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## Life Satisfaction Determinants in Older Adults: Do Different Living Arrangements Count?

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### Abstract

*Life satisfaction is a person's global assessment of subjective quality of life, and an indicator of successful psychological adaptation to the changes and losses a person usually experiences in later life. The study aims to explore the contribution of psychosocial factors to the interpretation of life satisfaction in older persons residing in retirement homes in comparison to the community dwelling older adults. There were 202 participants, of whom 101 were retirement homes' residents in Zagreb, Croatia, 81 years old on average, and 101 were community dwelling persons, on average 79 years old. Participants were mobile and not diagnosed with dementia. The measured variables were the following: sociodemographic, self-perceived health, functional ability, social participation, sleep quality, and life satisfaction. Participants in both groups reported high levels of life satisfaction. No statistically significant differences were observed in life satisfaction nor in self-perceived health between participants' groups. Significant differences were found in sociodemographic variables, functi-*

*onal ability, sleep quality, and social participation, with retirement homes participants scoring worse than the community dwelling participants, except for better social participation score. Regression analyses confirmed that the observed predictor variables contributed significantly to the explanation of 37% and 30% of life satisfaction variance in retirement homes participants and community dwelling participants, respectively. Different structure of life satisfaction predictors was observed in two participants' groups. The study findings point to the potential improvement of older adults' quality of life, providing psychosocial interventions to enhance the potential of older persons to adapt to challenges of well-being.*

*Keywords: life satisfaction, older adults, self-perceived health, functional ability, social participation, sleep quality*

## Introduction

With the prolonged life expectancy in old age, the quality of life becomes an important issue at the individual, family and social policy levels. There is suggestive research evidence that well-being is relevant to health and quality of life as people age (Steptoe, Deaton, & Stone, 2014). Quality of life has become an important concept for the planning of health care and social practices regarding older adults, especially those experiencing diminished control over their lives and the loss of functioning. In addition, some research findings suggest that the older adults living in institutions may be at risk for lower quality of life in comparison to older adults living in community (Mitchell & Kemp, 2000).

Life satisfaction is defined as a person's global assessment of subjective quality of life, or evaluative well-being component (Diener, Emmons, Larsen, & Griffin, 1985; Kaliterna Lipovčan & Prizmić Larsen, 2006; Penezić, 2006; Shin & Johnson, 1978). Lawton's (1991) definition of quality of life for older adults includes components of behavioural competence, such as health, function and social involvement; psychological wellbeing; subjective impression of quality of life, such as life satisfaction; and environmental factors. Life satisfaction is considered one of the indicators of successful psychological adaptation in later life, when a person is usually faced with changes and losses: in health, physical and cognitive functioning, social engagement, and productive activities (Allerhand, Gale, & Deary, 2014; Berg, Smith, Henry, & Pearce, 2007; Smith & Ryan, 2016; Schaie, 2016). Ageing related losses do not seem accompanied by reduced life satisfaction in many people, a phenomenon known as *the paradox of well-being*. However, when the relationship between age and life satisfaction was analysed by combining both individual- and country-level effects, this paradox was only observed in high income countries (Swift et al., 2014), while in the transition European countries, Croatia included, and in low-income countries subjective well-being seems to be decreasing with age (Kaliterna Lipovčan, Brkljačić, Prizmić Larsen, Brajša-Žganec, & Franc, 2018).

Two theories provide a framework for interpreting the findings on life satisfaction in later life. One is the socio-emotional selectivity theory (Carstensen, Fung, & Charles, 2003), according to which people, as they age, accumulate emotional wisdom that leads to selection of more emotionally satisfying events, friendships, and experiences. Thus, despite age related losses, older people may maintain and even increase self-reported well-being by focusing on a more limited set of social contacts and experiences. The other theoretical framework to understand life satisfaction in old age is the selection, optimization and compensation (SOC) model (Baltes, 1997), which regards life satisfaction as the indicator of psychological adaptation in ageing, or as the potential indicator of successful ageing. SOC can be seen as strategies of psychological gains and losses management. Older adults maximize the positive affects related to gains, and minimize the negative affects related to losses by selective investment in achievable, optimal goals and thus they compensate for their losses and limitations. By maintaining the growth-related goals, older adults enhance their life satisfaction, rather than focusing on losses (Gerstorf, Ram, Röcke, Lindenberger, & Smith, 2008; Riediger, Li, & Lindenberger, 2006).

