



**ARTICLE**

## Formal Volunteering and Mental Health in South Korea: Does Age Matter?

Manacy Pai<sup>1</sup> and Joongbaeck Kim<sup>2,\*</sup>

<sup>1</sup>Department of Sociology, Kent State University, Kent, Ohio, 44242, USA

<sup>2</sup>Department of Sociology, Kyung Hee University, Seoul, 02447, Korea

\*Corresponding Author: Joongbaeck Kim. Email: jkim64@khu.ac.kr

Received: 10 June 2020 Accepted: 17 July 2020

### ABSTRACT

Extensive research shows a positive association between formal volunteering and mental health and this association is stronger for older adults compared to their younger peers. The purpose of our study is to re-examine the link between formal volunteering, age, and mental health in a non-western society, South Korea. We employ two recent waves—years 2012-13 – of nationally representative data from the Korea Welfare Panel Survey to test the extent to which the relationship between formal volunteering and mental health, as measured by depression, varies across two non-elderly age groups—young adults (18–35) and those middle-aged (36–55). Findings reveal that being a formal volunteer is psychologically more beneficial to young adults compared to their middle-aged counterparts. Understanding the age differential in the link between formal volunteering and depression in South Korea is crucial, given the different economic and sociocultural contexts, at current time, for young adults and their middle-aged peers.

### KEYWORDS

Volunteering; depression; age; South Korea

## 1 Introduction

Formal volunteering often is an unpaid act of free will performed through formal organizations to help individuals and communities in need [1]. Unlike informal volunteering, which includes activities performed outside of an organizational setting and often at an individual level (e.g., baby-sitting; shoveling neighbor's driveway, picking up medication for an elderly neighbor), formal volunteering includes coordinated activities within the context of a formal organization or institution [2]. One other difference between the two is that most of the informal volunteering is reciprocal or mutual in nature, with people taking turns to help each other over time. Same may not be the case with formal volunteering given that formal volunteers do not necessarily know the individuals they are helping [3]. Moreover, unlike informal volunteering, which may not be entirely voluntary given that social and cultural norms prescribe helping those in social groups (e.g., our friends, relatives, neighbors), formal volunteering involves helping people outside of one's immediate social network [3].

Known as a form of civic engagement and encouraged by United Nations [4] empirical research clearly shows that the benefits of formal volunteering, the often unpaid, optional labor are reaped not only by the recipients of it but the volunteers themselves [5]. As such, research finds a strong positive link between



formal volunteering and mental health [6–9]. Empirical studies also show that the association between formal volunteering and mental health is conditioned by age with older adults much more likely to benefit from volunteering compared to their younger peers [8,10,11].

What remains less clear is whether the relationship between formal volunteering and mental health is moderated by age in non-western societies, such as South Korea (hereafter SK). Moreover, we are unclear on the mental health impact of formal volunteering in SK on the non-elderly population. Unlike in the western world, volunteering is not as deeply entrenched a social value in SK [12]. That said, SK is growing fast economically, showing clear signs of western democratization and recognizing the import of civic engagement [13,14]. The purpose of our study is to examine the extent to which mental health benefits of formal volunteering in SK varies across two specific age groups—young adults (18–35) and their middle-aged peers (36–55). We argue that understanding the age differential in the link between formal volunteering and mental health is important, especially in these current times where young adults and their middle-aged peers in SK are embedded in such vastly differently socioeconomic and cultural contexts.

On one hand, young adults in recent times have been imperiled by a variety of structural stressors, including steep costs of higher education, reduced prospect of decent jobs, job loss, unaffordable housing and a shrinking pool of potential partners for marriage [15]. On the other hand, young adults have been exposed to a more liberal democratic educational system that emphasizes the moral and social importance of civic engagement [16]. Compared to their younger counterparts, middle-aged adults have benefitted from accelerated financial growth during the 1980s and early 1990s and solidified their socioeconomic standing [17]; however, unlike their younger peers, they did not grow up reflecting on the practice of formal volunteering [18]. It is likely then that the differences in economic and cultural circumstances and experiences result in a differential mental health impact of formal volunteering for the two age groups. We rely on the life course perspective and employ two recent waves (2012 and 2013) of nationally representative data from Korea Welfare Panel Survey (hereafter KOWEPS) to test longitudinally the extent to which the relationship between formal volunteering and mental health—as measured by depression—is moderated by age.

### ***1.1 Formal Volunteering in South Korea***

SK is in transitional democracy, so the growth in volunteering is relatively slower compared to what we see in the Western world [14]. A high proportion of individuals in the western countries participate in formal volunteering: 44% in USA, 33% in UK, 29% in France, 27% in Germany, and 26% in Japan [19]; however, in SK, only 21% of Korean adults engaged in formal volunteering in 2015. A history of civic engagement is relatively short in SK for three main reasons. First, behavioral norms in SK have been characterized by a strong patriarchal culture based upon Confucianism [20]. One such cultural norm, which is the underlying element of family life, dictates that individuals reserve their spare time and resources for members of their own family [21]. Volunteering one's time and resources for those outside one's family is far from encouraged. Second, NGO's (Non-Governmental Organizations), which play a central role in mobilizing people to volunteer in the western world do not hold the same clout in SK [22]. Put simply they are less well institutionalized and those that are established depend very heavily on governmental funding [23]. As such the social infrastructure for formal volunteering is weaker in SK compared to its western counterparts that carry a much richer tradition of civic engagement [24]. Lastly, low levels of formal volunteering in SK may also reflect the negative connotation attached to volunteering given that this activity often is state-mandated [25].

Despite its relatively brief civic engagement tradition, volunteering in SK is linked to better mental health—a finding that mirrors what we find in the western nations [26,27]. Like in the western world, SK data also show that volunteering carries mental health benefits for the elderly [28–30]. Relatively less is

known, however, about the mental health impact of volunteering for the non-elderly volunteers in SK. For instance, we do not know if formal volunteering is similarly or differentially influential for the mental health of young versus the middle-aged adults in SK.

