunteer organizations and affordable public transportation), and the environment of the community were also important correlates. Living in a connected, safe, and resourceful community was associated with a higher rate of volunteering (Dury, Willems, et al., 2016; Hales, 2012; Kang, 2013; Parkinson et al., 2010; Yamashita et al., 2019).

Third, from the organizational perspective, management and work environment were critical. Older volunteers could be motivated by flexible and reasonable time arrangements (Martinez et al., 2011) and the connection with clients and organization (Celdrán et al., 2018). Providing support and training to volunteers could help them adapt to the new environment (Krause, 2015; Warburton and McDonald, 2009; Warner et al., 2014). Fourth, it was

beneficial if the staff respected the volunteers' autonomy and created a safe and non-hostile work environment within the organization (Ramsey et al., 2016; Warburton and McDonald, 2009).

Regarding macro-level incentives, only three studies discussed the relationship of the physical-social environment with older adults' volunteerism (Dury, Willems, et al., 2016; Park et al., 2017; Li et al., 2010). For example, Li et al. (2010) found the early retirement policy in China (age 55 for women and age 60 for men) gave older Chinese more time to volunteer. Positive perceptions by volunteers of support from policy and the social environment help motivate older adults to volunteer, but the specific mechanism was not identified in the selected studies.

### **Barriers to volunteer activity**

Studies have identified some distinctive features of correlates that obstruct volunteer activity. At the individual level, most studies showed that older adults were less likely to volunteer owing to health and financial issues (e.g., Cocca-Bates and Neal-Boylan, 2011; Hales, 2012; Leedahl et al., 2017; Li et al., 2010; Resnick et al., 2013; Serrat et al., 2017; Van Groenou and Deeg, 2010). Physical limitations, mental disorders, and financial constraints hindered them from going out to volunteer. In the American context, minority groups also reported a lower volunteer participation rate than Caucasians probably because they had less human and social capital (Cramm and Nieboer, 2015; Tang et al., 2012). Other studies have indicated that people with less socio-political capital were less likely to volunteer (Li et al., 2010; Parkinson et al., 2010). People who lack confidence and interest, are self-ageist, or feel excluded also declined to volunteer (Cocca-Bates and Neal-Boylan, 2011; Pettigrew et al., 2018; Withall et al., 2018).

In addition, older volunteers who had negative experiences in volunteering such as unsuccessful outcomes (Celdrán et al., 2018) and felt less valued (Serrat et al., 2017) would

be discouraged to volunteer again (Martinez et al., 2011). Conflict with family members also discouraged older adults' volunteerism (Withall et al., 2018). Older adults who need to balance their time between caregiving and work responsibilities (Myers et al., 2013) were unable to commit sufficient time to volunteering (Lee et al., 2008; Resnick et al., 2013; Serrat et al., 2017). Some older adults prioritized the intermediate network centered on family members and preferred informal volunteering such as caregiving for their family (Dávila, 2018; Pettigrew et al., 2018).

Barriers at the meso-level mainly resulted from management and work environment within the volunteer organization. Some older adults could not volunteer because they could not get information due to their weak media usage and network (Cocca-Bates and Neal-Boylan, 2011; Hales, 2012; Kang, 2013; Lee et al., 2008). During the volunteer activity, it could be demotivating if older adults felt being devalued and were assigned to tasks that did not fit their abilities (Varma et al., 2015). Furthermore, disordered institutional management could reduce older adults' intent to volunteer. Older volunteers who felt they have been discriminated against based on their age (Warburton and McDonald, 2009), being disrespected for their knowledge or skills (Cocca-Bates and Neal-Boylan, 2011), and lacking institutional opportunity (Kruse and Schmitt, 2015) are more likely to quit. Policy constraints on licenses such as nursing also hinder older adults from performing skilled volunteer work (Cocca-Bates and Neal-Boylan, 2011). Inaccessibility to public transportation and feeling unsafe in the city also were identified as major obstacles to older people's volunteering (e.g., Hales, 2012; Martinez et al., 2011).

### **Irrelevant and confounding correlates**

While most studies were concerned with motivation and barriers to volunteering, some have found irrelevant and confounding correlates. For example, Heist et al. (2019) suggested individualism was an insignificant predictor and Krause (2015) indicated

compassion for strangers had modest effect, implying some personality traits were irrelevant to older adults' volunteerism. Van Groenou and Deeg (2010) found the employment rate did not predict differences between cohorts of older adults. Many studies found that religiosity was not a significant predictor of older adults' volunteerism (Dury et al., 2015; Heist et al., 2019; Krause, 2015; Li et al., 2010; Okun et al., 2014). More broadly, the length of time living in the neighborhood, staff members' perceptions of the organizational environment, and objective municipality features did not push or pull older adults to volunteer (Dury, Willems, et al., 2016; Ramsey et al., 2016).

Regarding the confounding variables, the majority of the selected studies were focused on the individual level. First, studies conducted in various countries showed the mixed role of gender in volunteerism. For examples, Van Groenou and Deeg (2010) found Dutch women were more likely to engage in religious volunteering while Sabbath et al. (2016) suggested French men are more likely to volunteer, yet Lin (2017) indicated no gender difference in community participation among Chinese older adults. The ambiguity also occurred when comparing participation rates between younger and older cohorts. Many studies have found younger adults were more likely to volunteer (e.g., Leedahl et al., 2017; Okun et al., 2016; Resnick et al., 2013) while Sabbath et al. (2016) reported no association between age and civic participation. Lin (2017) indicated younger age groups were more likely to volunteer in rural China but not in urban China.