Among the psychosocial variables related to satisfaction with life in older persons, social engagement, self-perceived health, social support, perceived control, depression, and functional ability have arisen as significant factors (Berg, Hassing, McClearn, & Johansson, 2006; Tomas, Sancho, Gutierrez, & Galiana, 2014). Among lifestyle factors, physical activity seems to be the most important link between life satisfaction and health (Steptoe et al., 2014). There is a growing research evidence suggesting that life satisfaction may even be a protective factor in health maintenance, reducing the risk of chronic physical illness and promoting longevity, by way of positive emotions which promote a more active lifestyle and a motivation toward self-care (Carver, Scheier, & Segerstrom, 2010).

Self-perceived or self-rated health measures an individual's perception of their general or age-comparative health using a single question rated on a three- to five-point scale, and providing strong prediction

on disease outcomes and even life expectancy in older adults (Benyamini, 2016). Self-perceived health has often been confirmed as a significant and positive predictor of life satisfaction in older persons (Burton-Jean-gros & Zimmermann-Sloutskis, 2016; Gutierrez, Tomas, Galiana, Sancho, & Cebria, 2013; Reyes Fernández, Rosero-Bixby, & Koivumaa-Honkanen, 2016; Tomas et al., 2014), but not in all research (e.g. Berg, Hoffman, Hassing, McClearn, & Johansson, 2009), so this association still needs to be investigated. In our previous research on life satisfaction predictors in retirement homes' residents in Zagreb, Croatia, the strongest and the only significant predictor of better life satisfaction in the observed set of psychosocial variables was better self-perceived health (Lučanin, Despot Lučanin, Koščec Bjelajac, & Delale, 2017).

Functional ability is a measure of physical independence in performing activities of daily living - self-grooming and chores inside and outside of home (Bowling, 1995). It is also strongly determined by psychological factors (Idler, 1992). The ability to perform daily activities independently may be more important for an older adult's health self-rating than the presence of chronic disease which may not affect their functional ability (Ikegami, 1995). Functional ability enables people to work, socialize, and perform their social roles, which is all important for life satisfaction in older adults (Siedlecki, Salthouse, Oishi, & Jeswani, 2014; Vagetti et al, 2014). Functional dependency has been confirmed to have a significant and negative effect on life satisfaction (Gutierrez et al., 2013; Tomas et al., 2014).

Sleep is one of the fundamental human behaviours. When normal developmental changes in sleep-wake regulation are coupled with developmentally specific medical and psychosocial conditions, many older adults experience impairments in sleep quality (Landry, Best, & Liu- Ambrose, 2015). The usual indices of sleep quality show that sleep in older adults is less consolidated, the frequency and duration of night-time awakenings is increased, there are more problems in initiating and maintaining sleep, daytime sleepiness is increased, there is more daytime napping, and subjective estimation of sleep quality is lower (Bloom et al., 2009; Gadie, Shafto, Leng, & Kievit, 2017; Li, Vitiello, & Gooneratne, 2018; Ohayon, Carskadon, Guilleminault, & Vitiello, 2004). Between 50% and 65% of older adults report poor sleep quality (Li et al., 2018; Neikrug & Ancoli-Israel, 2009; Martin, Fiorentino, Jouldjian, Josephson, & Alessi, 2010). In case of necessity of institutional care, sleep problems can be further exacerbated due to additional environmental factors such as night-time noise and light, nursing activities or roommate's habits and needs (Neikrug & Ancoli-Israel, 2010; Ye & Richards, 2018). The results of our previous study in retirement homes showed that 71% of very old adults reported clinically impaired sleep quality as assessed by the Pittsburgh Sleep Quality Index (Koščec Bjelajac, Despot Lučanin, Lučanin, & Delale, 2019). The preliminary results of our other study indicated that community dwelling older adults estimated their sleep quality significantly better than the retirement home residents (Koščec Bjelajac, Despot Lučanin, Lučanin, Delale, & Štambuk, 2018). However, the elaborate data on the relationship between sleep quality and measures of daytime functioning, including life satisfaction, in Croatian older adults are still lacking.

The association of life satisfaction with social participation, as one of the aspects of social engagement, has been often researched. Social participation is defined as the frequency of one's participation in social, leisure and productive activities, and has been associated with positive emotional and physical outcomes (Berg et al., 2007) in older adults living in institutions and in community (Inal, Subasi, Ay, & Hayran, 2007; Johannesen, Petersen, & Avlund, 2004). Research findings suggest that active engagement with others is beneficial for older adults' life satisfaction to a different degree. Gutierrez et al. (2013) found the active engagement with others to be a key factor strongly associated to life satisfaction in older adults, while Ponce, Rosas, & Lorca (2014) confirmed the social participation association with high levels of subjective well-being in old age, although the strength of this association was moderate and not greater than that with other factors related to life satisfaction, including health status and income. Variations in findings are usually attributed to differences in the researchers' conceptualization and operationalization of the social participation and the life satisfaction.

