

ORIGINAL ARTICLE

Life satisfaction among individuals 50 years or older: Why living arrangements matter?

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ABSTRACT

Growing research recognizes the importance of evaluating life satisfaction in promoting psychological well-being (PWB) among middle-aged and older adults due to its heightened importance for public health relevance. The current study assessed the relationship between life satisfaction and living arrangement among U.S. adults aged 50 years or older and whether this relationship varies by gender. We used the Health and Retirement Study data from 2010-2014 (7,163 respondents), a nationally representative cohort of U.S. adults aged 50 years or older. The outcome variable was the measure of satisfaction with life on a continuous scale (1-7). The categorical independent variable was individuals' living arrangements status (living with a spouse/partners (reference category), living alone, living with others; measured in the 2012 wave). We conducted a Generalized linear model in our regression analysis. Controlling for demographic, socioeconomic, and health-related factors, individuals who lived alone or lived with others had significantly lower life satisfaction ($\beta = -0.21$, 95% CI [-0.31, -0.11]) and ($\beta = -0.23$, 95% CI [-0.38, 0.08]) respectively, compared to those who lived with a spouse/partner. These findings suggest public health policies and programs may need to find ways to increase supportive resources for people living alone or living with others to promote life satisfaction, which is a protective factor for good health.

Key Words: Living arrangements, Older adults, Life satisfaction, Psychological well-being, Public policy

1. INTRODUCTION

Meeting the unique needs of the growing population of older adults is increasingly recognized as a global public health challenge. Current literature on successful aging suggests that improving psychological well-being (PWB) is critical because of its health enhancing impacts in maintaining health and functionality over the life span.^[1] One such psychosocial health outcome is life satisfaction, which is a measure of subjective well-being that reflects an individual's global assessment of his/her own life and one of the best indicators of quality of life.^[2,3] Higher life satisfaction is associated with better physical and functional health,^[4,5] and health-

promoting behaviors.^[6] Due to heightened importance for public health relevance, life satisfaction is recognized as a valuable target for important policy decisions for the growing aging population in the U.S..^[7-9]

There is growing interest in investigating how types of living arrangements impact life satisfaction for older adults^[10,11] due to known relationship between several individual-level factors and life satisfaction including socioeconomic status (SES),^[12,13] demographics, health, and social support.^[14,15] Furthermore, research suggests that family composition and living situation can also influence well-being outcomes.^[16,17]

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Several studies found that living with a spouse, or adult children can offer protective health benefits than living alone.^[18–20] One recent study of Chinese adults 50 years or older particularly found that individuals who lived with a spouse experienced higher life satisfaction than those who lived alone or with other family members.^[21] Older adults living alone are considered an “at-risk” group of reporting poor health outcomes and disability.^[22] Nearly 30% of Americans aged 65 years or older live alone, with a higher percentage of women (33%) living alone than men (20%).^[23,24] Yet, the literature on the relationship between life satisfaction and living arrangement among individuals 50 years or older in the U.S. is sparse. Differences in life satisfaction by living arrangement status can also vary by gender due to differential health effects of a particular living arrangement for women than that of men.^[19,25]

Given limited evidence on the link between living arrangement types and life satisfaction for other countries, it is critical to know whether this relationship holds in the context of the U.S. The current study will address this gap and investigate the link between living arrangements and life satisfaction using a population-based dataset in the U.S. We do so by (1) examining life satisfaction by types of living arrangements and (2) investigating if the association between living arrangements and life satisfaction varies by gender.

Theory and hypothesis

Social integration theory suggests well-established health benefits of social relationships for adults.^[26,27] Living arrangements refer to individuals’ most immediate social environment, which increases the likelihood of accessing resources and seeking instrumental supports from other members living in the same household.^[28] Given the interconnectedness between physical and psychological well-being, it can be assumed that availability of resources and supports can influence life satisfaction in a similar way that those resources impact physical health.^[29] Although an increasing number of studies focus on the relationship between living arrangements and mental and physical health outcomes,^[30–32] very few studies examine the association between living arrangements and life satisfaction. This relationship can play an important role in the context of an aging society due to changing demographic trends characterized by a rising prevalence of living alone, especially among older adults.

We used the social integration theory as stated above as a framework to conceptualize the relationship between living arrangements and life satisfaction. Not all living arrangements are equally supportive in influencing health outcomes due to the physical characteristics of people living within the same household.^[33–35] Therefore, we hypothesize that the

differences in life satisfaction will vary by living arrangement types. Furthermore, because of the differential health effects of living arrangements for women versus men, we also hypothesize that the relationship between life satisfaction and living arrangements will vary by gender. We expect to find that living alone or living with others will be associated with lower life satisfaction compared to living with a spouse/partner and the degree of association will be stronger for those living with others compared to living alone. We also expect that women who lived alone will have higher life satisfaction than men who lived alone.