### ***1.2 Formal Volunteering, Age, and Mental Health in South Korea***

Life course scholars often urge us to look at broader economic and sociocultural contexts when assessing the mental health repercussions of social roles individuals perform [31–33]. The premise behind this argument is that the choices and decisions individuals make are not made in vacuum; instead they are rooted in and molded by sociocultural, geopolitical, and economic events and conditions individuals are exposed to. For instance, broader sociocultural conditions, such as wars, economic recessions, and civil rights movements can shape people’s perceptions and choices and alter either temporarily or forever the course of their lives. Sociocultural contexts matter because sociocultural pressures and expectations in any given historical period—especially, a period that comprises “formative” years of one’s life (e.g., coming of age, becoming an adult)—are likely to shape the meanings individuals attach to a particular social role. For instance, while being a good provider was deemed the most important characteristic for men in mid-20<sup>th</sup> century, in the 21<sup>st</sup> century, women place a higher premium on companionship, sociability, education, and equity in relationships when looking for prospective partners [34]. We use similar logic to argue that the reason to expect age differences in the mental health impact of formal volunteering is that young adults and their middle-aged peers are embedded in and transformed by vastly different economic and sociocultural exposures and experiences. Based on the life course perspective, it also is reasonable to assume that the same roles and responsibilities may differentially affect individuals of varying ages based on their unique resources, experiences and exposure to the broader sociocultural circumstances.

A great proportion of young adults in SK face structural disadvantages such as dearth of good jobs, financial burden from costly housing and college tuition, and anxiety surrounding an uncertain future since Asian Financial Crisis in 1997 and Great Recession in 2007 [35]. As a result, suicide is the leading cause of death among adults age 20–29 [36], and the rate of suicide has been on a rise among working-age adults since the recessionary period that began in 2008 [37]. Because of the precarious economic conditions, young adults are in need of psychosocial resources to alleviate stress and improve mental health. Formal volunteering may serve as the opportunity to build both social and psychological resources that ultimately could reduce stress and enhance mental health [9,38]. As argued by Musick and Wilson (2003, p. 260), “through volunteering people become more self-assured, they change their perceptions of themselves and their abilities, they gain in confidence.” Formal volunteering may not only help stimulate a sturdier self-esteem but also add to the stock of human (e.g., job skills) and social (networking within organizations and communities) capital [10,39]. Put simply, in times of financial and social stress, it is likely that formal volunteering for younger adults generates positive self-image and consequently, better mental health.

Contrary to young adults, middle-aged adults in SK continue to relish a relatively stable social standing in terms of both personal and social roles [40]. A substantial portion of middle-aged adults believe that they are better off now having lived their youth during a period of economic prosperity [41]. They are grateful for they spent their formative years in an era characterized by accelerated growth—deemed as the “compressed modernity”—in SK economy [21]. Considering that SK still is in transitional democracy, middle-aged adults comprise a cohort that was socialized to immerse itself into family building with little value placed on formally serving those outside of one’s immediate kin. The motivation to become a formal volunteer may be stronger among those who see their parents and elders volunteer. According to social learning theory, parents display both directly and indirectly for their children the practices and behaviors they value. As such, there is some research that points to the intergenerational transmission of volunteering from parents

to children [42,43]. Whether or not individuals volunteer in middle and later ages of their life also, often, is contingent upon whether or not they volunteered when they were young [44]. It is reasonable to assume then that those who volunteer during school years may be more likely to volunteer during subsequent stages of their life compared to their peers who may not have volunteered earlier in their life.

Consequently, we expect the benefits of formal volunteering to be far less for middle-aged adults as compared to their younger peers. A counterargument to this conjecture based on role theory [45,46] could be that young adults may be more strained by volunteering given their focus on building careers, finding partners, and parenting. When faced with role overload and the lack of time and energy needed to carry out multiple roles, young adults may experience stress, which consequently may limit the extent to which they volunteer and the dividends they reap from volunteering [47]. However, within the SK context, given their relatively more precarious economic conditions and the growing exposure to the value placed on volunteering in the SK culture, younger adults may reap richer dividends from their role as a formal volunteer compared to their middle-aged peers. As such, we draw on data from two waves of the KOWEPS survey to examine the extent to which the relationship between formal volunteering and mental health, as measured by depression, varies by age, as measured by two specific age groups—young adults (18–35) and middle-aged (36–55). There are two hypotheses guiding this inquiry:

Hypothesis 1. Formal volunteering at T1 is negatively or inversely associated with depression at T2. In other words, those volunteering at T1 report lower levels of depression at T2 compared to their counterparts who are not volunteering at T1.

Hypothesis 2. The strength of the relationship between formal volunteering at T1 and depression at T2 is attenuated or weakened by age of the respondent. More specifically, the inverse or the negative association between T1 volunteering and T2 depression is more prevalent for younger volunteers compared to their counterparts who are middle-aged.

## **2 Methods**

### ***2.1 Data and Sample***

This study used data from Korean Welfare Panel Study (KOWEPS) for this study [48]. The KOWEPS was conducted by the Korean Institute for Health and Social Affairs on a nationally representative sample of Korean households. Households were chosen using a stratified multistage probability design and data were collected using face-to-face interviews. It is nationally representative data; households are selected from the 16 provincial districts in proportion to the population size of each district. Data for first wave of KOWEPS were collected in 2006. For the purposes of our study, we rely on waves 7 (2012) and 8 (2013). The seventh wave of KOWEPS consists of 5,271 households and 12,606 participants whose age range between 0 and 98. We limit our sample to respondents aged between 18 and 55. Final sample includes 5,388 adults who responded to questions pertaining to variables of primary interest in both waves 7 and 8, namely formal volunteering and depression. Independent and all control variables are from T1 (2012) and dependent variable is from T2 (2013). KOWEPS is a publicly available, nationally representative dataset that has been utilized in numerous empirical studies. These data were collected by the KOWEPS team at the Korean Institute of Health and Social Affairs (KIHS) upon direct request from the Ministry of Health and Welfare. As such, all the necessary procedures prior to collecting the primary data were carried out by the original KOWEPS team at KIHS. As secondary data users, we did not have any identifying information on the study respondents.

### ***2.2 Dependent Variable***

Depression is evaluated by the short version of the Centre for Epidemiological Studies Depression 11-scale (CESD-11). This Korean version of CES-D 11 has been employed in previous studies in public health research for Korean people [49,50]. The CES-D 11 is composed of 11 items based on the past week using a

four-points Likert scale. The scale is 0 (less than 1 day per week), 1 (2–3 days per week), 2 (4–5 days per week), and 3 (Over 6 days per week) following 11 items: (1) I felt no appetite, (2) I felt quite depressed, (3) I felt difficulty in everything I did, (4) I could not sleep well, (5) I felt lonely, (6) I felt that people disliked me, (7) I felt that people were treating me coldly, (8) I was unable to have the courage to carry out something, (9) My heart felt sad, (10) I felt that I was doing generally well, and (11) I went on without much complaint. Questions of (10) and (11) are reverse coded to keep consistency among questions. Cronbach's alpha score is 0.841. Depression score is the sum of score multiplied by (20/11) to be comparable to 20 scale CES-D measurement. Higher score means higher levels of depression.