Regarding sociodemographic factors, research findings point out the inexistence of significant differences in life satisfaction between older men and women (Tomas et al., 2014). The better educated older men were more likely to report satisfaction with income and higher life satisfaction, in the study by White, St. John, Cheverie, Maryam Iraniparast, & Tyas (2015), while Burton-Jeangros & Zimmermann-Sloutskis (2016) found that high education, satisfaction with income, and living with a partner were all positive and significant predictors of life satisfaction in older women.

Changes in demographic situation, social and family structure, and economic status are opening new challenges regarding the care for older people, in most societies. As a result, different institutions for older people have become a significant care option.

Studies have directly compared psychosocial determinants of life satisfaction in older persons living in different environments - in retirement homes and in their own homes. Some studies confirmed lower life satisfaction (Loomis & Thomas 1991), increased depression (Grayson, Lubin, & Van Whitlock, 1995), and higher mortality rates (Stones, Dornan, & Kozma 1989) in older adults living in long-term care institutions compared with community-dwelling older adults, while other studies found higher life satisfaction among frail older adults in nursing homes compared with those receiving home health care in their own homes (Mitchell & Kemp, 2000). Psychosocial variables observed in the present study are the domains of potential loss in old age associated to adaptive functioning. The objective of this study is considering the potential of older persons living in different environments to adapt to well-being challenges.

The aims of the present study were to examine the contribution of psychosocial factors to the interpretation of life satisfaction in older persons residing in retirement homes compared to the community dwelling older adults. First, we intended to test the differences in life satisfaction, self-perceived health, functional ability, social participation, sleep quality, chronic illness, and sociodemographic characteristics of older persons with regards to their living arrangements. Based on the inconsistent findings of other research studies, we expected the differences between participants with regards to their living arrangements would be found in predominantly health-related variables (functional ability, sleep quality, chronic illness) and sociodemographic variables, and no differences would be found in predominantly psychological variables (life-satisfaction, self-perceived health, social participation). Second, we intended to determine the psychosocial predictors of life satisfaction in older persons with regards to their living arrangements. Based on other research findings, we expected that different structure of significant life satisfaction predictors would be determined with regards to participants' living arrangements.

## **Method and Participants**

The research sample consisted of 202 participants. Of those, 101 were residents of 10 retirement homes in Zagreb, Croatia, aged 70-91 years, on average 80.97 years ( $SD = 4.420$ ) and 101 were community dwelling - living in their own home, aged 70-91 years, on average 78.91 years ( $SD = 4.152$ ). Women prevailed in both groups, with 81% women living in retirement homes and 61% women living in their own homes. In retirement homes majority, 55%, were widowed, 17% were married, and 28% were never married nor divorced. Among community dwelling participants, 50% were married, 46% were widowed and 3% were never married nor divorced. In both groups, 50% of participants completed elementary education, greater proportion of retirement homes participants (38%) than community dwelling ones (26%) completed high school, and the proportion of participants with higher education degree was 12% in retirement homes participants, and 24% in community dwelling ones. The majority of participants in both groups reported being diagnosed with chronic illness or condition, 97% in retirement homes participants, and 81% in community dwelling participants. All participants were mobile, and without diagnosis of dementia.

Social workers or head nurses assisted in the participants' selection in retirement homes. They were instructed to approach approximately 10 or more residents, approximately equal number of men and women (if possible), from the following age groups: 65-70, 70-75, 75-80, 80 and older. When approached, the residents were provided with the information on the research procedure and invited to participate, if they accorded with the predetermined criteria: that they were ambulatory, and without diagnosis of dementia. Community dwelling participants were recruited by the snowball method. Trained students were instructed to recruit in their families, neighborhood, and their friends' families, older persons aged 65 years and older, both men and women, who lived at their own home, were ambulatory, and without diagnosis of dementia. When approached, older persons were informed of the research procedure and invited to participate.

## Procedures

Data were collected at retirement homes and at participants' own homes, individually by trained interviewers, in the form of a structured interview. The participation was voluntary, and all participants signed their consent to participate in the research. The study was designed and carried out in accordance with the Code of Ethics of the University of Zagreb (2007), Code of Ethics of the Croatian Psychological Chamber (2004) and the Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects (The World Medical Association, 2013).