2. METHODS

2.1 Data and sample

We used the Health and Retirement Study (HRS), a nationally representative dataset that includes comprehensive measures of health and PWB outcomes as well as socio-demographics, and financial status of adults 50 years or older living in the U.S. The HRS offers an excellent opportunity to control for a host of individual-level factors while assessing the relationship between life satisfaction and living arrangements in our analysis. Starting from 2006, the HRS collects psychosocial measures every four years using the Leave Behind Lifestyle (LB) Questionnaires. This survey collects information from HRS respondents about their psychosocial and lifestyle experiences to better understand the role of positive psychology outcomes for healthy aging. A complete description of this survey can be found elsewhere.^[36] Therefore, the HRS offers an excellent opportunity for an in-depth understanding of how life satisfaction is impacted by individuals’ living situations.^[37] We used the 2014 wave of the HRS psychosocial questionnaire, which included about 7,536 respondents. We then link the 2014 survey to 2012 base HRS wave to extract living arrangements status and other individual-level information. We restricted the sample to 50 years or older (excluded $N = 123$), and in 2014, life satisfaction scores were missing for 250 respondents. About 7,163 HRS respondents who participated in the 2014 psychosocial well-being survey in the HRS were included in our study sample. The HRS is a publicly available dataset which is de-identified and therefore not subject to the review by the Institutional Review Board.

2.2 Measures

2.2.1 Outcome variable

In the HRS, life satisfaction is measured using the Diener Satisfaction with Life Scale (SWLS),^[2] a widely used measure among middle-aged and older adults.^[38] The SWLS is a self-reported measure that reflects overall well-being and refers to a general sense of “feeling well” and “valuing life” as perceived by individuals regarding their psychological health. The scale included if: (a) life is ideal, (b) life conditions

are excellent, (c) satisfied with life, (d) achieved important things in life, and (e) if life again would not change anything. Each measure was expressed with 1 (strongly disagree) to 7 (strongly agree) and an index was created by averaging the scores across all 5 items, with higher score suggesting greater life satisfaction.

2.2.2 Independent variable

The independent variable was the living arrangement status measured in 2012, two years before the outcome measure to reduce the risk of “prevalent exposure” to life satisfaction on living arrangements (i.e., avoiding the risk of life satisfaction impacting living arrangement choice).^[7] In the HRS, respondents’ living arrangements were assessed to identify (1) if they were married or partnered, living with their spouse/partner, (2) if married or partnered, but not living with a spouse/partner, (3) if not married or partnered, living with other unrelated adults, (4) if not married or partnered, living with relatives (including minor children), or unrelated minor child, and finally, (5) not married or partnered, living alone. Individuals ($n = 181$) who reported in the category (2) above, were excluded from the study due to a lack of adequate information to correctly determine their living arrangement status. Finally, we excluded respondents ($n = 65$) due to missing information on living arrangement in 2012. We then created a categorical variable having 3 categories and coded as: 1 = living with a spouse/partner only ($n = 4,646$); 2 = living alone ($n = 1,420$); and 3 = living with others only ($n = 769$); “others” includes adult children, relatives, and unrelated adults (combining categories 3 and 4 above). These categories allowed us to better understand the implications of various living arrangements for promoting life satisfaction and to highlight an importance of differences in living situation as a critical factor contributing to the availability of resources and supports for older adults. We used “living with a spouse/partner” as a reference category in the regression analysis.

2.2.3 Covariates

Covariates were also measured from HRS 2012 wave. We included socioeconomic status (SES), demographic, and health-related variables based on existing evidence of their impacts on life satisfaction.^[39,40] Socioeconomic and demographic characteristics included age (in years), gender, (male/female), race/ethnicity (non-Hispanic White, non-Hispanic Black, non-Hispanic other, and Hispanic), and educational attainment (less than a high school graduate degree, high school degree, some college, or college degree). We combined “some college” and “college” into the “college” category in the analysis. Health-related variables included (a) self-rated health (excellent, very good, or good versus fair or poor health), (b) the presence of two or more chronic conditions,

(c) functional limitations (having ≥ 1 activity of daily living (ADL) limitations and instrumental activities of daily living (IADLs) limitations), and (d) regular physical activities, measured by respondents’ participation in vigorous activities at least twice per week. Since the living arrangement variable in the HRS is based on marital status, we did not control for it in the analysis due to potential multicollinearity problem. Following the previous literature,^[33] we used wealth as the primary indicator of SES, which captures a comprehensive measure of financial status of older adults.^[41,42] Total wealth was combined for the respondent and spouse, subtracting any debts. Because of the highly skewed distribution of total wealth, we divided it into quintiles and used it as a categorical variable with 5 levels: the first quintile as the lowest and the fifth quintile as the highest (reference category). A relatively small number of respondents were missing on one or more of these covariates ($n = 71$), and we excluded them from the analysis.