Another heated debate was over the association of marital status with volunteering. Butrica et al. (2009) suggested older volunteers were more likely to start and less likely to quit volunteering when their spouses were also volunteers. Donnelly and Hinterlong (2009) suggested widowhood was positively associated with volunteering because widowers had more time. However, Van Groenou and Deeg (2010) considered that the effects of divorce were two-sided: it increased the likelihood of cultural and recreational activities while

diminishing social network activity. Li et al. (2010) did not find a significant relationship of volunteering with marital status. The role of homeownership was also mixed—Dury, Willems, et al. (2016) suggested a positive association of homeownership with volunteering while Kang (2013) demonstrated an insignificant correlation. Finally, Dury, Willems, et al. (2016) indicated cross-cultural variation in older adults' intention to volunteer, whereas the norm in Eastern Asian countries was that wealthy older people were less willing to volunteer. However, the confounding role of social norm needs more empirical evidence.

## **Discussion**

### **Summary of results**

This state-of-the-art review updated the empirical evidence about the correlates of older adults' volunteerism in the past decade and expanded the academic views to globe-wide studies on volunteering in older age. Compared to the traditional systematic review study, this review article did not have a retrospective component but focused on the current status of knowledge and aimed at providing implications for future research (Grant and Booth 2009). We included 41 studies published from 2008 to 2019, of which more than half were concerned with countries outside North America. We found the majority of studies were conducted in Western countries and used quantitative methodology. Some were ambiguous about the setting of volunteering and did not use theories. Framing the results in the Socioecological Model, we synthesized the findings into three levels and categorized them into four dimensions. Studies consistently found that incentive correlates at the micro-level included better SES, altruistic and extravert personality traits, high morale and mentality, and good prior experience. Push factors at the meso-level came from a strong social network, sense of community, age-friendly environment in the community, and good management in the volunteering organization. Motivations to volunteer also increased when older people felt



supportive and satisfied with their physical-social environment at the macro-level. In contrast, obstructive correlates at the individual level, such as health limitations, financial constraints, being in a minority population, negative prior experience, and conflict with family and other responsibilities, reduced the likelihood of older adults volunteering. From the organizational perspective, poor management, ageist climate, and challenging nature of the work could also hinder older adults from volunteering. Restrictive policy and underdeveloped public transportation were obstructive at the macro-level. Some irrelevant correlates were also identified, such as individualistic personality, employment, religiosity, residential stability, and municipality features. Finally, the roles of gender, age, marital status, and homeownership were mixed in older adults' volunteering behavior.

### **Implications for practice and policy**

Considering the social and economic benefits of having older adults volunteering for organizations (Handy and Mook, 2011), efforts from organizations and practitioners are needed to strengthen the recruitment, management, and collaboration with older adult volunteers. The evidence from the literature in the past decade consistently supported the role of good health and higher SES in boosting older adults' volunteerism, similar to what previous systematic reviews have indicated (e.g., Principi et al., 2012). This implies the practitioners may need to make extra efforts to facilitate the way for older persons with poor health and disadvantaged SES to volunteer. Flexible strategies, such as providing positions demanding less physical functions and stipends to compensate for the costs of travel and meals, could alleviate the misgivings of potential volunteers. Therefore, organizational administrators may consider setting up special funds to sponsor volunteer activities.

In addition, when recruiting older adults, the practitioners should inspire them with the potential moral, social, and mental benefits of volunteering, or attract volunteers through their existing social networks. Organizations could establish a rewarding policy that

encourages volunteers to recruit their families/friends. To retain the volunteers, the organization must create a pleasant, respectful, and successful experience during the activity. Also, to alleviate conflict with job and family responsibilities, volunteering work should be flexible and reasonable (Sellon, 2014). To facilitate the interaction between practitioners and volunteers, a feedback system could be built so that volunteers can provide suggestions for the practitioners' work. Furthermore, the ability to recruit and retain volunteers could be considered as an indicator of job performance evaluations of the practitioners, which could encourage them to collaborate with older volunteers.

At the organization level, it is necessary to optimize management and work environment. Improving working conditions for older volunteers, such as expanding coverage of recruitment information and resolving work-related difficulties, can facilitate older adults' choice to initiate and sustain volunteering. Should the organization build a safe, respectful, ordered, connected, and supportive environment, older volunteers are more likely to commit to volunteering. Staff members also should receive training to be sensitive to older volunteers' needs and changes. Compared to correlates of volunteering for younger adults, the problems associated with ageism that hinder older adults' volunteerism stand out (Principi et al., 2012). Therefore, policy advancing the social environment for older adults is essential. Guidelines and regulations are needed to fight against ageism and create an age-equal environment. To motivate organizations to have older adults as volunteers, local government may also consider setting up a special fund to subsidize the volunteer activities in the organizations or a reward system that recognizes the organizations with outstanding experiences utilizing older volunteers. Other efforts could include creating platforms to disseminate the information and expanding public transportation available to more areas.

### **Concerns and implication for future research**

Even though these selected studies have shed some light on how to promote old adults' volunteerism, some nonnegligible concerns arise in this spectrum of studies. First, most settings were in the U.S. and other Western countries. More diverse perspectives from non-Western countries are needed. Similar to Principi et al.'s (2012) suggestion, future research should conduct comparative/cross-cultural studies. Second, current research efforts usually did not distinguish the type of volunteering or specify the setting of activity. Research efforts are needed to expand our knowledge about older adults' volunteering activity in various settings and compare the differences in which correlates are relevant to each setting. Third, the study population should be more diverse. There is room to focus on study subjects with diverse backgrounds such as the old-old, persons with low SES, or persons living in long-term care. It will also be interesting to compare the motivations for volunteering among different population groups, to provide suggestions for incentive strategies to be addressed by practitioners and policymakers.

Empirical research on volunteering among older adults can be informed by other disciplines such as management science to expand our understanding of the correlates of older adults' volunteerism. Considering that the majority of studies reviewed used cross-sectional quantitative methods, future studies are encouraged to use mixed methods and experimental design strategies. In addition, the selected studies frequently use the presence of volunteering as an outcome variable, but more complicated measures, such as the extent of volunteer participation, re-volunteering, or duration and cessation of volunteering, may be explored in future research. Petriwskyj and Warburton (2007) also called for the development of a valid and comprehensive scale to measure the motivation of and barriers to older adults' volunteerism.