## Instruments

The questionnaire on sociodemographic characteristics comprised general questions, multiple choice and open ended questions, on the participant's age, gender, marital status, education, and health (chronic illnesses and conditions).

The Life Satisfaction Scale (Defilipis & Havelka, 1984) was used to assess global life satisfaction. The scale consists of 8 items measuring the degree of satisfaction with different aspects of life (e.g. "Do you miss company?" or "Are you satisfied with your current life?"), on three-point response scales (1 = *often/mostly no*, 2 = *sometimes*, 3 = *never/mostly yes*). Higher score (total range 8-24) indicates higher life satisfaction. Internal consistency of this scale, measured by Cronbach's alpha, in different samples of older persons in Croatia varied between .73 and .80 (Despot Lučanin, 2003, Lučanin et al., 2017), and in the present study, the scale demonstrated good reliability ( $\alpha = .78$ ).

Self-perceived health was measured by two linearly added items designed for the purpose of this study. Participants rated their general health on five-point response scale (from 1 = *very bad*, to 5 = *excellent*), and compared their subjective health to that of their age peers on three-point response scale (from 1 = *worse*, to 3 = *better*). Higher score (total range 2 -8) indicates better self- perceived health. Pearson's correlation coefficient between the two items in the present study was  $r = .48$ .

Functional ability was assessed by the Activities of Daily Living Index (Defilipis & Havelka, 1984; Despot Lučanin, 2003). The scale consists of 14 items measuring the degree of independence in performing daily activities (personal care, walking inside and outside of home, basic domestic chores) on four-point response scales (from 1 = *totally dependent*, to 4 = *totally independent*). Higher score (total range 14-56) indicates better functioning. Cronbach's alpha internal consistency coefficient of this scale for older persons in different research in Croatia varied between .91 and .96 (Despot Lučanin, Lučanin, & Havelka, 1997, Lučanin et al., 2017), and in the present study, the scale demonstrated excellent reliability ( $\alpha = .94$ ).

Sleep quality was assessed by means of the Pittsburgh Sleep Quality Index (PSQI) (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989). The PSQI measures seven aspects of sleep quality over the previous

month (subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep medication, and daytime disturbances), with response values ranging in each domain from 0-3. In this study, we used only the overall measure of sleep quality as indicated by the total PSQI score. Higher score indicates more impaired sleep quality (total range 0–21), and the total PSQI score greater than 5 discriminates poor from good sleepers. The details about the PSQI translation procedure into Croatian language are presented elsewhere (Koščec Bjelajac et al., 2019). Cronbach's alpha internal consistency coefficient of the PSQI on the population of older adults in previous research varied from .67 (retirement homes residents; Koščec Bjelajac et al., 2019) to .69 (community dwelling older men; Spira et al., 2011) or .78 (community dwelling older women; Beaudreau et al., 2012). In the present study on a mixed sample of retirement home residents and community dwelling older adults Cronbach's alpha was .71.

Social participation was rated on the 5-item scale (Despot Lučanin, 2003). The scale measured the frequency of participation in different social activities (cultural, religious, etc.) on three-point response scales (1 = *never*, 2 = *sometimes*, 3 = *often*). Higher score (total range 5–15) indicates more social participation. Cronbach's alpha internal consistency coefficient of this scale for older adults in different research in Croatia varied between .51 and .61 (Despot Lučanin, 2003, Lučanin et al., 2017), and in the present study, the scale demonstrated relatively low reliability ( $\alpha = .51$ ).

## Results

Different data analyses were performed: descriptive statistics, testing of group differences' statistical significance by chi-square, t-tests, and one-way analyses of variance, bivariate correlations and multiple regression analyses to determine the associations between observed variables.

### Descriptive statistics

The retirement homes participants' group was significantly older than the community dwelling participants' group, by two years on average ( $t(200) = 3.41, p < .001$ ). In retirement homes participants, there were observed statistically significant greater proportions of: women ( $\chi^2(1, N = 202) = 9.12, p < .01$ ), participants with lower and middle education levels ( $\chi^2(2, N = 202) = 6.43, p < .05$ ), participants diagnosed with chronic illness or condition ( $\chi^2(1, N = 202) = 13.44, p < .001$ ), as well as widowed, never married or divorced persons, and smaller proportion of married persons ( $\chi^2(2, N = 202) = 37.78, p = .001$ ), in relation to the community dwelling participants.