2.3 Statistical analysis

We began our analysis by examining sample descriptive and comparing bivariate differences in the life satisfaction score (SWLS) by living arrangement status using the Analysis of Variance (ANOVA) test. We then performed ANOVA contrasts between living alone versus living with a spouse/partner to examine significant differences in SWLS scores between these two groups. Unadjusted associations between categorical variables across 3 living arrangement types were evaluated using chi-square tests. Finally, we used a generalized linear model (GLM) and specified a gaussian family with an identity link function, which accounts for any nonlinear relationships between the outcome variable and the covariates in the regression models. All analyses were performed in Stata 14 using survey weights to adjust for the complex survey design of the HRS.

3. RESULTS

Table 1 presents descriptive of the weighted sample. The analytic sample included 7,019 individuals who had completed information on life satisfaction, living arrangement, and all covariates. Approximately 20% of the sample respondents lived alone, 69% lived with a spouse/partner, and 11% lived with relatives, including children. Nearly 54% of the sample were women and they were nearly twice as likely to live alone as men (64.3% vs. 35.3%; $p < .001$). About 54% were aged between 50 and 64 years (mean age was 65.4 years), 28% were between 65 and 74 years and 19% were 75 years and above. The ANOVA analysis suggested a significant difference in life satisfaction score by living arrangement types and ANOVA contrast test showed that life satisfaction score was significantly lower for those who lived alone

compared to those who lived with a spouse/partner (4.82 vs. 5.35; $F = 73.91$; $p < .001$). Table 2 reports unadjusted differences in life satisfaction score, demographic, health-related variables by living arrangement status and these differences were statistically significant. Table 3 presents the association between SWLS score and living arrangements both unadjusted and adjusted for covariates from the GLM estimation. In the unadjusted model, living alone ($\beta = -0.36$; 95% CI [-0.44, -0.27]) and living with others ($\beta = -0.58$; 95% CI [-0.69, -0.45]) both were significantly associated with lower SWLS score, compared to living with a spouse/partner.

Table 1. Descriptive statistics of the weighted sample (N = 7,019)

Variables	Mean (SE)/Frequency (%)
Outcome variable (2014)	
SWLS (1-7)	5.18 (0.03)
Independent predictors: Living arrangements (2012)	
Living Alone	22%
Living with spouse/partner	67%
Living with others	11%
Covariates	
Age groups	
Age (50-64)	46%
Age (65-74)	31%
Age 75 +	23%
Gender	
Male	54%
Female	46%
Race/Ethnicity	
Non-Hispanic Black	9%
Non-Hispanic White	84%
Other race/ethnicities	6%
Hispanic	8%
Education	
Less than HS/GED	23%
HS graduate	28%
Some college	25%
College degree	24%
Household Wealth (\$)	\$514,422 (\$467,250)
Chronic health	
≥ 2 health conditions	56%
Functional Limitations	
Any ADL	14%
Any IADL	9%
Self-reported health	
Excellent/very good/good	75%
Any Physical activity	42.5%

After adjusting for sociodemographic covariates (Adjusted Model1), significant differences in living arrangement status were observed. Individuals living alone ($\beta = -0.37$; 95% CI [-0.44, -0.27]) and living with others ($\beta = -0.49$; 95% CI [-0.61, -0.37]) had significantly lower SWLS scores, compared with individuals living with a spouse/partner. Adjusting for health characteristics (Model 2) in addition to all sociodemographic, the effects of living alone and living with others were attenuated but remained significant. Wealth had the largest modifying effect (Model 3) on the relationship between living arrangements and life satisfaction score but living alone and living with others were both associated with lower SWLS scores.

While we found that women, compared to men, had a higher SWLS score in the fully adjusted model, there was no significant interaction between living arrangements and gender for life satisfaction score in the adjusted models. To examine the differential effects of living arrangements on life satisfaction across gender, we stratified our analysis by gender. We found that the association between living with others and life satisfaction score is much stronger for men than women. The effect of all other covariates remained qualitatively similar in both samples, and though we do not present those results here, they can be obtained from authors upon request.

4. DISCUSSION

Individuals' living arrangements are important components of their social and economic support systems, which can impact PWB.^[43] Our results suggest living alone and living with others are linked with a lower life satisfaction score, compared to those living with a spouse/partner. These findings support our study hypothesis. Additionally, our findings suggest that whom one lives with matters for promoting life satisfaction among individuals 50 years or older. We also found evidence in support of our hypothesis that a negative association living arrangements and life satisfaction scores is stronger for those living with others than living alone. Therefore, individuals living alone were not the most disadvantageous group. Those living alone may be in good health and socioeconomic situation and poorer health may influence an individual's decision to choose to live with other family members to cope with the illness better.