Furthermore, there is a great need to resolve confounding correlates. Future empirical and theoretical research should be dedicated to unveiling the mechanism of how older adults

conceive of and act on their volunteering choices. Future research also should dive into the reciprocal relationship between the correlates and volunteerism. For example, how would the correlated variables such as social network mutually reinforce volunteering behavior? Finally, the major limitation of previous literature is the lack of correlates beyond the individual level. In particular, we know little about how the macro-level—i.e., policy, culture, and country-related variables—correlate with older adults' volunteerism. Future research may need to incorporate the older volunteers into a multilevel model and explore the social contextual effects underlying their participation.

### **Limitations**

This review article comes with limitations. At the review level, we might not have retrieved all the relevant studies, especially considering that we searched only the four major databases in social and behavioural science. We examined only the first 500 search results in Google Scholar and omitted many publications. At the study and outcome level, we also limited the studies published in the past decade and might have missed some important findings in “old” literature. We were not able to provide a retrospective review of all studies. We also excluded studies that set the age threshold of subjects to be 50; in this case, we missed the correlates of older adults aged above 60 nested within these studies' findings. Finally, the review was constrained to studies published in English, which leads in part to the dominant number of studies being conducted in Western countries. Thus, we might miss findings from studies not using English and that lacked evidence from non-native-English-speaking countries. The implications for practitioners and future research thus may be limited to the Western social and cultural context.

### **Conclusions**

Reviewing the more current publications in the past decade and including literature outside North America, this study endeavored to provide a state-of-the-art review of the socioecological correlates of older adults' (60+) volunteerism. Results found that motivations included higher SES, good prior experience, strong social network, sense of community, good management in the volunteering organization, and supportive physical-social environment. In contrast, barriers included health limitations, financial constraints, conflict with family and other responsibilities, ageist climate, and inaccessibility to public transportation, among others. Some irrelevant and confounding correlates were also identified and discussed. Accordingly, it is suggested that practitioners recruit and retain older volunteers by identifying their needs and optimizing management within their organizations. Organizational administrators should establish special funds to sponsor volunteer activities. Organizational policies such as building a feedback system to facilitate the interactions between older volunteers and practitioners, and incorporating the volunteer management as an indicator of practitioners' evaluation, are also recommended. Policymakers at the local government level (such as county) should create a supportive and respectful environment and increase resource accessibility to facilitate the volunteering experience. Local governments could also set up special fund and rewarding system to encourage organizations utilizing older volunteers. In addition, this study also recommends that future research conduct cross-cultural comparisons, use diverse methodologies, and embrace more correlates especially at the macro-level. Efforts are needed to facilitate and promote volunteerism among older adults, considering its benefits for older adults themselves and society more broadly.

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## References

- Anderson, N. D., Damianakis, T., Kröger, E., Wagner, L. M., Dawson, D. R., Binns, M. A., et al. (2014). The benefits associated with volunteering among seniors: a critical review and recommendations for future research. *Psychological bulletin*, **140**, 1505.
- Bengtson, V. L., and Settersten, R. A. (2016). *Handbook of Theories of Aging*. New York: Springer
- Bureau of Labor Statistics. (2018). Who chooses part-time work and why? Retrieved March 11, 2019, from <https://www.bls.gov/opub/mlr/2018/article/who-chooses-part-time-work-and-why.htm>
- Butrica, B. A., Johnson, R. W., and Zedlewski, S. R. (2009). Volunteer dynamics of older Americans. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, **64**, 644-655.
- Celdrán, M., Serrat, R., Villar, F., Pinazo, S., and Solé, C. (2018). The Experiences of Retired Managers Acting as Volunteers in an Entrepreneurial Mentoring Organization. *Journal of Population Ageing*, **11**, 67-81.
- Cocca-Bates, K. C., and Neal-Boylan, L. (2011). Retired RNs: perceptions of volunteering. *Geriatric Nursing*, **32**, 96-105.
- Cramm, J. M., and Nieboer, A. P. (2015). Background characteristics, resources and volunteering among older adults (aged  $\geq 70$  years) in the community: A longitudinal study. *Geriatrics & Gerontology International*, **15**, 1087-1095.
- Curl, A. L., Stowe, J. D., Cooney, T. M., and Proulx, C. M. (2014). Giving Up the Keys: How Driving Cessation Affects Engagement in Later Life. *The Gerontologist*, **54**, 423-433.
- Dávila, M. C. (2018). The relationship between social networks and volunteerism among seniors. *Journal of Social Service Research*, **44**, 38-49.

- Donnelly, E. A., and Hinterlong, J. E. (2009). Changes in social participation and volunteer activity among recently widowed older adults. *The Gerontologist*, **50**, 158-169.
- Dunn, J., Chambers, S. K., and Hyde, M. K. (2016). Systematic review of motives for episodic volunteering. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, **27**, 425-464.
- Dury, S., De Donder, L., De Witte, N., Brosens, D., Smetcoren, A.-S., Van Regenmortel, S., et al. (2016). Is volunteering in later life impeded or stimulated by other activities? *Research on aging*, **38**, 51-75.
- Dury, S., De Donder, L., De Witte, N., Buffel, T., Jacquet, W., and Verté, D. (2015). To volunteer or not: The influence of individual characteristics, resources, and social factors on the likelihood of volunteering by older adults. *Nonprofit and Voluntary Sector Quarterly*, **44**, 1107-1128.
- Dury, S., Willems, J., De Witte, N., De Donder, L., Buffel, T., and Verté, D. (2016). Municipality and neighborhood influences on volunteering in later life. *Journal of Applied Gerontology*, **35**, 601-626.
- Fukuzawa, A., Katagiri, K., Harada, K., Masumoto, K., Chogahara, M., Kondo, N., et al. (2019). Social networks as a factor in volunteering among elderly Japanese with lower socioeconomic status. *Japanese Psychological Research*.  
<https://doi.org/10.1111/jpr.12249>
- Gottlieb, B. H., and Gillespie, A. A. (2008). Volunteerism, health, and civic engagement among older adults. *Canadian Journal on Aging/La Revue canadienne du vieillissement*, **27**, 399-406.
- Grano, C., Lucidi, F., Zelli, A., and Violani, C. (2008). Motives and determinants of volunteering in older adults: An integrated model. *The International Journal of Aging and Human Development*, **67**, 305-326.