No statistically significant differences in life satisfaction were found in relation to retirement homes and community dwelling participants' gender ( $F(1,100) = .41, p > .05$ , and  $F(1,100) = .01, p > .05$ , respectively), education level ( $F(2,99) = .58, p > .05$ , and  $F(2,99) = .68, p > .05$ , respectively), marital status ( $F(2,99) = .18, p > .05$ , and  $F(2,99) = 3.30, p > .05$ , respectively) and health status ( $F(1,100) = .81, p > .05$ , and  $F(1,100) = 2.00, p > .05$ , respectively).

The majority of variables' distributions were significantly skewed, confirmed by the Kolmogorov-Smirnov test (all at  $p < .01$ ), except for the sleep quality variable in the retirement homes' participants. Normalization of distributions was not performed since there were no extreme skewness cases, and it would interfere with further interpretation of the associations among variables (Tabachnick & Fidell, 2007).

Table 1 Descriptive statistics for the observed variables (retirement homes  $n = 101$ , community dwelling  $n = 101$ )

	Living arrangement	<i>M</i>	<i>SD</i>	Min	Max	<i>t</i>
Life satisfaction	Retirement home	19.12	3.67	8	24	0.90
	Community dwelling	19.57	3.53			
Self-perceived health	Retirement home	5.11	1.40	2	8	-1.94
	Community dwelling	5.48	1.28			
Functional ability	Retirement home	41.49	9.77	14	56	-7.71**
	Community dwelling	50.85	6.91			
Sleep quality	Retirement home	8.53	4.28	0	21	3.44**
	Community dwelling	6.52	4.01			
Social participation	Retirement home	8.19	2.37	5	15	2.13*
	Community dwelling	7.55	1.80			
Age	Retirement home	80.97	4.42	70	91	3.41**
	Community dwelling	78.91	4.15			

Note. \*\* *t*-test is significant at the .01 level (2-tailed); \* *t*-test is significant at the .05 level (2-tailed).

On average, participants in both groups reported rather high life satisfaction (Table 1). In both groups, the majority of participants, 82%, of both retirement homes participants and community dwelling participants, rated their life satisfaction higher than theoretical scale average. No statistically significant differences were observed in life satisfaction ( $t(200) = -.90, p > .05$ ) between retirement homes participants and community dwelling participants.

Participants from both groups on average perceived their health as good, with 71% of retirement homes participants and 81% of community dwelling participants, rating their health higher than theoretical scale average (Table 1). No statistically significant differences were observed in self-perceived health ( $t(200) = -1.94, p > .05$ ) between retirement homes participants and community dwelling participants.

In retirement homes participants, more than half (54%) were quite independent in their daily functioning, but 12% could function in most daily activities only with others' assistance (Table 1). In community dwelling participants, 92% were quite independent, and only 2% depended on others' assistance. Retirement homes participants' mean scores indicated their statistically significant lower independency in daily functioning compared to community dwelling participants ( $t(200) = -7.71, p < .001$ ).

Overall sleep quality in participants was on average impaired (Table 1). There were 73% of retirement homes residents and 50% of community dwelling participants who reported serious difficulties with their sleep quality (i.e. score greater than 5). Retirement homes participants' mean scores indicated their statistically significant more impaired sleep quality in comparison to community dwelling participants ( $t(200) = 3.44, p < .001$ ).

Participants' social participation frequency was low in both groups: 74% of retirement homes residents, and 87% of community dwelling participants rarely participated in different social activities (Table 1). Retirement homes participants' mean frequency of social participation was statistically significantly higher in comparison to community dwelling participants ( $t(200) = 2.13, p < .05$ ).

In summary, our results showed rather high life satisfaction and good perceived health in both groups of participants with no statistically significant differences. However, retirement homes participants reported lower independency in daily functioning and more impaired sleep quality but more social



participation compared to community dwelling participants.

### Prediction of participants' life satisfaction

Table 2 Correlation coefficients (Pearson's *r*) between the observed variables (retirement homes *n* = 101, community dwelling *n* = 101)

	Life satisfaction	Self-perceived health	Functional ability	Sleep quality	Social participation	Age
Life satisfaction		.50**	.28**	-.45**	.16	-.10
Self-perceived health	.50**		.43**	-.39**	.16	.00
Functional ability	.38**	.59**		-.35**	.23*	-.04
Sleep quality	-.31**	-.41**	-.24*		-.01	.11
Social participation	.40**	.43**	.41**	-.16		-.15
Age	-.01	.14	.04	.03	-.17	

Note. Above - the diagonal correlations for the retirement homes participants; below - the diagonal correlations for the community dwelling participants. \*\* Correlation is significant at the .01 level (2-tailed). \* Correlation is significant at the .05 level (2-tailed).