### ***2.3 Independent Variables***

The independent variable is engagement in formal volunteering. KOWEPS measures formal volunteering using the following two questions: (1) Do you participate in volunteering on a regular basis?; and if respondents volunteer last year, answer was “Yes”, and if not, “No (reference group)”; (2) how many times do you volunteer in a year, and for this respondents reported frequency of voluntary participation. Unfortunately, KOWEPS did not collect any data either on the number of hours put into volunteering or the type of organization the respondents volunteered for.

Age is critical information to investigate in differential association of volunteering with depression. As such, we use age 35 as a cutoff to divide sample into young and middle-aged groups. Even though there is no single standard to separate young and middle-aged groups, we select 35 considering Korean adult's life course. Average age at first marriage for Korean adults is 33 for male, and 30 for female in 2016, and average retiring age is about 53 in 2015. It is possible that Korean adults generally experience early socialization process of marriage, childbirth, and first employment by 35 and then move into maturing period for parenting, self-composition, increase practice with living, and social standing acquisition by 55 [51].

### ***2.4 Sociodemographic Control Variables***

We control for demographic and socioeconomic attainment variables, as these measures are widely documented correlates of both volunteering and psychological health. Demographic variables include gender (male, female), age (the number of years lived), marital status (currently married, marital dissolution, never married), parental status (have children or not), geographical location (Seoul, major metropolitan areas, small cities, other areas). Socioeconomic attainment variables include education (no schooling/elementary/middle school, high school, 2-year college, 4-year college and over), household ordinary income (originally measured by Korea Won and divided 100), and, employment status (waged employment, self-employment, unemployment, out of labor force). Because mental health is associated with health behavior and subjective assessment of one's own health, this study also controls for alcohol consumption (not drinking alcohol, less than 1 time per month, 2–4 times per month, 2–3 times per week, more than 4 times per week) and smoking (non-smoking, smoking). Self-rated health is measured by asking how much you are satisfied with your overall health. Response categories include very unsatisfactory, somewhat satisfactory, neutral, somewhat satisfactory, and very satisfactory. Self-rated health is considered as a nominal variable, so a value of mode, somewhat satisfactory, is a reference group. Age, household ordinary income, and alcohol consumption are included as a continuous variable. All other background variables are included as nominal variables in analyses. Finally, we also control for depression at T1 (i.e., wave 7 in 2012). While we argue that formal volunteering is associated with reduced levels of depression over time, it nevertheless is important to consider that earlier occurrence of depression may negatively impact the experience of formal volunteering. Depression at T1 in 2012 is measured in same way that depression is measured at T2 in 2013.

### 2.5 Analytic Plan

The main purpose of this study is to test (1) whether formal volunteering is associated with depression; and, (2) the relationship between formal volunteering and depression is conditioned by age of the respondent. Descriptive analyses are conducted to provide summary statistics for whole sample and each age group. T-test or Chi-square analyses are conducted to see whether statistical independence for each of the variables exists by age groups. Ordinary Least Square regression (OLS) models are used to test the extent to which volunteering is associated with depressive symptoms. In the multivariate regression analyses, we use two models by age group to investigate the net effect of volunteering in 2012 on depression in 2013. This study employs a sampling weight in all analyses to match the sample characteristics to 2005 Census, which is population for initial wave of 2006. All models were estimated using STATA 15.0.

### 3 Results

Characteristics of study sample are shown in [Tab. 1](#). For dependent variable, young adults show lower levels of depressive symptoms than middle-aged counterparts. This result is not consistent with U-shape of depression over life course for US adults [51]. 10% of young adults and 18% of middle-aged adults volunteered in 2012. Middle-aged adults also participate in voluntary work more than young ones in 2012. This result is consistent with previous study in that middle-aged adults have more social resources and opportunities than young ones, and volunteer more as a result [8].

**Table 1:** Weighted sample descriptive statistics by age groups, 2012–2013 Korea Welfare Panel Study<sup>a</sup>

	Mean (proportion) <sup>a</sup>			$t$ -test/ $\chi^2$
	Full (n = 5,388)	Young (n = 1,785)	Middle (n = 3,603)	$p$ -value <sup>b</sup>
Dependent Variable				
Depression (W2: 2013)	3.75	3.23	4.10	0.00
Independent Variables				
Volunteering <sup>a</sup>	0.15	0.10	0.18	0.00
Frequency of Volunteering	0.97	0.49	1.29	0.00
Control Variables				
Depression (W1: 2012)	3.96	3.82	4.06	0.00
Age	38.37	27.23	45.52	NA
Female (0 = Male)	0.51	0.57	0.48	0.00
Having Child (0 = No Child)	0.67	0.29	0.92	0.00
Region				0.01
Seoul	0.22	0.24	0.20	
Major Metropolitan Areas	0.25	0.25	0.25	
Small Cities	0.46	0.44	0.48	
Other Areas	0.07	0.07	0.07	
Marital Status				0.01
Currently Married	0.61	0.23	0.86	
End of Marriage	0.05	0.00	0.08	
Never Married	0.34	0.77	0.06	

(Continued)

**Table 1 (continued).**

	Mean (proportion) <sup>a</sup>			$t$ -test/ $\chi^2$
	Full (n = 5,388)	Young (n = 1,785)	Middle (n = 3,603)	$p$ -value <sup>b</sup>
Education				0.00
No, Elementary, Middle school	0.08	0.01	0.13	
High school	0.34	0.18	0.44	
2-year college	0.18	0.27	0.12	
4-year college and over	0.40	0.54	0.31	
Household Income	59.72	59.54	59.83	0.32
Employment status				0.00
Waged employment	0.56	0.52	0.60	
Self-employment	0.13	0.05	0.18	
Unemployment	0.02	0.02	0.01	
Out of labor force	0.29	0.41	0.21	
Self-rated health				0.00
Very Unsatisfactory	0.02	0.02	0.02	
Somewhat Unsatisfactory	0.09	0.05	0.11	
Neutral	0.19	0.16	0.20	
Somewhat Satisfactory	0.60	0.62	0.60	
Very Satisfactory	0.10	0.15	0.07	
Smoking (0 = No smoking)	0.24	0.19	0.27	0.00
Alcohol consumption	1.46	1.37	1.51	0.00

Note: <sup>a</sup>Age, Income, and Alcohol consumption are mean scores. All other variables show proportions.  
<sup>b</sup> $p$ -values of  $t$ -test or chi-square analysis

We first test whether volunteering is associated with depression for whole sample with adjustment for background variables (Results not shown). No significant association was found between volunteering and depression ( $b = -0.365$ ,  $p = 0.144$ ), which means volunteering was not estimated to have consequential impact on depression for adults age 18–55. Frequency of volunteering also is not significantly associated with depression ( $b = 0.002$ ,  $p = 0.874$ ). Supplementary analyses showed that income accounts for the association of volunteering with depression (Results are now shown), which is consistent with previous study [52].