- Grant, M. J., and Booth, A. (2009). A typology of reviews: an analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal*, **26**, 91-108.
- Hales, B. D. (2012). Untapped: elderly civic engagement in the rebuilding of the Mississippi Gulf Coast. *Community Development*, **43**, 599-613.
- Handy, F., and Mook, L. (2011). Volunteering and volunteers: Benefit-cost analyses. *Research on Social Work Practice*, **21**, 412-420.
- Hansen, T., Aartsen, M., Slagsvold, B., and Deindl, C. (2018). Dynamics of volunteering and life satisfaction in midlife and old age: Findings from 12 European countries. *Social Sciences*, **7**, 78.
- Heist, H. D., Cnaan, R. A., and Lough, B. J. (2019). Determinants of serving a mission: Senior volunteering among Latter-Day Saints. *Psychology of Religion and Spirituality*. <http://dx.doi.org/10.1037/rel0000246>
- Jenkinson, C. E., Dickens, A. P., Jones, K., Thompson-Coon, J., Taylor, R. S., Rogers, M., et al. (2013). Is volunteering a public health intervention? A systematic review and meta-analysis of the health and survival of volunteers. *BMC public health*, **13**, 773.
- Kang, S. (2013). The elderly population and community engagement in the Republic of Korea: The role of community storytelling network. *Asian Journal of Communication*, **23**, 302-321.
- Krause, N. (2015). Assessing the religious roots of volunteer work in middle and late life. *Research on Aging*, **37**, 439-463.
- Kruse, A., and Schmitt, E. (2015). Shared responsibility and civic engagement in very old age. *Research in Human Development*, **12**, 133-148.
- Lee, S., Saito, T., Takahashi, M., and Kai, I. (2008). Volunteer participation among older adults in Japan: An analysis of the determinants of participation and reasons for non-participation. *Archives of Gerontology and Geriatrics*, **47**, 173-187.

- Lee, Y., and Yeung, W. J. J. (2019). Gender matters: Productive social engagement and the subsequent cognitive changes among older adults. *Social Science & Medicine*, **229**, 87-95.
- Leedahl, S. N., Sellon, A. M., and Gallopyn, N. (2017). Factors predicting civic engagement among older adult nursing home residents. *Activities, Adaptation & Aging*, **41**, 197-219.
- Li, H., Chi, I., and Xu, L. (2010). Factors associated with volunteerism among community-living older adults in urban China. *Social Development Issues: Alternative Approaches to Global Human Needs*, **32**, 62-75.
- Lin, W. (2017). A study on the factors influencing the community participation of older adults in China: Based on the CHARLS2011 data set. *Health & Social Care in the Community*, **25**, 1160-1168.
- Lorentzen, B., Wikström, B.-M., and Joranger, P. (2014). Voluntary Work for Public Health—Older Volunteers' Participation in a Norwegian Society—Motivation Factors for Participating—Enrich Life and Positive for Health. *Open Journal of Nursing*, **4**, 724.
- Martinez, I. L., Crooks, D., Kim, K. S., and Tanner, E. (2011). Invisible civic engagement among older adults: Valuing the contributions of informal volunteering. *Journal of Cross-Cultural Gerontology*, **26**, 23-37.
- McHugh, M. L. (2012). Interrater reliability: the kappa statistic. *Biochemia medica: Biochemia medica*, **22**, 276-282.
- Moher, D., Liberati, A., Tetzlaff, J., and Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of internal medicine*, **151**, 264-269.

- Myers, D. R., Wolfer, T. A., and Sherr, M. (2013). Faith-outcomes for older adult volunteers in religious congregations. *Social Work & Christianity*, **40**, 384-403.
- Okun, M., Infurna, F. J., and Hutchinson, I. (2016). Are volunteer satisfaction and enjoyment related to cessation of volunteering by older adults? *The Journals of Gerontology: Series B: Psychological Sciences and Social Sciences*, **71**, 439-444.
- Okun, M., O'rourke, H. P., Keller, B., Johnson, K. A., and Enders, C. (2014). Value-expressive volunteer motivation and volunteering by older adults: Relationships with religiosity and spirituality. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, **70**, 860-870.
- Okun, M. A., Yeung, E. W., and Brown, S. (2013). Volunteering by older adults and risk of mortality: A meta-analysis. *Psychology and Aging*, **28**, 564.
- Onyx, J., and Warburton, J. (2003). Volunteering and health among older people: A review. *Australasian Journal on Ageing*, **22**, 65-69.
- Park, S., Kim, B., and Cho, J. (2017). Formal Volunteering among Vulnerable Older Adults from an Environmental Perspective: Does Senior Housing Matter? *Journal of Housing for the Elderly*, **31**, 334-350.
- Parkinson, L., Warburton, J., Sibbritt, D., and Byles, J. (2010). Volunteering and older women: Psychosocial and health predictors of participation. *Aging and Mental Health*, **14**, 917-927.
- Peters, M. D., Godfrey, C. M., Khalil, H., McInerney, P., Parker, D., and Soares, C. B. (2015). Guidance for conducting systematic scoping reviews. *International journal of evidence-based healthcare*, **13**, 141-146.
- Petriwskyj, A. M., and Warburton, J. (2007). Motivations and barriers to volunteering by seniors: A critical review of the literature. *The International Journal of Volunteer Administration*, **24**, 3-25.