Correlation coefficients between the observed variables were moderate, in both participants groups, ranging from  $r = .23$  to  $r = .60$  (Table 2). Participants' age did not significantly correlate with any of the observed variables.

Table 3 Summary of the hierarchical regression analyses results: Predictors of life satisfaction in retirement homes participants (*n* = 101) and in community dwelling participants (*n* = 101)

Predictor Variables / Regression coefficients	Retirement homes $\beta$	Community dwelling $\beta$
Age	-.06	-.01
Gender	.14	.05
Education	-.03	.06
Chronic illness	-.09	-.07
Self-perceived health	.37**	.28*
Functional ability	.00	.11
Sleep quality	-.35**	-.14
Social participation	-.08	.23*
<i>R</i>	.60	.54
<i>R</i> <sup>2</sup>	.37	.30
<i>F</i> (8,96)	6.57**	4.28**

Note. \*\*  $p < .01$ , \*  $p < .05$ . The table shows the second step results of the hierarchical multiple regression analyses.

Contribution of the observed predictor variables: participants' age, gender, education, chronic illness, self-perceived health, functional ability, sleep quality and social participation, to the prediction of life satisfaction, as the criterion variable, was determined by the hierarchical multiple linear regression analyses, for each of the participants' groups. In the first step, sociodemographic predictor variables: participants' age, gender and education, as well as the chronic illness variable were entered. In the second step, the remaining predictor variables were entered: self-perceived health, functional ability, sleep quality and social participation, while controlling for sociodemographic and chronic illness variables.

In retirement homes participants (Table 3), in the first step, there were no significant contributions of sociodemographic and chronic illness as predictor variables ( $R^2 = .03$ ,  $F(5,95) = .67$ ,  $p > .05$ ). However, the set of variables entered in the second step accounted for 37% of the life satisfaction variance ( $R^2 = .37$ ,  $F(5,95) = 6.57$ ,  $p < .001$ ). While controlling for sociodemographic and chronic illness variables, better self-perceived health and better sleep quality (lower score) predicted higher life satisfaction.

In community dwelling participants (Table 3), in the first step, there were no significant contributions of sociodemographic and chronic illness as predictor variables ( $R^2 = .04$ ,  $F(5,95) = .85$ ,  $p > .05$ ). In the second step, the observed set of variables accounted for 30% of life satisfaction variance ( $R^2 = .30$ ,  $F(5,95) = 4.28$ ,  $p < .001$ ). While controlling for sociodemographic and chronic illness variables, better self-perceived health and more frequent social participation predicted higher life satisfaction.

## Discussion

In the present research, two groups of older participants – retirement homes residents and community dwelling older adults were compared in their life satisfaction with regards to other associated variables: self-perceived health, functional ability, sleep quality, social participation and sociodemographic characteristics.

Two groups of participants were significantly different in majority of sociodemographic variables, as expected. Retirement homes participants were, on average, two years older, and comprising a greater proportion of women, lower educated persons, widowed persons, and persons with chronic illnesses, in comparison with community dwelling participants. The profiles of these characteristics typically indicate that retirement homes participants were a more vulnerable group, and thus more at risk for lower well-being.

Regarding other observed variables, the findings confirmed our expectations that the differences between participants with regards to their living arrangements would be found in predominantly health-related variables (functional ability, sleep quality), and no differences would be found in predominantly psychological variables (life satisfaction, self-perceived health), but the expectation was not confirmed for the social participation variable (Table 1).

Retirement homes participants reported lower independency in their daily functioning compared to community dwelling participants, which is an expected finding because impaired functioning is one of the most important reasons for relocating to an institution in old age (Fornara & Manca, 2017). Moreover, sleep quality in retirement homes participants was significantly more impaired in comparison to community dwelling participants (Table 1). This finding is probably most related to their chronic health conditions that can be disruptive for sleep quality (Li et al., 2018), but may also be related to the institutional environment, e.g. night-time light, nursing activities or roommate's behaviour (Neikrug & Ancoli-Israel, 2010; Ye & Richards, 2018).