Tab. 2 presents unstandardized coefficients for depression predicted by volunteering and frequency of volunteering with adjustment for background variables by age groups. Volunteering was associated with lower levels of depression for young adults; however, volunteering was not significantly associated with depression for middle-aged adults. Although young adults volunteer less than middle-aged adults in descriptive analysis, beneficial association of volunteering with depression is only found among young adults. These findings are similarly suggested for frequency of volunteering. That is, the frequency with which volunteering was done was negatively associated with depression for young adults; however, no significant association was reported for the case of middle-aged adults. These findings are different from previous studies analyzing US sample in that volunteering was not associated with depression among adults age under 65 [11] and trajectories of depression among adults of age 25–44 [53]. We discuss the implications of these contradictory findings in the section of discussion.

**Table 2:** Regression of depression on volunteering and background variables by age groups (unstandardized coefficients with robust standard error in parentheses shown)

	Voluntary participation		Frequency of volunteering	
	Young (n = 1,622)	Middle (n = 3,469)	Young (n = 1,622)	Middle (n = 3,469)
Volunteering	-0.835* (0.400)	-0.079 (0.312)		
Frequency of Volunteering			-0.041* (0.018)	0.007 (0.015)
Age	-0.011 (0.043)	0.077** (0.025)	-0.015 (0.043)	0.077** (0.025)
Female	0.684* (0.341)	0.632 <sup>+</sup> (0.328)	0.656 <sup>+</sup> (0.341)	0.630 <sup>+</sup> (0.328)
Having Child (Ref = No Child)	-0.461 (0.671)	-0.529 (1.004)	-0.402 (0.673)	-0.522 (1.007)
Region (Ref = Seoul)				
Major Metropolitan Areas	-0.562 (0.419)	-0.510 (0.320)	-0.527 (0.419)	-0.512 (0.320)
Small Cities	-0.147 (0.402)	0.372 (0.304)	-0.115 (0.402)	0.372 (0.304)
Other Areas	0.337 (0.600)	-0.027 (0.435)	0.360 (0.600)	-0.054 (0.427)
Income	-0.003 (0.005)	-0.016*** (0.004)	-0.003 (0.005)	-0.016*** (0.004)
Education				
No, Elementary, Middle school	1.342 (3.162)	0.683 (0.433)	1.344 (3.157)	0.695 (0.432)
2-year college	-1.271* (0.504)	0.822 <sup>+</sup> (0.424)	-1.311* (0.504)	0.817 <sup>+</sup> (0.422)
4-year college and over	-1.391** (0.496)	0.205 (0.278)	-1.453** (0.496)	0.185 (0.278)
Marital Status (Ref = Currently Married)				
End of Marriage	4.503 <sup>+</sup> (2.558)	0.552 (0.487)	4.507 <sup>+</sup> (2.541)	0.555 (0.487)
Never married	-0.122 (0.635)	-0.331 (1.077)	-0.052 (0.636)	-0.323 (1.079)

(Continued)

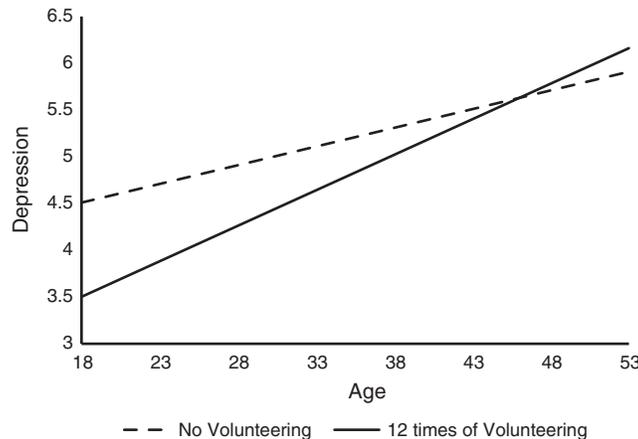
**Table 2 (continued).**

	Voluntary participation		Frequency of volunteering	
	Young (n = 1,622)	Middle (n = 3,469)	Young (n = 1,622)	Middle (n = 3,469)
<b>Employment status</b> (Ref = Waged Employment)				
Self-employment	-0.134 (0.596)	0.231 (0.312)	-0.187 (0.593)	0.235 (0.312)
Unemployment	2.823 <sup>+</sup> (1.553)	-0.120 <sup>+</sup> (0.746)	2.798 <sup>+</sup> (1.547)	-0.109 (0.746)
Out of labor force	-0.553 (0355)	0.517 (0342)	-0.535 (0355)	0.512 (0342)
<b>Self-rated health</b> (Ref = Somewhat Satisfactory)				
Very Unsatisfactory	5.171** (2.119)	0.935 (1.220)	5.069** (2.154)	0.947 (1.219)
Somewhat Unsatisfactory	0.753 (0.920)	1.356*** (0.470)	0.746 (0.917)	1.361*** (0.472)
Neutral	0.625 (0.496)	0.414 (0.311)	0.617 (0.496)	0.414 (0.311)
Very Satisfactory	-0.154 (0.357)	-0.931** (0.347)	-0.154 (0.357)	-0.933** (0.347)
Smoking (0 = No smoking)	0.389 (0.452)	0.388 (0.313)	0.425 (0.450)	0.388 (0.312)
Alcohol consumption	-0.293* (0.145)	-0.067 (0.100)	-0.308* (0.145)	-0.066 (0.100)
Depression (2012)	0.218*** (0.041)	0.335*** (0.029)	0.219*** (0.041)	0.335*** (0.029)
Intercept	4.313*** (1.456)	-0.554 (1.198)	4.446*** (1.463)	-0.552 (1.198)
R <sup>2</sup>	0.146	0.146	0.145	0.199

Note: <sup>+</sup> $p < 0.10$ ; \* $p < 0.05$ ; \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

We test the extent to which volunteering interacts with age in predicting depression. With adjustment for all control variables, the interaction term of voluntary participation and age centered on 18 is significant at  $p < 0.10$  level ( $b = 0.065$ ,  $se = 0.038$ ,  $p = 0.083$ ); however the interaction term of the frequency of volunteering and age is significant at  $p < 0.05$  level ( $b = 0.003$ ,  $se = 0.001$ ,  $p = 0.018$ ). These results show that volunteering appears to have association with decreased levels of depression, but its association is predicted to decrease as people age. Fig. 1 shows that the gap of depression appears large when respondents are young, but two predicted lines of depression get crossed around age of 45. For young adults, voluntary participation is

associated with lower levels of depression, but the beneficial effect of voluntary participation almost vanishes around age of 45, and then voluntary participation is predicted to increase depression. Therefore, it is confirmed that a salutary effect of volunteering is only prevalent among young adults, not middle-aged ones.