Study findings are consistent with previous research linking living arrangements and health outcomes. For example, prior literature found that older adults living alone experience greater depressive symptoms, loneliness, and poor physical and functional health outcomes.^[43,44] Stronger negative association between living with others and life satisfaction score could suggest that living with different family members may not offer a protective health effect if relationships

among them are not supportive for promoting health and well-being.^[45] Living with other family members could contribute to a poor economic situation and quality of life, which in turn leads to poorest health, psychosocial distress, and a greater number of chronic illnesses compared to those living with a spouse/partner.^[46-48] Our study extends the existing literature by providing evidence on the life satisfaction, an important indicator of successful aging, and quality of life.

Table 2. Distribution of life satisfaction score, demographic and health characteristics by living arrangement status

Variables	Living with Spouse/partner	Living Alone	Living with others	ANOVA/ chi-squared
	Weighted mean/% (SE)	Weighted mean/% (SE)	Weighted mean/ % (SE)	<i>p-value</i>
SWLS (1-7)	5.16 (0.03)	4.71 (0.05)	4.54 (0.06)	< .001
Age groups				
Age (50-64)	57.1	40.7	56.7	< .001
Age (65-74)	28.1	27.4	20.5	
Age 75 +	14.4	31.8	22.5	
Gender				
Men	51.9	35.5	29.4	
Women	48.0	64.3	70.6	< .001
Race/Ethnicity				
Non-Hispanic Black	5.2	11.5	19.1	
Non-Hispanic White	89.2	84.3	71.4	< .001
Other race/ethnicities	7.9	4.2	9.6	
Hispanic	9.3	6.2	13.2	< .001
Education				
Less than HS/GED	11.7	16.4	25.0	
HS graduate	26.8	29.5	24.9	
Some college	36.5	26.6	21.1	< .001
Asset Quintiles				
First quintile	0.13 (0.01)	0.35 (0.02)	0.48 (0.02)	< .001
Second quintile	0.24 (0.01)	0.25 (0.01)	0.26 (0.02)	
Third quintile	0.28 (0.01)	0.22 (0.01)	0.16 (0.02)	
Fourth quintile	0.35 (0.02)	0.19 (0.01)	0.09 (0.01)	
Fifth quintile				
Physical/functional health				
≥2 health conditions	55.9	66.0	63.8	< .001
Any ADL	8.9	15.3	19.3	< .001
Any IADL	6.7	10.1	17.3	< .001
SRH Excellent/very good/good	84.2	77.3	65.1	< .001
Any Physical activity	46.1	34.9	33.9	< .001

Although living with a spouse offers psychological benefits, many older adults do not live with a spouse either because they have outlived their spouse, or they were never married. Therefore, older adults living alone or living with other family members may need additional supports that might otherwise be offered by a spouse or partner. Those living with others were most at a disadvantage concerning economic

resources and psychological health. Policymakers may need to consider different types of living arrangements while making important policy decisions for allocating resources to improve health and well-being among older adults. In the U.S., the number of people aged 65 years or over will increase by 50% in the next 15 years. Therefore, allocating resources based on living arrangements may offer benefits

in promoting life satisfaction, quality of life, and successful aging among the growing aging population.^[49] We did not find an evidence of a significant interaction effect between living arrangement and gender on life satisfaction. However, we found that the negative association between living

with others and life satisfaction is much stronger for men than women, which could suggest that non-spousal living arrangement offers different benefits to well-being for men than women.

Table 3. Association between life satisfaction and living arrangement status from generalized linear model