- Pettigrew, S., Jongenelis, M., Jackson, B., and Newton, R. U. (2018). "Charity Begins at Home": Informal Caring Barriers to Formal Volunteering Among Older People. *Voluntas*, **30**, 921-931.
- Principi, A., Chiatti, C., Lamura, G., and Frerichs, F. (2012). The engagement of older people in civil society organizations. *Educational Gerontology*, **38**, 83-106.
- Ramsey, C. M., Parisi, J. M., Rebok, G. W., Gross, A., Tanner, E. K., Carlson, M. C., et al. (2016). Attendance and Retention of Older Adults in School-Based Volunteer Activities: The Role of School Climate. *Journal of Intergenerational Relationships*, **14**, 27-42.
- Resnick, B., Klinedinst, J., Dorsey, S., Holtzman, L., and Abuelhiga, L. S. (2013). Volunteer behavior and factors that influence volunteering among residents in continuing care retirement communities. *Journal of Housing for the Elderly*, **27**, 161-176.
- Sabbath, E. L., Matz-Costa, C., Rowe, J. W., Leclerc, A., Zins, M., Goldberg, M., et al. (2016). Social predictors of active life engagement: A time-use study of young-old French adults. *Research on aging*, **38**, 864-893.
- Sellon, A. M. (2014). Recruiting and retaining older adults in volunteer programs: Best practices and next steps. *Ageing International*, **39**, 421-437.
- Serrat, R., Petriwskyj, A., Villar, F., and Warburton, J. (2017). Barriers to the retention of older participants in political organisations: Evidence from Spain. *Ageing & Society*, **37**, 581-606.
- Smith, K., and Cordery, C. (2010). What works? A systematic review of research and evaluation literature on encouragement and support of volunteering. *SSRN Electronic Journal*. <http://dx.doi.org/10.2139/ssrn.1761655>

- Studer, S., and Von Schnurbein, G. (2013). Organizational factors affecting volunteers: A literature review on volunteer coordination. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, **24**, 403-440.
- Tang, F. (2008). Socioeconomic disparities in voluntary organization involvement among older adults. *Nonprofit and Voluntary Sector Quarterly*, **37**, 57-75.
- Tang, F., Copeland, V. C., and Wexler, S. (2012). Racial differences in volunteer engagement by older adults: An empowerment perspective. *Social Work Research*, **36**, 89-100.
- Van Groenou, M. B., and Deeg, D. J. H. (2010). Formal and informal social participation of the 'young-old' in The Netherlands in 1992 and 2002. *Ageing and Society*, **30**, 445-465.
- Varma, V. R., Carlson, M. C., Parisi, J. M., Tanner, E. K., McGill, S., Fried, L. P., et al. (2015). Experience Corps Baltimore: Exploring the stressors and rewards of high-intensity civic engagement. *The Gerontologist*, **55**, 1038-1049.
- Warburton, J., and McDonald, C. (2009). The challenges of the new institutional environment: an Australian case study of older volunteers in the contemporary non-profit sector. *Ageing & Society*, **29**, 823-840.
- Warner, L. M., Wolff, J. K., Ziegelmann, J. P., and Wurm, S. (2014). A randomized controlled trial to promote volunteering in older adults. *Psychology and aging*, **29**, 757.
- Wheeler, J. A., Gorey, K. M., and Greenblatt, B. (1998). The beneficial effects of volunteering for older volunteers and the people they serve: A meta-analysis. *The International Journal of Aging and Human Development*, **47**, 69-79.
- Withall, J., Thompson, J. L., Fox, K. R., Davis, M., Gray, S., de Koning, J., et al. (2018). Participant and public involvement in refining a peer-volunteering active aging

intervention: Project ACE (Active, Connected, Engaged). *The Gerontologist*, **58**, 362-375.

Yamashita, T., Keene, J. R., Lu, C.-J., and Carr, D. C. (2019). Underlying motivations of volunteering across life stages: A study of volunteers in nonprofit organizations in Nevada. *Journal of Applied Gerontology*, **38**, 207-231.

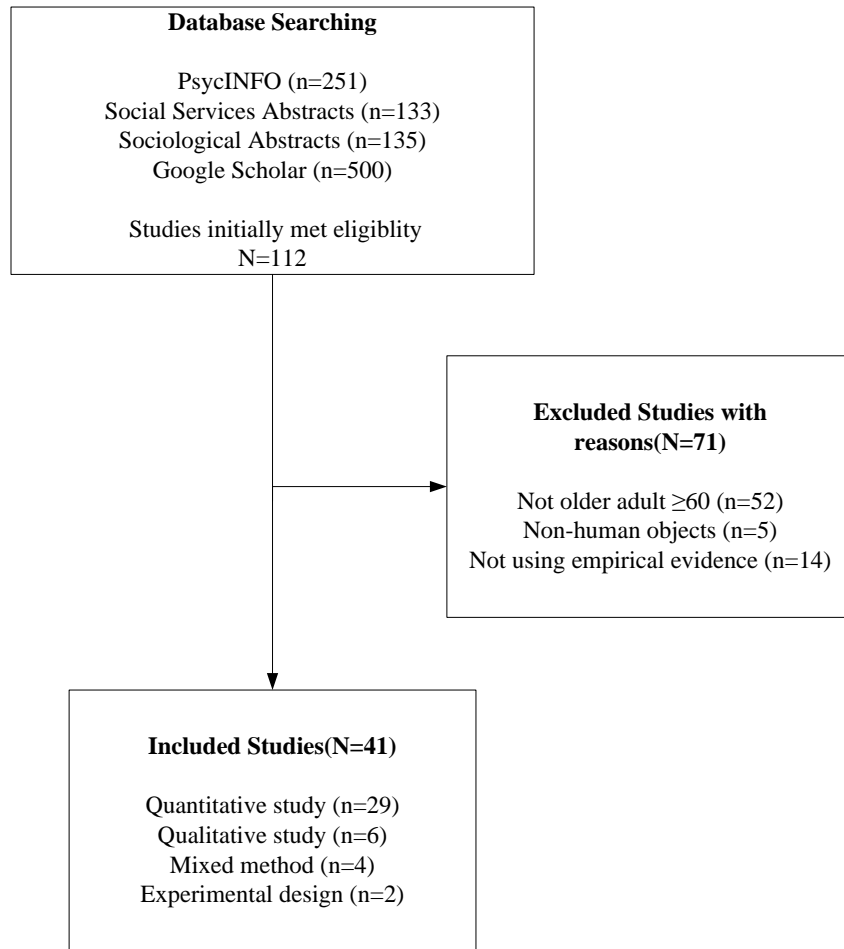


Figure 1 Flowchart of the study selection process

Note: Google Scholar generated a large number of search results, but the majority of them were irrelevant or overlapped with the results in PsycINFO, Social Service Abstracts, and Sociological Abstracts. We reviewed the titles of the first 500 results.