**Figure 1:** The association between depression and age at two levels of the formal volunteering

Among background variables, we also found some discrepancies in predicting depression by age groups. Depression in Time 1 was a strong predictor for depression in Time 2. Female showed higher levels of depression both age groups. Income was negatively associated with depression only for middle-aged adults. The salubrious influence of education on depression was particularly found among young adults. Alcohol consumption was associated with decreased levels of depression for young adults, too. Having child, residing region, marital status, employment status, and smoking show no or statistically marginal association with depression.

#### 4 Discussion

Extensive amount of research shows us that be it through wider social networks, increased social engagement and recreation or/and, enhanced sense of self and mastery, formal volunteering often results in better mental health [6–9]. Much of this research, however, has focused on the benefits of volunteering on the elderly population in the western world [10,54]. Our study while not discounting the above takes a step further by examining the relationship between formal volunteering and mental health in a non-western society—namely, South Korea—and, assessing whether this relationship is conditioned by age. We move past looking at the elderly and instead concentrate on two non-elderly groups—young adults (18–35) and middle-aged adults (36–55). Longitudinal analyses using data from KOWEPS reveal that formal volunteering in SK is associated with decreased depression thereby enhancing mental health among young adults but not their middle age counterparts. Findings from our study should be of use to practitioners, policymakers and volunteering organizations who design volunteering programs for individuals of diverse age groups.

##### **4.1 Why Do Middle-Aged Volunteers Show Little Difference in Depression Compared to Non-Volunteers of Same Age Group?**

As shown in the descriptive findings, in SK there are more middle-aged volunteers than young-age volunteers and this mirrors what we see in the western societies where voluntary work increases with age making middle-aged people the most likely group to participate in formal volunteering [55,56]. Middle-aged adults in SK more so than their younger peers have full-time jobs, a spouse and children, and strong

ties to community [57,58], all of which provide greater opportunities for volunteering. However, more social roles may mean more role conflict. It also means that this period in the life course includes contending with, simultaneously, a myriad of personal responsibilities and priorities that often may compete with one another. Given the aging of the population and a cohort of young adults struggling to achieve financial stability, the economic stress of having to fend for multiple generations falls on the shoulders of those in their middle-ages [59]. Therefore, the opportunity to volunteer—which likely is a byproduct of established social roles and standing may result in role overload for middle-aged adults. While their counterparts in Europe work for an average of 38.6 hours, Korean adults put in an average of 51 hours of work per week; the amount of annual paid leave in Korea is much lower than that for their EU counterparts [60]. Moreover, Korean middle-aged adults often are forced to volunteer by their employers [61]. It is likely then that volunteering for these Korean middle-aged adults may not be an optional or recreational activity but instead entail tasks they feel obligated to complete; and, it is difficult to imagine how disinclined participation in voluntary work results in any measurable mental health benefit [62].

Similar situation is found among women out of labor force. In our study sample, married middle-aged adults out of labor force are mostly women (n of married middle-aged adults out of labor force = 623: n of male = 54 (8.6%), n of female = 569 (91.4%)) [63]. In Korea, housewives put a huge emphasis on their children's education given the highly competitive nature of Koreans when it comes to education [64,65]. For the sake of their children, women regularly participate in volunteering for school and school-related community work because it is an opportunity to develop networks with teachers and other parents and exchange information for children [66]. This kind of volunteering is not expected to have salutary influence on mental health because their volunteering is solely to meet their secular needs and does not particularly contain altruistic purpose. We admit that most of what we argue here is speculative; our data do not contain variables to assess the empirical relevance of some of these arguments. For instance, we know that the value ascribed to social roles is consequential in the outcomes attached to them [67]. Moreover, the beneficial effect of occupying a social role is contingent upon the characteristics and quality of that role [68]. Future research, therefore, would be well advised to re-assess the relationship between formal volunteering, age, and mental health by testing variables that look at what it means to volunteer, the reason to volunteer, and quality of the experience attached to it.

#### ***4.2 What Explains the Mental Health Benefit of Formal Volunteering for Young Adults in SK?***

Young adults in SK today encounter a number of social plights such as lack of employment, stability in existing jobs, high housing cost, reduced prospect of marriage, and, a generational conflict with middle and old-aged adults who continue to enjoy their stable social and economic standing [40,69]. Their psychological vulnerability is well reflected in death statistics such that suicide is a leading cause of death for adults age 20–29 [36]. In times of social and financial uncertainties, formal volunteering may act as an opportunity to meet new people, be part of a formal organization, increase networking, and learn new skills. It also may provide a sense of mattering and consequently lead to an elevated sense of self. In supplementary analyses, we did actually examine the role self-esteem played in the relationship between formal volunteering and depression. Findings revealed a mediating effect of self-esteem; that is, among young adult in SK, formal volunteering resulted in reduced depression by increasing the level of self-esteem (results available upon request).

Membership in formal organizations not only provides individuals with a sense of belonging but it also connects them to larger social structure [70] which may translate into better mental health [55]. It is logical to assume then similar impact of formal volunteering on young adults, especially in light of unfavorable economic conditions. Formal volunteering may be a way for young adults to compensate for lack of the otherwise normative social roles at their age. Compensation indicates both psychological and behavioral efforts taken to preserve one's ability to function in the face of loss [71–73]. While, typically,

compensation framework is used to explain support systems of the widowed and retired, we argue that young adults in their choice of formal volunteering actively choose to fight their social conditions and do something meaningful that reduces their depression and enhances their psychological health. Of course, it only helps that unlike their middle-aged peers, young adults in SK are more accustomed to western culture and norms that emphasize the social role of volunteering. Most of the young adults in SK have had an experience in volunteering while in schools and colleges [74]. They are more ready than their middle-aged counterparts to serve people outside their immediate families and utilize volunteering to build more networks, learn new skills, and consequently reap the positive mental health benefits of this social role [61]. The empirical results from our study highlight the value of creating partnerships between schools and colleges, and local employers. These partnerships could provide more structured opportunities for young adults and help them not only in acquiring new skills and social networks but guiding them towards their future careers.