Variables	Unadjusted Model	Adjusted Models		
		Model-1	Model-2	Model-3
Living Alone	-0.36 [-0.44,-0.27]***	-0.37 [-0.44,-0.27]***	-0.30 [-0.38,-0.18]***	-0.21 [-0.29,-0.10]***
Living with other	-0.58 [-0.69,-0.45]***	-0.49 [-0.61,-0.37]***	-0.35 [-0.46,-0.20]***	-0.23 [-0.36,-0.09]***
Living with Spouse (<i>Ref. category</i>)				
Age: 50-64		-0.32 [-0.41,-0.23]***	-0.49 [-0.56,-0.39]***	-0.40 [-0.50,-0.31]***
65-74		-0.03 [-0.12,-0.06]	-0.13 [-0.23,-0.04]	-0.12 [-0.21,-0.02]
75+ (<i>Ref. category</i>)				
Women		0.11 [0.04, 0.18]**	0.11 [0.02, 0.19]**	0.11 [0.03, 0.18]**
Black non-Hispanic		-0.31 [-0.41,-0.21]***	-0.20 [-0.31, -0.09]**	-0.07 [-0.18, 0.04]
Other non-Hispanic		-0.05 [-0.19, 0.09]	0.3 [-0.13, 0.20]	0.07 (0.08)
White-non-Hispanic (<i>Ref. category</i>)				
Hispanic		0.22 [0.07, 0.36]**	0.30 [0.16, 0.45]***	0.39 [0.24, 0.54]***
HS-graduate		0.06 [-0.02, 0.14]	0.03 [-0.03, 0.14]	0.01 [-0.07, 0.14]
College		0.38 [0.30, 0.46]***	0.16 [0.06, 0.25]***	0.07 [-0.02, 0.15]
Less than HS (<i>Ref. category</i>)				
Self-rated health			0.68 [0.57, 0.81]***	0.63 [0.52, 0.74]***
Physical activity			0.23 [0.14, 0.31]***	0.19 [0.10, 0.28]***
Any IADL			-0.22 [-0.38, -0.07]**	-0.17 [-0.35, -0.01]*
Any ADL			-0.30 [-0.44, -0.16]**	-0.28 [-0.40, -0.15]***
Chronic conditions (≥2)			-0.30 [-0.38, -0.07]**	-0.26 [-0.36, -0.18]***
Wealth-First quintile				-0.57 [-0.71, -0.43]***
Second quintile				-0.36 [-0.49, -0.23]***
Third quintile				-0.14 [-0.25, -0.04]**
Fourth quintile				-0.11 [-0.22, -0.01]**
Fifth quintile (<i>Re. category</i>)				
Women × living alone		0.12 [-0.08, 0.34]	0.13 [-0.08, 0.34]	0.15 [-0.08, 0.34]
Women × living with other		-0.05 [-0.36, 0.26]	-0.05 [-0.34, 0.24]	-0.03 [-0.34, 0.25]

Note. *** $p < .001$; ** $p < .01$; * $p < .05$ based on two-tailed test

The association between SES and life satisfaction scores in the current study is also aligned with existing evidence linking socioeconomic characteristics and subjective well-being. For example, the strong association between wealth and life satisfaction score suggests that financial resources are important contributors to the well-being of people aged 50 years or older.^[50] However, research also suggests that the correlation between income and life satisfaction may vary by age group and over the life course.^[51] The relationship between age and life satisfaction scores supports

the evidence of the “well-being paradox,” which suggests a positive relationship between aging and higher subjective well-being.^[52,53] Finally, the direction of associations between physical, functional health, health behaviors, and life satisfaction is consistent with prior literature linking these health attributes to subjective well-being outcomes.^[54,55]

The current study has some limitations that need to be noted. We used secondary data, which is cross-sectional, therefore we cannot make causal inferences about the observed association between living arrangements and life satisfaction. This

association is likely to be influenced by health and economic status throughout the life course. However, measuring the exposure of living arrangements at baseline before the outcome measure of life satisfaction score allowed us to control for “prevalent exposure,” and reduce the possibility of the directionality of the association from the outcome (life satisfaction) to exposure (living arrangements). We build upon the prior literature by examining the relationship between living arrangements and life satisfaction, which is an important component of well-being in middle-aged and older adults.

The current study extends previous research by showing support for the relationship between living arrangements and life satisfaction among a nationally representative sample of middle-aged and older adults in the U.S. Individuals living alone or living with others (non-spousal) need adequate sup-

port programs so that they can continue to live independently within the communities with the highest possible quality of life. Policies and programs designed to improve the quality of life of older adults should focus on the observed connection between different types of living arrangements and life satisfaction. Future research needs to further explore the mechanism by linking living arrangement types (including living with adult children) and other domains of psychological well-being such as purpose in life optimism or emotional well-being. Furthermore, policies that target life satisfaction in promoting psychosocial well-being may consider diversity in living situations for individuals 50 years or older.

CONFLICTS OF INTEREST DISCLOSURE

The authors declare no conflicts of interest.