Table 1 Summary of included studies

Authors	Country	Setting	Study Population	Theoretical model	Methodology	Predictor variables	Outcome variables
<b>Butrica, Johnson, and Zedlewski (2009)</b>	U.S.	Formal volunteering	5,872 respondents aged 55-65 at study baseline 1996; 46% male; mean age 63.70	Theory of economic welfare maximization	Longitudinal Health and Retirement Study 1996-2004	Basic demographics, health status, financial resources, residential relocations, religiosity, spousal volunteerism	when the respondent begins or ends volunteer activities
<b>Celdrán, Serrat, Villar, Pinazo, and Solé (2018)</b>	Spain	Volunteering in entrepreneurial mentoring organization	14 retired managers aged ranging 63-77; 100% male; mean age 67.7 ± 4.8	Generativity theory	Semi-structured interview	Both positive and negative experiences	Evaluation of volunteering experience
<b>Cocca-Bates and Neal-Boylan (2011)</b>	Kansas, U.S.	volunteering in a hospital, or a church	10 retired female registered nurses aged 63-86, mean age 73.2	Continuity theory	Unstructured qualitative interview	demographic information, barriers to volunteer, benefits of volunteering	Experience of volunteering
<b>Cramm and Nieboer (2015)</b>	Netherlands	Both formal and informal volunteering	945 older adults aged 70-101; 43% male; mean age 77.5 ± 5.8	-	Longitudinal questionnaire survey (first mail, then telephone, and home visit)	Socioeconomic status (SES), social capital, and social, physical and cognitive functioning	If engaged in volunteering activities during the past year
<b>Curl, Stowe, Cooney, and Proulx (2014)</b>	U.S.	Both formal and informal volunteering	4788 older adults aged 65-97; 51.7% male; mean age 73.75 ± 6.47	Task capability interface model	Longitudinal Health and Retirement Study 1998-2010	SES, driving status, health	If volunteered formally and/or informally
<b>Dávila (2018)</b>	Spain	Formal volunteering	SHARE: 2,057 Spanish respondents aged > 65; 46.3% male; mean age 75.6 ± 7.24 Questionnaire: 152 volunteers aged 65-80; 34.2% male; mean age 74.1 ± 5.39	Socioemotional selectivity theory	Spanish respondents in SHARE study + questionnaire survey among older volunteers	SHARE: identifying up to 7 people in social network; structure and degree of interaction in social network; Questionnaire: : level of volunteering among	SHARE: If engaged in volunteering work Questionnaire: reason for taking up volunteering



						relatives and friends, recruitment of volunteers	
<b>Donnelly and Hinterlong (2009)</b>	U.S.	Both formal and informal volunteering	228 widowed older adults aged $\geq 60$ ; mean age $73.96 \pm 6.44$	Socioemotional selectivity theory + continuity theory	Longitudinal Americans' Changing Lives study from 1986-1994	Widowhood, SES, health, psychological factors	Extent of formal and informal social participation and volunteering
<b>Dury et al. (2015)</b>	Belgium	Formal volunteering	31,581 individuals aged 65- 80; mean age 71.4; 46.7% male	Hybrid theory of late-life volunteering	Cross-sectional Belgian Aging Studies	Individual characteristics , resources, and social factors	If volunteered in the past year and types of volunteer organization
<b>Dury, De Donder, et al. (2016)</b>	Belgium	Formal volunteering	23,768 older adults aged 65-80; 45.6% male; mean age $71.7 \pm 4.49$	Active aging theory	Cross-sectional Belgian Aging Studies	SES, health, activities (leisure, culture, civic)	If volunteered in the past year and types of volunteer organization
<b>Dury, Willems, et al. (2016)</b>	Belgium	Formal volunteering	67144 older adults aged 60-99; 46% male; mean age 71.4	Environmental gerontology theoretical framework	Cross-sectional Belgian Aging Studies	neighbourhood and municipalities characteristic, social resources	If volunteered or intention to volunteer
<b>Fukuzawa et al. (2019)</b>	Tsurukabuto, Japan	Formal volunteering	768 low SES older adults; 41.54% male; mean age $73.99 \pm 7.40$	-	Cross-sectional Tsurukabuto Active Aging Project	SES, social network, health	If engaged in volunteering activities
<b>Grano, Lucidi, Zelli, and Violani (2008)</b>	Italy	Formal volunteering	565 older volunteers aged 60-90; 55.22% male; mean age 66.38	Theory of planned behaviour	Follow-up study across three months	SES, theory of planned behaviour variables, self-efficacy, self-determined motives to volunteer	Frequency of volunteering in the past three months and the past week
<b>Hales (2012)</b>	Mississippi Gulf Coast, U.S.	Volunteering in the post-hurricane community	199 older aged $> 60$ ; 42% male;	Community field theory + disengagement Theory	Cross-sectional survey	SES, health, community attachment, needs	Self-developed civic engagement index
<b>Heist, Cnaan, and Lough</b>	U.S.	Volunteering in religious	964 volunteers aged $> 60$ ; 53.6% male; mean age 66.9	Life-Span theory and	Cross-sectional questionnaire	Resources, personality traits, Church	Types of volunteer motivation (fulltime