### ***4.3 Strengths, Limitations and Future Directions***

Majority of the existing studies on the potential mental health consequences of formal volunteering focus on the elderly, with lesser consideration tended to their middle-aged and younger peers [75]. This may reflect the cultural notion of “successful aging” in western nations where older adults are faced with the social pressure to remain productive through their later years [76,77]. Researchers, as such, want to identify the social roles and activities optimum for the health of older adults as they strive to remain socially productive. While we do not discount efforts to understand the implications of volunteering for the elderly, we contribute to the research on volunteering by understanding its mental health implications for two non-elderly groups of individuals, namely the young and the middle-aged. Findings from our study also highlight the principles of the life course perspective that suggest that the broader economic, social, and cultural conditions in SK may influence the impact of formal volunteering and such an impact is likely to vary based on one’s location in social structure. While we focused on age in assessing the impact of social location on the link between volunteering and mental health, other ascribed statuses, such as gender, race, sexual orientation and social class that an individual is born into are just as consequential. In fact, researchers who replicate our work must consider understanding how various social structures (e.g., age, gender, class) interact to influence mental health among formal volunteers.

Our study certainly is not without limitations though. First, to have a complete understanding of the relationship between formal volunteering and mental health, we need additional variables to measure more comprehensively the nature of the volunteering. For instance, the type of organizations, the specific tasks performed within the organization(s), the duration of participation all are needed to be able to truly discern the impact of this social role on those who carry it out. Unfortunately, KOWEPS does not contain such measures. Our data also do not contain a measure for what it means to volunteer and the reason for volunteering. Life course researchers would suggest that more people would likely volunteer as the social and cultural premium placed on the role of volunteering rises and with the increased value placed on this role, the mental health benefits associated with it also may increase. Future research, therefore, is burdened with the task of replicating the present study using additional information related to the role of formal volunteering.

Given that transitions in and out of social roles continue over the life course, future studies should consider conducting longitudinal analyses using more than two waves of survey. Moreover, longitudinal research using multiple waves would be even more consequential if we could prod deeper into sociopersonal contexts of those who volunteer. A critical tenet of the life course perspective is the relevance of social contexts on resources, experiences, expectations, and health [31]. As such, the relationship between formal volunteering and mental health among current and future cohorts of young and middle-aged persons in SK must be assessed by exploring how benefits of this social role change

over the life course based on transitions related to employment, marriage, parenthood, and retirement. For instance, do the benefits that young adults gain from volunteering decrease as they marry, become parents, get promoted in their jobs, and retire? Do benefits of formal volunteering for young adults change based on shifting roles and role combinations? Given the lack of such information in our data, our study is far from a definitive statement on how age conditions mental health effect of formal volunteering. Rather it is merely a trigger for future studies on this issue which is of growing importance in South Korea as policy makers strive eagerly to help their young adults in times of social and economic uncertainty.

**Funding Statement:** This work was supported by Laboratory Program for Korean Studies through the Ministry of Education of Republic of Korea and Korean Studies Promotion Service of the Academy of Korean Studies (AKS-2016-LAB-2250002).

**Conflicts of Interest:** The authors declare that they have no conflict of interest to report regarding the present study.

## References

1. Wilson, J., Musick, M. (1997). Who cares? Toward an integrated theory of volunteer work. *American Sociological Review*, 62(5), 694–713. DOI 10.2307/2657355.
2. Ajrouch, J. K., Tesch-Roemer, C. (2017). Formal and informal volunteering in later life: Two sides of the same coin. *Innovation in Aging*, 1(1), 1395–1396. DOI 10.1093/geroni/igx004.5137.
3. Einolf, C., Prouteau, L., Nezhina, T., Ibrayeva, A. (2016). Informal, unorganized volunteering. *The palgrave handbook of volunteering, civic participation, and nonprofit associations*. Palgrave Macmillan, UK.
4. Kawachi, I., Kennedy, B. P. (1997). Socioeconomic determinants of health: Health and social cohesion: why care about income inequality? *BMJ Clinical Research*, 314(7086), 1037. DOI 10.1136/bmj.314.7086.1037.
5. Musick, M. A., Wilson, J. (2008). *Volunteers: A social profile*. Bloomington: Indiana University Press.
6. Lee, S. H., Kim, Y. (2014). Which type of social activities decrease depression in the elderly? An analysis of a population-based study in South Korea. *Iranian Journal of Public Health*, 43(7), 903–912.
7. Li, Y. P., Chen, Y. M., Chen, C. H. (2013). Volunteer transitions and physical and psychological health among older adults in Taiwan. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 68(6), 997–1008. DOI 10.1093/geronb/gbt098.
8. Wilson, J. (2012). Volunteerism research: a review essay. *Nonprofit and Voluntary Sector Quarterly*, 41(2), 176–212. DOI 10.1177/0899764011434558.
9. Yeung, J. W. K., Zhang, Z. N., Kim, T. Y. (2017). Volunteering and health benefits in general adults: Cumulative effects and forms. *BMC Public Health*, 18(1), 1–8.
10. Morrow-Howell, N., Lee, Y. S., McCrary, S., McBride, A. (2014). Volunteering as a pathway to productive and social engagement among older adults. *Health Education & Behavior*, 41(1\_Suppl), 84S–90S. DOI 10.1177/1090198114540463.
11. Musick, M. A., Wilson, J. (2003). Volunteering and depression: The role of psychological and social resources in different age groups. *Social Science & Medicine*, 56(2), 259–269. DOI 10.1016/S0277-9536(02)00025-4.
12. Parboteeah, K. P., Cullen, J. B., Lim, L. (2004). Formal volunteering: A cross-national test. *Journal of World Business*, 39(4), 431–441. DOI 10.1016/j.jwb.2004.08.007.
13. Grönlund, H. (2013). Cultural values and volunteering: a cross-cultural perspective. *Altruism in Cross-Cultural Perspective*. Springer, USA.
14. Grönlund, H., Holmes, K., Kang, C., Cnaan, R. A., Handy, F. et al. (2011). Cultural values and volunteering: A cross-cultural comparison of students' motivation to volunteer in 13 countries. *Journal of Academic Ethics*, 9(2), 87–106. DOI 10.1007/s10805-011-9131-6.
15. Raymo, J. M., Park, H., Xie, Y., Yeung, W. J. J. (2015). Marriage and family in East Asia: continuity and change. *Annual Review of Sociology*, 41(1), 471–492. DOI 10.1146/annurev-soc-073014-112428.