REFERENCES

- [1] Musich S, Wang SS, Schaeffer JA, et al. The additive impact of multiple psychosocial protective factors on selected health outcomes among older adults. *Geriatric Nursing*. 2021; 42(2): 502-508. PMID:32998841. <https://doi.org/10.1016/j.gerinurse.2020.09.007>
- [2] Diener E, Diener M. *Cross-cultural correlates of life satisfaction and self-esteem. Culture and Well-being*. Springer: Dordrecht; 2009; 71-91 p. https://doi.org/10.1007/978-90-481-2352-0_4
- [3] Pavot W, Diener E. The satisfaction with life scale and the emerging construct of life satisfaction. *The Journal of Positive Psychology*. 2008; 3(2): 137-152. <https://doi.org/10.1080/17439760701756946>
- [4] Ohrnberger J, Fichera E, Sutton M. The dynamics of physical and mental health in the older population. *The Journal of the Economics of Ageing*. 2017; 9: 52-62. PMID:28580276. <https://doi.org/10.1016/j.jeoa.2016.07.002>
- [5] Sutipan P, Intarakamhang U, Macaskill A. The impact of positive psychological interventions on well-being in healthy elderly people. *Journal of Happiness Studies*. 2017; 18(1): 269-291. <https://doi.org/10.1007/s10902-015-9711-z>
- [6] Grant N, Wardle J, Steptoe A. The relationship between life satisfaction and health behavior: a cross-cultural analysis of young adults. *International Journal of Behavioral Medicine*. 2009; 16(3): 259-268. PMID:19319695. <https://doi.org/10.1007/s12529-009-9032-x>
- [7] Kim ES, Delaney SW, Tay L, et al. Life satisfaction and subsequent physical, behavioral, and psychosocial health in older adults. *The Milbank Quarterly*. 2021; 99(1): 209-239. PMID:33528047. <https://doi.org/10.1111/1468-0009.12497>
- [8] Dong HJ, Larsson B, Dragioti E, et al. Factors associated with life satisfaction in older adults with chronic pain (PainS65+). *Journal of Pain Research*. 2020; 13: 475-489. PMID:32184652. <https://doi.org/10.2147/JPR.S234565>
- [9] Trudel-Fitzgerald C, Millstein RA, von Hippel C, et al. Psychological well-being as part of the public health debate? Insight into dimensions, interventions, and policy. *BMC Public Health*. 2019; 19(1): 1-11. PMID:31856772. <https://doi.org/10.1186/s12889-019-8029-x>
- [10] Hughes ME, Waite LJ. Health in household context: Living arrangements and health in late middle age. *Journal of Health and Social Behavior*. 2002; 43(1): 1-21. <https://doi.org/10.2307/3090242>
- [11] Lin Y, Xiao H, Lan X, et al. Living arrangements and life satisfaction: mediation by social support and meaning in life. *BMC Geriatrics*. 2020; 20(1): 1-8. PMID:32293305. <https://doi.org/10.1186/s12877-020-01541-8>
- [12] Barger SD, Donoho CJ, Wayment HA. The relative contributions of race/ethnicity, socioeconomic status, health, and social relationships to life satisfaction in the United States. *Quality of Life Research*. 2009; 18(2): 179-189. PMID:19082871. <https://doi.org/10.1007/s11136-008-9426-2>
- [13] Zhang W, Braun KL, Wu YY. The educational, racial and gender crossovers in life satisfaction: Findings from the longitudinal Health and Retirement Study. *Archives of Gerontology and Geriatrics*. 2017; 73: 60-68. PMID:28779590. <https://doi.org/10.1016/j.archger.2017.07.014>
- [14] Papi S, Cheraghi M. Multiple factors associated with life satisfaction in older adults. *Prezegląd Menopauzalny/Menopause Review*. 2021; 20(2): 65. PMID:34321983. <https://doi.org/10.5114/pm.2021.107025>
- [15] Li H, Chi I, Xu L. Life satisfaction of older Chinese adults living in rural communities. *Journal of Cross-Cultural Gerontology*. 2013; 28(2): 153-165. PMID:23636831. <https://doi.org/10.1007/s10823-013-9189-2>
- [16] Thomas PA, Liu H, Umberson D. Family relationships and well-being. *Innovation in Aging*. 2017; 1(3): igx025. PMID:29795792. <https://doi.org/10.1093/geroni/igx025>
- [17] Feng L, Nyunt MSZ, Gao Q, et al. Cognitive frailty and adverse health outcomes: findings from the Singapore Longitudinal Ageing Studies (SLAS). *Journal of the American Medical Directors Association*. 2017; 18(3): 252-258. PMID:27838339. <https://doi.org/10.1016/j.jamda.2016.09.015>
- [18] Hays JC. Living arrangements and health status in later life: A review of recent literature. *Public Health Nursing*. 2002; 19(2): 136-151.