<b>(2019)</b>		organizations		continuity theory	survey (online)	embeddedness, and religiosity	missionaries versus Church-service missionaries versus nonmissionaries)
<b>Kang (2013)</b>	Daegu, Korea	Both formal and informal volunteering	255 older adults >65; 34.5% male; mean age 72.39 ± 4.93	Communication infrastructure theory	Cross-sectional paper survey	Community engagement, length of residence and homeownership, media use, story-telling network, demographics	If volunteered and intention to volunteer
<b>Krause (2015)</b>	U.S.	Volunteering in religious organizations	first set of data: 623 respondents aged > 66; 34% male; mean age 73.9 ± 5.7; second set of data: 1154 respondents aged > 50; 36% male; mean age 63.4 ± 11.7	Berger's theory of religion	Longitudinal nationwide survey of Whites and African Americans;	Church attendance, spiritual support, religious commitment, compassion for strangers, SES	How often volunteer in church
<b>Krause and Schmitt (2015)</b>	Germany	Both formal and informal volunteering	440 very old individuals 85-99; 34% male	Theory of life-long personality development	Mixed-method: qualitative interviews with older volunteers and survey of staff in the organization	Older people: SES, health, biography, current experiences, civic engagement, specific forms of engagement Staff in the organization: strengths and weakness of older volunteers	If civically engaged, frequency of engagement; time to start and stop engagement
<b>Lee, Saito, Takahashi, and Kai (2008)</b>	Tokyo, Japan	Formal volunteering	593 older adults aged 60-74; 47.89% male; mean age 66.90	-	Cross-sectional data	SES, health, reasons for volunteer non-participation and intention to participate in the future	If engaged in volunteering activities
<b>Leedah, Sellon, and Gallopyn (2017)</b>	Kansa, U.S.	Civic engagement in the nursing	139 LTC residents aged > 65	Activity and role theories	Cross-sectional questionnaire (in-person interview)	Demographic; health; social integration	If volunteered at least once a month

		home					
<b>Li, Chi, and Xu (2010)</b>	China	Formal volunteering	10139 urban older adults >60; 51% male; Mean age 68.7 ± 6.6	Integrated resource framework	Cross-sectional Sample Survey on Aged Population in Urban/Rural China	Human resources, social resources, cultural resources	If volunteered in any of the five different activities in the past 12 months
<b>Lin (2017)</b>	China	Volunteering in the community	4283 individual aged ≥60; 53.2% male; mean age 68.8 ± 7.0	Active ageing framework	Cross-sectional data from 2011 China Health and Retirement Longitudinal Study	SES; health; resident status; family status; community facilities; expected social support; social insurance coverage	If engaged in volunteer work
<b>Lorentzen, Wikström, and Joranger (2014)</b>	Norway	Formal volunteering	77 older volunteers aged ≥ 62; 25.97% male; mean age 73.4 ± 18.95	-	Mixed method: A focus group interview + questionnaires	Network, depression and ill health	Years of volunteer participation
<b>Martinez, Crooks, Kim, and Tanner (2011)</b>	Baltimore City, U.S.	Civic engagement	35 older adults ≥65 with low SES and diverse ethnicity; 42.86% male; mean age 74.3	-	Questionnaire + Focus group discussion	Demographic and social characteristics, previous volunteer experience, motivation and barrier of volunteer	If volunteered and types of volunteer work
<b>Myers, Wolfer, and Sherr (2013)</b>	U.S.	Volunteering in religious organizations	539 volunteers aged 65+: 43% male; mean age 73.27 ± 5.89 440 non-volunteers aged 65+: 41% male; mean age 74.78 ± 6.39	Theoretical work of Dorothy Bass and Craig Dykstra	Cross-sectional congregational Survey	SES; faith maturity; Motivation to Serve Scale; life satisfaction	If volunteered in any “community ministry”
<b>Okun, Infurna, and Hutchinson (2016)</b>	U.S.	Formal volunteering	380 volunteers aged ≥65; 29% male; mean age 71.91 ± 5.52	-	Longitudinal Americans’ Changing Lives study	SES; volunteer satisfaction and enjoyment in previous experience; hours volunteered; covariates	volunteer cessation and hours volunteered
<b>Okun, O’rourke, Keller, Johnson,</b>	Wisconsin, U.S.	Formal volunteering	8148 older adults aged 64-67; 47% male; mean age 65.15 ±	Wilson and Musick’s	Cross-sectional data from	SES, health, personality, religiosity and	value-expressive volunteer motivation; if

<b>and Enders (2014)</b>			0.50	conceptual framework	Wisconsin Longitudinal Study 2004	spirituality	volunteered in the past year
<b>Park, Kim, and Cho (2017)</b>	U.S.	Formal volunteering	1415 poor older adults age $\geq 65$ ; 23% male; mean age $77.34 \pm 7.12$	Environmental perspective of aging	Cross-sectional health and Retirement Study	SES, residency, health, social support network	if volunteered in the past year
<b>Parkinson, Warburton, Sibbritt, and Byles (2010)</b>	Australia	Formal volunteering	7088 older women aged 70-75 in 1996; 0% male;	-	Longitudinal data from Australian Longitudinal Study on Women's Health	SES, health and social factors	Changes of volunteering behaviour over time
<b>Pettigrew, Jongenelis, Jackson, and Newton (2018)</b>	Australia	Both formal and informal volunteering	242 older adults aged 60+; 49% male; mean age $69.91 \pm 5.96$	Social identity and social capital theories	Semi-structured interview	Barriers of volunteering	Experience of volunteering in the past and at the present
<b>Ramsey et al. (2016)</b>	Baltimore City, U.S.	Volunteering in elementary school	298 older adults aged $>60$ ; 13.1% male; mean age $67.3 \pm 5.9$	-	Longitudinal Baltimore Experience Corps randomized, controlled trial	School climate	Weekly attendance and retention
<b>Resnick, Klinedinst, Dorsey, Holtzman, and Abuelhiga (2013)</b>	U.S.	Formal volunteering	127 older adults living in senior living facilities; 22% male; mean age $88 \pm 6.51$	-	Cross-sectional survey	SES, health, motivations and barriers to volunteer	If volunteered and intention to volunteer
<b>Sabbath et al. (2016)</b>	France	Both formal and informal volunteering	10764 occupational individuals aged 60-74; 75% male; mean age 68.6	-	Cross-sectional data from GAZEL	SES, health and social factors	If volunteered and time use in volunteer work
<b>Serrat, Petriwskyj, Villar, and Warburton</b>	Spain	Volunteering in political organizations	192 people aged age 65-86; 54.8% male; mean age $70.7 \pm 5.6$	-	Survey with standardized scales and open-ended questions	SES, political efficacy, barrier to future participation	Characteristics of volunteer participation