16. Seth, M. (2012). Education zeal, state control and citizenship in South Korea. *Citizenship Studies*, 16(1), 13–28. DOI 10.1080/13621025.2012.651400.
17. Kim, J., Lau, L. J. (1994). The sources of economic growth of the East Asian newly industrialized countries. *Journal of the Japanese and International Economies*, 8(3), 235–271. DOI 10.1006/jjie.1994.1013.
18. Rosenberg, E., Letrero, I. L. (2006). Using age, cohort, and period to study elderly volunteerism. *Educational Gerontology*, 32(5), 313–334. DOI 10.1080/03601270600564088.
19. Mathou, C. (2010). *Volunteering in the European Union*. Brussels: GHK.
20. Yasuda, T., Noriko, I., Chin-Chun, Y., Xie, G. (2011). Intergenerational coresidence in China, Japan, South Korea and Taiwan: comparative analyses based on the East Asian Social Survey 2006. *Journal of Comparative Family Studies*, 42(5), 703–722. DOI 10.3138/jcfs.42.5.703.
21. Chang, K. (2010). *South Korea under compressed modernity: Familial political economy in transition*. Routledge: Routledge, USA.
22. Joo, S. S. (2000). Understanding the NGO revolution in Korea. *Global Economic Review*, 29(4), 3–19. DOI 10.1080/12265080008449802.
23. Lee, S. J., Arrington, C. (2008). The politics of NGOs and democratic governance in South Korea and Japan. *Pacific Focus*, 23(1), 75–96. DOI 10.1111/j.1976-5118.2008.00005.x.
24. Kim, E. (2009). The limits of NGO-government relations in South Korea. *Asian Survey*, 49(5), 873–894. DOI 10.1525/as.2009.49.5.873.
25. Kim, J. (2000). The growth of the non-government sector in Korea and its relations with the state. *Global Economic Review*, 29(4), 20–42. DOI 10.1080/12265080008449803.
26. Moon, J., Yoo, Y. (2013). The effect of volunteer activity on health and life satisfaction. *Health and Social Science*, 34, 87–107.
27. Song, J. (2015). The effect of social capital on depression: Focused on the mediating effect of family relationship satisfaction. *Health and Social Welfare Review*, 35(2), 164–192.
28. Kim, J., Kang, J. H., Lee, M. A., Lee, Y. (2007). Volunteering among older people in Korea. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 62(1), S69–S73. DOI 10.1093/geronb/62.1.S69.
29. Lee, H., Park, S., Lim, K., Lim, K., Park, Y. et al. (2016). Association between lifestyle and cognitive impairment among women aged 65 years and over in the Republic of Korea. *Educational Gerontology*, 42(3), 198–208. DOI 10.1080/03601277.2015.1085794.
30. Yoon, M. S., Lee, M. S. (2011). A study on the effects of depression on life satisfaction and the mediating effect of self-esteem of elderly women. *Journal of Community Welfare*, 36, 89–115.
31. Elder, G. (1985). *Life course dynamics*. Ithaca, NY: Cornell.
32. Hutchinson, E. D. (2005). The life course perspective: A promising approach for bridging the micro and macro worlds for social workers. *Families in Society*, 86(1), 143–152. DOI 10.1606/1044-3894.1886.
33. Newman, K. (2008). Ties that bind: Cultural interpretations of delayed adulthood in Western Europe and Japan. *Sociological Forum*, 23(4), 645–669. DOI 10.1111/j.1573-7861.2008.00089.x.
34. Buss, D. M., Shackelford, T. K., Kirkpatrick, L. A., Larsen, R. J. (2001). A half century of mate preferences: the cultural evolution of values. *Journal of Marriage and Family*, 63(2), 491–503. DOI 10.1111/j.1741-3737.2001.00491.x.
35. Jeon, S. Y., Reither, E. N., Masters, R. K. (2016). A population-based analysis of increasing rates of suicide mortality in Japan and South Korea, 1985–2010. *BMC Public Health*, 16(1), 1–9.
36. Lim, D., Ha, M., Song, I. (2014). Trends in the leading causes of death in Korea, 1983–2012. *Journal of Korean Medical Science*, 29(12), 1597–1603. DOI 10.3346/jkms.2014.29.12.1597.
37. Chan, C. H., Caine, E. D., You, S., Fu, K. W., Chang, S. S. et al. (2014). Suicide rates among working-age adults in South Korea before and after the 2008 economic crisis. *Journal of Epidemiology and Community Health*, 68(3), 246–252. DOI 10.1136/jech-2013-202759.
38. Choi, N. G., Kim, J. (2011). The effect of time volunteering and charitable donations in later life on psychological wellbeing. *Ageing and Society*, 31(4), 590–610. DOI 10.1017/S0144686X10001224.