- PMid:11860599. <https://doi.org/10.1046/j.1525-1446.2002.00209.x>
- [19] Li LW, Zhang J, Liang J. Health among the oldest-old in China: which living arrangements make a difference? *Social Science & Medicine*. 2009; 68(2): 220-227. PMID:19019514. <https://doi.org/10.1016/j.socscimed.2008.10.013>
- [20] Ye X, Burnette D, Cheng Z. Living arrangements and subjective well-being among older adults in China. *Innovation in Aging*. 2017; 1(Suppl 1): 377. <https://doi.org/10.1093/geroni/igx004.1369>
- [21] Han WJ, Li Y, Whetung C. Who We Live With and How We Are Feeling: A Study of Household Living Arrangements and Subjective Well-Being Among Older Adults in China. *Research on Aging*. 2021; 43(9-10): 388-402. PMID:33054559. <https://doi.org/10.1177/0164027520961547>
- [22] Kharicha K, Iliffe S, Harari D, et al. Health risk appraisal in older people 1: are older people living alone an 'at-risk' group? *British Journal of General Practice*. 2007; 57(537): 271-276.
- [23] Administration for Community Living. 2020 profile of Profile of Older Americans. 2021. Available from: https://acl.gov/sites/default/files/Profile%20of%200A/2020ProfileOlderAmericans_RevisedFinal.pdf
- [24] Gibson AK, Richardson VE. Living alone with cognitive impairment: Findings from the National Health and Aging Trends Study. *American Journal of Alzheimer's Disease & Other Dementias*. 2017; 32(1): 56-62. PMID:27831477. <https://doi.org/10.1177/1533317516673154>
- [25] Williams K, Umberson D. Marital status, marital transitions, and health: A gendered life course perspective. *Journal of Health and Social Behavior*. 2004; 45(1): 81-98. PMID:15179909. <https://doi.org/10.1177/002214650404500106>
- [26] Kang H, Michael YL. Social integration: How is it related to self-rated health? *Advances in Aging Research*. 2013; 2(1): 10-20. <https://doi.org/10.4236/aar.2013.21002>
- [27] Michael YL, Berkman LF, Colditz GA, et al. Living arrangements, social integration, and change in functional health status. *American Journal of Epidemiology*. 2001; 153(2): 123-131. PMID:11159156. <https://doi.org/10.1093/aje/153.2.123>
- [28] Henning-Smith C. Quality of life and psychological distress among older adults: The role of living arrangements. *Journal of Applied Gerontology*. 2016; 35(1): 39-61. PMID:24776792. <https://doi.org/10.1177/0733464814530805>
- [29] Zhou Z, Cai L, Zhuang M, et al. A longitudinal analysis of the association between the living arrangements and psychological well-being of older Chinese adults: the role of income sources. *BMC Geriatrics*. 2019; 19(1): 1-9. PMID:31822282. <https://doi.org/10.1186/s12877-019-1371-0>
- [30] Chan A, Malhotra C, Malhotra R, et al. Living arrangements, social networks and depressive symptoms among older men and women in Singapore. *International Journal of Geriatric Psychiatry*. 2011; 26(6): 630-639. PMID:20677171. <https://doi.org/10.1002/gps.2574>
- [31] Do YK, Malhotra C. The effect of coresidence with an adult child on depressive symptoms among older widowed women in South Korea: An instrumental variables estimation. *Journals of Gerontology: Series B*. 2012; 67(3): 384-391. PMID:22421809. <https://doi.org/10.1093/geronb/gbs033>
- [32] Korinek K, Zimmer Z, Gu D. Transitions in marital status and functional health and patterns of intergenerational coresidence among China's elderly population. *Journals of Gerontology: Series B*. 2011; 66(2): 260-270. PMID:21310771. <https://doi.org/10.1093/geronb/gbq107>
- [33] Henning-Smith C, Shippee T, Capistrant B. Later-life disability in environmental context: Why living arrangements matter. *The Gerontologist*. 2018; 58(5): 853-862. PMID:28379425. <https://doi.org/10.1093/geront/gnx019>
- [34] Henning-Smith C, Gonzales G. The relationship between living alone and self-rated health varies by age: evidence from the National Health Interview Survey. *Journal of Applied Gerontology*. 2020; 39(9): 971-980. PMID:30894044. <https://doi.org/10.1177/0733464819835113>
- [35] Weissman JD, Russell D. Relationships between living arrangements and health status among older adults in the United States, 2009-2014: findings from the National Health Interview Survey. *Journal of Applied Gerontology*. 2018; 37(1): 7-25. PMID:27353832. <https://doi.org/10.1177/0733464816655439>
- [36] Smith J, Ryan LH, Fisher GG, et al. HRS psychosocial and lifestyle questionnaire 2006-2016. Ann Arbor, MI: Survey Research Center, Institute for Social Research, University of Michigan, 2006-2016. 2017.
- [37] Crosswell AD, Suresh M, Puterman E, et al. Advancing research on psychosocial stress and aging with the Health and Retirement Study: Looking back to launch the field forward. *The Journals of Gerontology: Series B*. 2020; 75(5): 970-980. PMID:30219831. <https://doi.org/10.1093/geronb/gby106>
- [38] Jivraj S, Nazroo J, Vanhoutte B, et al. Aging and Subjective Well-Being in Later Life. *The Journals of Gerontology: Series B*. 2014; 69(6): 930-41. PMID:24569002. <https://doi.org/10.1093/geronb/gbu006>
- [39] Ng ST, Tey NP, Asadullah MN. What matters for life satisfaction among the oldest-old? Evidence from China. *PLoS One*. 2017; 12(2): e0171799. PMID:28187153. <https://doi.org/10.1371/journal.pone.0171799>
- [40] Tang F, Chen H, Zhang Y, et al. Employment and Life Satisfaction Among Middle- and Old-Aged Adults in China. *Gerontology and Geriatric Medicine*. 2018. PMID:30038952. <https://doi.org/10.1177/2333721418778202>
- [41] Allin S, Masseria C, Mossialos E. Measuring socioeconomic differences in use of health care services by wealth versus by income. *American Journal of Public Health*. 2009; 99(10): 1849-1855. PMID:19150899. <https://doi.org/10.2105/AJPH.2008.141499>
- [42] Pollack CE, Chideya S, Cubbin C, et al. Should health studies measure wealth: A systematic review. *American Journal of Preventive Medicine*. 2007; 33(3): 250-264. PMID:17826585. <https://doi.org/10.1016/j.amepre.2007.04.033>
- [43] Russell D. Living arrangements, social integration, and loneliness in later life: The case of physical disability. *Journal of Health and Social Behavior*. 2009; 50(4): 460-475. PMID:20099451. <https://doi.org/10.1177/002214650905000406>
- [44] Greenfield EA, Russell D. Identifying living arrangements that heighten risk for loneliness in later life: Evidence from the US National Social Life, Health, and Aging Project. *Journal of Applied Gerontology*. 2011; 30(4): 524-534. <https://doi.org/10.1177/0733464810364985>
- [45] Jin Q, Pearce P, Hu H. The study on the satisfaction of the elderly people living with their children. *Soc Indic Res*. 2018; 140(3): 1159-72. <https://doi.org/10.1007/s11205-017-1803-1>
- [46] Yigen H, Gunay O, Borlu A. Relationship between living arrangements, quality of life and depressive symptoms of older adults. *Medicine Science*. 2018; 7(1): 1-7. <https://doi.org/10.5455/medscience.2017.06.8724>
- [47] Wang H, Chen K, Pan Y, et al. Associations and impact factors between living arrangements and functional disability among older