<b>(2017)</b>							
<b>Tang (2008)</b>	U.S.	Formal volunteering	3617 individuals aged ≥60 in 1986; 33% male; mean age 70.1 ± 7.4	A conceptual framework by Herzog and Morgan (1993)	Longitudinal data from Americans' Changing Lives	SES, health, social connections	if volunteered, hours of volunteering participation, and total number of volunteer activity
<b>Tang, Copeland, and Wexler (2012)</b>	Pittsburgh, U.S.	Formal volunteering	90 volunteers and 90 nonvolunteers aged 60-94; 17.5% male	Empowerment perspective	Cross-sectional survey	SES, health, perceived benefits, volunteer experience	Characteristics of volunteer
<b>Van Groenou and Deeg (2010)</b>	Amsterdam, Netherland	Both formal and informal volunteering	1008 individuals aged 60-69 in wave 1992: 47% male; mean age 65.0 848 individuals aged 60-69 in wave 2002: 47% male; mean age 64.6	-	Cohort comparison using Longitudinal Aging Study Amsterdam	SES, health, personal network, cultural and recreational activities;	If volunteered in community organizations
<b>Varma et al. (2015)</b>	U.S.	Volunteering in elementary school	46 older adult volunteers; 15.2% male; mean age 66.7 ± 5.8	Self-developed conceptual framework	Focus group	SES, health, volunteer hours, stressors and rewards of the volunteering activities	Experience of intergenerational volunteer activity
<b>Warburton and Mcdonald (2009)</b>	Brisbane, Australia	Formal volunteering	observational data in 12 organization sites	Neo-institutional theory	Ethnographic approach based on observation	observational space, conversational order, content of talk, and resistance	Process of volunteering activities
<b>Warner, Wolff, Ziegelmann, and Wurm (2014)</b>	Germany	Formal volunteering	280 community dwelling older adults aged 64-92; 24% male; mean age 70.29 ± 4.95	Social-cognitive theory+ health behaviour change theory	Randomized controlled trial	SES, health, social-cognitive intervention	If volunteered and weekly volunteer minutes
<b>Withall et al. (2018)</b>	Bristol, United Kingdom	Volunteering to support socially isolated older peers	28 focus grouped older adults: 10.7% males; aged 65-85 mean age 72.6. 4 volunteer organization managers: no male.	Process model of lifestyle behaviour change	Focus Groups with older volunteers and organization managers; Semi-	Motives, enablers, impact, and barriers to volunteer	Experience of volunteer activities

			9 interviewed older volunteers: 33.3% males; aged 65-74 mean age 70.8		structured with older volunteers		
<b>Yamashita, Keene, Lu, and Carr (2019)</b>	Nevada, U.S.	Formal volunteering	410 individuals aged 25-49: 17.22% male; mean age 37.14±7.18 322 individuals aged 50-64: 24.61% male; mean age 57.10±4.43 305 individuals aged ≥ 65: 32.67% male; mean age 71.40±5.14	Life course and socioemotional selectivity theory	Cross-sectional survey	SES, religious participation, motivation to volunteer	degree of interest in volunteering

Table 2 Socioecological correlates of older adults' volunteerism

	Incentive factors	Obstructive factors	Irrelevant factors	Confounding factors
Micro level (individual/family)	<ul style="list-style-type: none"> <li>• High socioeconomic status: particularly higher education</li> <li>• Personality trait: altruistic, risk-oriented, self-controlled, resilience</li> <li>• Morale: sense of responsibility</li> <li>• Mentality: well-being and positive perception of aging</li> <li>• Previous experience: feelings of satisfaction, enjoyment, achievement</li> </ul>	<ul style="list-style-type: none"> <li>• Health problems</li> <li>• Financial constraint</li> <li>• Personality: unconfident, self-ageist</li> <li>• Ethnicity: being minority</li> <li>• Poor social and political capitals</li> <li>• Negative experience during volunteering</li> <li>• Conflict with family and other responsibility: prioritize family caregiving and work</li> </ul>	<ul style="list-style-type: none"> <li>• Personality trait: individualistic, empathic</li> <li>• Employment status</li> <li>• Religiosity</li> </ul>	<ul style="list-style-type: none"> <li>• Gender</li> <li>• Age</li> <li>• Marital status</li> <li>• Home ownership</li> </ul>
Meso level (organization/community)	<ul style="list-style-type: none"> <li>• Strong social network: aspiration to expand network and support from existing network</li> <li>• Sense of community: feelings of belongings and connectedness,</li> <li>• Environment of the community: safety, availability of resources</li> <li>• Good management in the volunteer organization: flexible time, supportive staff, trainings, respectful work environment</li> </ul>	<ul style="list-style-type: none"> <li>• Management issue: information</li> <li>• Organization climate: ageist and disordered</li> <li>• Challenging nature of the work</li> </ul>	<ul style="list-style-type: none"> <li>• Residential stability</li> <li>• Staff's perception of organization</li> </ul>	-
Macro level (policy/country/culture)	<ul style="list-style-type: none"> <li>• Perception of the physical-social environment</li> <li>• Supports from the living arrangement</li> <li>• Retirement policy</li> </ul>	<ul style="list-style-type: none"> <li>• inaccessible to transportation</li> <li>• Policy for skilled volunteer work</li> </ul>	<ul style="list-style-type: none"> <li>• Objective municipality features</li> </ul>	<ul style="list-style-type: none"> <li>• Social norm/culture</li> </ul>