39. Souza, K. A., Dhimi, M. K. (2008). A study of volunteers in community-based restorative justice programs. *Canadian Journal of Criminology and Criminal Justice*, 50(1), 31–57. DOI 10.3138/cjccj.50.1.31.
40. Park, G. S. (2011). Rethinking generational conflict in contemporary Korea: the search for economic dimensions. *Korean Society*, 12(1), 3–25.
41. Lie, J., Park, M. (2006). South Korea in 2005: Economic dynamism, generational conflicts, and social transformations. *Asian Survey*, 46(1), 56–62. DOI 10.1525/as.2006.46.1.56.
42. Caputo, R. K. (2009). Religious capital and intergenerational transmission of volunteering as correlates of civic engagement. *Nonprofit and Voluntary Sector Quarterly*, 38(6), 983–1002. DOI 10.1177/0899764008323990.
43. Mustillo, S., Wilson, J., Lynch, S. M. (2004). Legacy volunteering: A test of two theories of intergenerational transmission. *Journal of Marriage and Family*, 66(2), 530–541. DOI 10.1111/j.1741-3737.2004.00036.x.
44. Oesterle, S., Johnson, M. K., Mortimer, J. T. (2004). Volunteerism during the transition to adulthood: a life course perspective. *Social Forces*, 82(3), 1123–1149. DOI 10.1353/sof.2004.0049.
45. Goode, W. J. (1960). A theory of role strain. *American Sociological Review*, 25(4), 483–496. DOI 10.2307/2092933.
46. Merton, R. K. (1957). The role-set: Problems in sociological theory. *British Journal of Sociology*, 8(2), 106–120. DOI 10.2307/587363.
47. Mutchler, J. E., Burr, J. A., Caro, F. G. (2003). From paid worker to volunteer: leaving the paid workforce and volunteering in later life. *Social Forces*, 81(4), 1267–1293. DOI 10.1353/sof.2003.0067.
48. Noh, D. M. (2015). *The 2015 Korea welfare panel survey (Koweps): descriptive report*. Sejong: Korea Institute for Health and Social Affairs.
49. Kim, W., Kim, T. H., Lee, T. H., Ju, Y. J., Chun, S. Y. et al. (2017). Temporary work and depressive symptoms in South Korean workers. *Occupational Medicine*, 67(6), 421–424. DOI 10.1093/ocmed/kqx050.
50. Kim, W., Park, E. C., Lee, T. H., Kim, T. H. (2016). Effect of working hours and precarious employment on depressive symptoms in South Korean employees: A longitudinal study. *Occupational and Environmental Medicine*, 73(12), 816–822.
51. Mirowsky, J., Ross, C. E. (1992). Age and depression. *Journal of Health and Social Behavior*, 33(3), 187–205. DOI 10.2307/2137349.
52. Kim, J. (2015). Volunteering and depression: Focusing on moderating effects of socioeconomic and social relational resources. *Health and Social Science*, 38, 147–175.
53. Kim, J., Pai, M. (2010). Volunteering and trajectories of depression. *Journal of Aging and Health*, 22(1), 84–105. DOI 10.1177/0898264309351310.
54. Haski-Leventhal, D. (2009). Elderly volunteering and well-being: A cross-European comparison based on share data. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, 20(4), 388–404. DOI 10.1007/s11266-009-9096-x.
55. Fischer, L. R., Schaffer, K. B. (1993). *Older volunteers: A guide to research and practice*. Sage Publications, Inc.: Sage, USA.
56. Kim, S., Hong, G. (1998). Volunteer participation and time commitment by older Americans. *Family and Consumer Sciences Research Journal*, 27(2), 146–166. DOI 10.1177/1077727X980272003.
57. Kang, K. A., Kim, S. J., Ellis, H. K. (2017). Suicide risk, meaning in life, and need for life respect in adults and elderly among public hospital outpatients in South Korea: A cross-sectional survey. *Journal of Community Health Nursing*, 34(1), 46–61. DOI 10.1080/07370016.2017.1260988.
58. Kim, S. J. (2014). The career transition process: A qualitative exploration of Korean middle-aged workers in postretirement employment. *Adult Education Quarterly*, 64(1), 3–19. DOI 10.1177/0741713613513491.
59. Parker, K., Patten, E. (2013). The sandwich generation: Rising financial burdens for middle-aged Americans. Pew Research Center, social and demographic trends. <https://www.pewsocialtrends.org/2013/01/30/the-sandwich-generation/>.
60. Park, J., Lee, N. (2009). First Korean working conditions survey: A comparison between South Korea and EU countries. *Industrial Health*, 47(1), 50–54. DOI 10.2486/indhealth.47.50.

61. Lee, Y. J., Jeong, J. W. (2015). The link between public service motivation and volunteering: The case of South Korean civil servants. *International Journal of Public Administration*, 38(5), 355–363. DOI 10.1080/01900692.2014.938819.
62. Yarwood, R. (2005). Geography, citizenship and volunteering: Some uses of the higher education active community fund in geography. *Journal of Geography in Higher Education*, 29(3), 355–368. DOI 10.1080/03098260500290918.
63. Kinoshita, Y., Guo, F. (2015). *What can boost female labor force participation in Asia?* International Monetary Fund.
64. Anderson, T., Kohler, H. P. (2013). Education fever and the east Asian fertility puzzle a case study of low fertility in South Korea. *Asian Population Studies*, 9(2), 196–215. DOI 10.1080/17441730.2013.797293.
65. Lee, S., Shouse, R. C. (2011). The impact of prestige orientation on shadow education in South Korea. *Sociology of Education*, 84(3), 212–224. DOI 10.1177/0038040711411278.
66. Kim, M. (2013). Why women volunteer in Korea. *Asian Women*, 29(1), 79–104.
67. Simon, R. W. (2002). Revisiting the relationships among gender, marital status, and mental health. *American Journal of Sociology*, 107(4), 1065–1096. DOI 10.1086/339225.
68. Janzen, B. L., Muhajarine, N. (2003). Social role occupancy, gender, income adequacy, life stage and health: A longitudinal study of employed Canadian men and women. *Social Science & Medicine*, 57(8), 1491–1503. DOI 10.1016/S0277-9536(02)00544-0.
69. Choi, P., Min, I. (2015). Labor force status and employment quality, and marriage event for young workers: applying the discrete-time hazard model. *Korea Journal of Population Studies*, 38(2), 57–83.
70. Elwell, F., Maltbie-Crannell, A. D. (1981). The impact of role loss upon coping resources and life satisfaction of the elderly. *Journal of Gerontology*, 36(2), 223–232. DOI 10.1093/geronj/36.2.223.
71. Carstensen, L., Kaaren, A. H., Alexandra, M. F. (1995). Selection and compensation in adulthood. *Compensating for Psychological Deficits and Declines: Managing Losses and Promoting Gains*. Lawrence Erlbaum Associates, USA.
72. Rook, K. S., Schuster, T. L. (1996). Compensatory processes in the social networks of older adults. *Handbook of Social Support and the Family*. Springer, USA.
73. Li, Y., Ferraro, K. F. (2006). Volunteering in middle and later life: Is health a benefit, barrier or both? *Social Forces*, 85(1), 497–519. DOI 10.1353/sof.2006.0132.
74. Kim, J. (2010). Neighborhood disadvantage and mental health: The role of neighborhood disorder and social relationships. *Social Science Research*, 39(2), 260–271. DOI 10.1016/j.ssresearch.2009.08.007.
75. Russell, A. R., Nyame-Mensah, A., de Wit, A. (2019). Volunteering and wellbeing among ageing adults: A longitudinal analysis. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, 30(1), 115–128. DOI 10.1007/s11266-018-0041-8.
76. Gonzales, E., Matz-Costa, C., Morrow-Howell, N. (2015). Increasing opportunities for the productive engagement of older adults: A response to population aging. *Gerontologist*, 55(2), 252–261. DOI 10.1093/geront/gnu176.
77. Morrow-Howell, N., Halvorsen, C. J., Hovmand, P., Lee, C., Ballard, E. (2017). Conceptualizing productive engagement in a system dynamics framework. *Innovation in Aging*, 1(1), 183. DOI 10.1093/geroni/igx018.