However, no significant differences in average life satisfaction were found between the two participants' groups – their self-rated life satisfaction was rather high, regardless of their sociodemographic

characteristics, and of their living arrangements (Table 1).

In a similar way, both participants' groups perceived their health on average as good, with no significant differences found (Table 1), regardless of the high proportion of chronically ill persons in both groups (97% in retirement homes participants, and 81% in community dwelling participants). Our results are in line with the other studies' results. Namely, self-perceived health is a well-known psychological phenomenon not strongly correlated to objective health status of older adults (Benyamini, 2016). Unless a chronic illness severely disrupts functional ability of older persons, they perceive their health as good, as well as their quality of life (Idler, 1992; Smith, Young, & Lee, 2004).

The average social participation frequency was rather low in both groups, even though they lived in the socially stimulating environments. Interestingly, retirement homes participants reported engaging in social activities significantly more frequently in comparison with community dwelling participants, probably because many different social activities were offered at their place of residence, and maybe also because of the greater proportion of widowed and never married or divorced persons in this group. These assumptions are in accordance with the Socio-Emotional Selectivity Theory by Carstensen (1995). The older adults in retirement homes may have more control of selecting social engagement that provides positive emotions and support, and thus they maintain and even increase their self-reported well-being.

Other studies comparing life satisfaction in older adults in different living arrangements have displayed conflicting findings. Mitchell and Kemp (2000) found that older adults living in long-term care institutions reported lower life satisfaction and increased depression, compared with community-dwelling older adults. Rodriguez-Blazquez et al. (2012) found significant differences between institutionalized and community dwelling older adults in most observed variables, except for the life satisfaction, similar to our findings. Although retirement homes participants in present research were a more vulnerable group (older, more functionally impaired etc.), institutions can often compensate for the loss of functional capacity (Asakawa, Feeny, Senthilselvan, Johnson, & Rolfson, 2009), and can provide a stable and supportive environment which is important for older persons' sense of subjective well-being.

Since life satisfaction in our research was similarly high in two participants' groups despite their differences in most observed variables, we were interested in analysing the structure of life satisfaction predictors in two different groups of participants.

The observed predictor variables significantly contributed to the explanation of life satisfaction in both participants' groups (30% in community dwelling and 37% in retirement homes participants) (Table 3). Somewhat different structure of life satisfaction predictors was observed in two participants' groups. In retirement homes participants, higher life satisfaction was predicted by better self-perceived health and better sleep quality, which indicates their focus on psychological and health related factors in their subjective well-being evaluation. Sociodemographic variables and the chronic illness variable were controlled for but did not display any significant effects in these multivariate associations in both participants' groups.

Since subjective well-being along with physical functionality are among major determinants of health outcomes in older people, these areas represent key targets for intervention (Ní Mhaoláin et al., 2012). Healthy sleep is an important aspect of healthy human functioning across the lifespan. The results of our study support the findings summarised by Li et al. (2018) that age related changes in sleep quality depend heavily on physical, social and environmental health status. In the present research, this relationship was manifested through different contribution of sleep quality to the prediction of overall life satisfaction in older adults living in different housing arrangements. The results of other studies showed that adults requiring different levels of professional assistance in daily living had more impaired sleep quality than fully independent community dwelling older adults (Kume et al., 2016; Martin, Alam, Harker, Josephson, & Alessi, 2008). Assistance in the activities of daily living is usually needed in older persons experiencing multiple medical conditions and the resulting multiple medication, as well as limited social support, which are all

factors contributing to sleep quality deterioration (Martin et al., 2010; Miner & Kryger, 2017). Residents of nursing homes are generally older than community dwelling older adults, and their functional ability (and health) are generally more impaired, which was also the case in our sample. In older adults, sleep problems and impairments do not necessarily have to be present, or if present, they can be experienced as normal and acceptable part of the aging process. Therefore, in relatively younger, healthier community dwelling older adults, factors other than sleep quality contribute to the experience of their life satisfaction.

In community dwelling participants, higher life satisfaction was predicted by better self-perceived health and more frequent social participation, which indicates their focus on psychological and psychosocial factors in the evaluation of their subjective well-being (Table 3). It has been confirmed by different research that active socialization and engagement in meaningful occupational activities contribute to life satisfaction (Dahlan, Nicol, & MacIver, 2010). Johannesen et al. (2004) found that in community dwelling older adults, complaints about growing old reflected their resentment at experiencing restrictions in their socially engaged life, and in nursing home residents, positive affect, which is also a component of subjective well-being, was associated with their involvement in different activities. They suggest it is valuable to measure whether it makes a difference for life satisfaction in older adults living in the community or in an institution if they are using available resources to engage in activities or not.