- Chinese adults. *PLoS One*. 2013; 8(1): e53879. PMID:23342030. <https://doi.org/10.1371/journal.pone.0053879>
- [48] Koskinen S, Joutsenniemi K, Martelin T, et al. Mortality differences according to living arrangements. *International Journal of Epidemiology*. 2007; 36(6): 1255-1264. PMID:17971389. <https://doi.org/10.1093/ije/dym212>
- [49] Kolanowski AM, Van Haitsma K, Meeks S, et al. Affect balance and relationship with well-being in nursing home residents with dementia. *American Journal of Alzheimer's Disease & Other Dementias*. 2014; 29(5): 457-462. PMID:24408751. <https://doi.org/10.1177/1533317513518657>
- [50] Kunzmann U, Little TD, Smith J. Is age-related stability of subjective well-being a paradox? Cross-sectional and longitudinal evidence from the Berlin Aging Study. *Psychology and Aging*. 2000; 15(3): 511-526. PMID:11014714. <https://doi.org/10.1037/0882-7974.15.3.511>
- [51] Cheung F, Lucas RE. When does money matter most? Examining the association between income and life satisfaction over the life course. *Psychology and Aging*. 2015; 30(1): 120. PMID:25621741. <https://doi.org/10.1037/a0038682>
- [52] Hansen T. The age and well-being paradox revisited: a multidimensional perspective. *Innovation in Aging*. 2020; 4(Suppl 1): 459. <https://doi.org/10.1093/geroni/igaa057.1485>
- [53] Hansen T, Slagsvold B. The age and subjective well-being paradox revisited: A multidimensional perspective. *Norsk epidemiologi*. 2012; 22(2).
- [54] Inal S, Subasi F, Ay SM, et al. The links between health-related behaviors and life satisfaction in elderly individuals who prefer institutional living. *BMC Health Services Research*. 2007; 7(1): 1-7. PMID:17326842. <https://doi.org/10.1186/1472-6963-7-30>
- [55] Lee H, Vlaev I, King D, et al. Subjective well-being and the measurement of quality in healthcare. *Social Science & Medicine*. 2013; 99: 27-34. PMID:24355467. <https://doi.org/10.1016/j.socsci.med.2013.09.027>