Age displayed no significant effects with life satisfaction in present research. This may be due to a small sample size, but it is also the usual finding in cross-sectional research (Gerstorf et al., 2008).

Older adults in this research attached more importance to those domains of functioning that would ensure higher life satisfaction in their specific living conditions – an institution or one's own home. Brown (1995) interprets the relationship of older adult's adaptive behaviour and subjective well-being in his urban ecological model of ageing. The older person's well-being is in "a state of balance" provided that their needs are met with respect to the demands from the surrounding environment. Studies have reported high inter-correlation between residential satisfaction and psychological well-being in the context of older persons' housing needs (Lawton, 1983; Phillips, Siu, Yeh, & Cheng, 2005).

The main contribution of the present research is that findings support the adaptive processes view of life satisfaction and its determinants, in accordance with the Selection, Optimization and Compensation (SOC) model (Baltes, 1997). The participants enhanced their life satisfaction by focusing on domains of functioning that would ensure higher life satisfaction in their specific living conditions, e.g. self-perceived health, sleep quality or social participation, rather than focusing on losses, e.g. in health, social network etc.

The implications of this study are in the potential for the improvement of older adults' quality of life, first by identifying the most vulnerable individuals or groups. Next, the provision of psychosocial interventions would enhance the potential of older persons to adapt to well-being challenges, adjusted to their living arrangements and taking into account their psychological, physical, and social resources. Although the majority of older adults usually express desire to remain in their own homes rather than relocate to an institution, described as the "ageing in place" concept by the current ageing policy (Wiles, Leibing, Guberman, Reeve, & Allen, 2012), interventions may improve their subjective well-being in both environments, based on their individual functioning and needs.

Some limitations of the present research should be acknowledged. This was a cross-sectional correlational study, which implies the impossibility of identifying causal relationships among the observed variables. The participants' samples were the convenience ones, so the generalization of findings to Croatian older population is limited. All assessment instruments were self-report measures, and it is possible that other forms of assessment would have led to different conclusions.

Based on the presented findings and potential limitations, future research needs have been highlighted. First of all, participants' samples should be enlarged, with wider age range, to explore the association of age and life satisfaction. Future research might combine mixed method approach, in order to explore

in depth how sleep quality associates with institutional routine and life satisfaction in residents. Moreover, the quality and quantity analyses of different social participation activities could be compared in retirement homes and participants' own homes, since it was differently associated with life satisfaction of participants in two living arrangements. Other psychosocial factors related to subjective well-being should also be explored, namely participants' social network and social support. Finally, raising the awareness of significant contributors to life satisfaction and needs of older adults living in institutions or community dwelling could promote the development of prevention and treatment plans, and interventions for older adults.

## Conclusions

The present research aims were to examine the contribution of psychosocial factors to the interpretation of life satisfaction in 202 older persons, retirement homes' residents in Zagreb, Croatia, compared to community dwelling older adults.

Firstly, the differences in the life satisfaction level of older persons with regards to their living arrangements were determined. Participants in both groups reported rather high levels of life satisfaction. No statistically significant differences were observed in life satisfaction nor in self-perceived health between participants' groups. Significant differences were found in sociodemographic variables, in functional ability, sleep quality, and social participation, with retirement homes participants' scoring worse in comparison to community dwelling participants, except for better social participation score.

Secondly, the observed predictor variables contributed significantly to the explanation of 37% and 30% of the life satisfaction variance in participants with regards to their living in retirement homes or community dwelling, respectively. Different structure of life satisfaction predictors was observed in two participants' groups. In retirement homes participants, higher life satisfaction was predicted by better self-perceived health and better sleep quality, indicating their focus on psychological and health-related factors in evaluation of their subjective well-being. In community dwelling participants, higher life satisfaction was predicted by better self-perceived health and more frequent social participation, which indicates their focus on psychological and psychosocial factors in the evaluation of their subjective well-being.

The findings support the adaptive processes view of life satisfaction and its determinants, in accordance with the Selection, Optimization and Compensation (SOC) model (Baltes, 1997). The participants enhanced their life satisfaction by focusing on domains of functioning that would ensure higher life satisfaction in their specific living conditions.

The study implications are in the potential improvement of older adults' quality of life, providing psychosocial interventions to enhance the potential of older persons to adapt to well-being challenges, adjusted to their living arrangements, and based on their individual functioning and needs.

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