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**PERCEPTION OF LIFE PACE IN THE CITY AND  
COUNTRYSIDE AMONG OLDER PEOPLE**

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*Abstract*

Life pace in cities is often commented as very busy especially by people from smaller settlements. It is not clear whether this proverbial image, a stereotype, is based on prevalent subjective views in the elderly. The purpose of this study is to examine the occurrence of stereotypes of hectic city and tranquil countryside in older persons. The sample consisted of 131 retired healthy older persons of 60-74 years of age ( $M=68.47$ ,  $SD=3.71$ ) with the same place of residence in the capital city of Prague, mid-sized towns or villages of the Czech Republic since their age of 40 years. The participants underwent a structured interview and evaluated life pace on 4-point scale. Data were analyzed with non-parametric methods. Our results suggest that older persons regardless their place of residence consider Prague more hectic compared to towns and countryside. Non-Praguers, especially the ones with lower education, perceive Prague significantly more hectic compared to persons living in the capital itself. Recent visitors to Prague perceive the capital as more hectic than visitors with a further off experience. Our results are in accord with the proverbial stereotypes of the pace of life in different types of settlement. As time pressure and busy environment, hectic “nature” may in long-term affect individual emotional and cognitive development even in late adulthood, these influences and their impacts need to be yet researched more in detail.

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**Keywords:** Elderly, urban, rural, hectic, tranquil, perception.



## 1. Introduction

The aging society brings along interesting challenges in different research fields and psychology is not an exception. There is an age-related decline in certain cognitive functions which has been proved to be influenced by individual characteristics and environmental factors. Consequently, there is a long lasting discussion about the influence of nature vs. nurture factors on the individual development. Even though the impact of the latter factors tends to increase in importance in later life (Edmondson & Scharf, 2015), findings related to them are still scarce.

Recently researchers have approached to examine not only influence of factors such as gender, age or level of education, but also have aimed to include the effect of neighborhood environment and lifestyle on cognitive functioning and decline of cognitive functions, or well-being and health in later life in the picture (Besser, McDonald, Song, Kukull, & Rodriguez, 2017; Cassarino, O'Sullivan, Kenny, & Setti, 2016; Clarke, Weuve, Barnes, Evans, & Mendes de Leon, 2015; Eibich, Krekel, Demuth, & Wagner, 2016; Lee & Waite, 2017; Saenz, Downer, Garcia, & Wong, 2017; Watts, Ferdous, Diaz Moore, & Burns, 2015; Wörn, Ellwardt, Aartsen, & Huisman, 2017; Wu et al., 2017).

Schooler (1984) presented a theory of environmental influences on cognitive functions, which may be applied in the case of busy nature of urban areas that makes city residents learn quicker pace in solving tasks. Conversely, individuals living in calm rural areas who are not exposed to a hectic environment may not be forced to solve tasks at a quick pace, as indicated in the recent pilot study conducted on a sample of Czech older adults (Horáková, Vidovičová, & Štěpánková, 2016). Other studies highlighted the difference between rural and urban dwellers in distinct characteristics such as the approach to time use and travel behavior (Millward & Spinney, 2011), the level of amygdala activity during the examination with a time pressure (Lederbogen et al., 2011), or the tests of global cognition and executive functions (Cassarino et al., 2016). These results are also in congruence with the pace-of-life syndrome (POLS) hypothesis (Réale et al., 2010), which suggests that species sharing similar environmental conditions develop traits that correspond with the life-history particularities related to these circumstances (cf. Luther & Derryberry, 2012).

Bigger cities are faster, as they, together with their growth experience acceleration of social life and restructuring of their social and built environment (Bettencourt, Lobo, Helbing, Kuhnert, & West, 2007; Bettencourt, Lobo, & West, 2008; Bornstein, 1979). However, as was recently stated (Lee & Waite, 2017), not only objective indicators of the neighborhood (such as crime, access to amenities, built environment) but rather subjective interpretations of surrounding area are important to consider when examining the aging in the context of environmental influences.

There is a traditional proverbial image, a notion, about hectic life pace in the capital city of the Czech Republic, Prague. Though, there is no evidence of the prevalence of the notion in the older population in different areas of the CR. We aim to examine, as a part of currently ongoing project "Impact of settlement size on cognition in older age" (GAČR 17-14829S, acronym COURAGE, realized in The National Institute of Mental Health in Klecany in the Czech Republic), the perception of life pace in three pre-set types of environment.

## 2. Research Methods

### 2.1. Participants

The sample consisted of 131 community-dwelling retired healthy older persons of 60-74 years of age. Below in Table 01, we present more detailed socio-demographic data of the analyzed sample. All participants signed an informed consent and were included if he/she stated to be without history of severe mental disorder (major depression, psychosis, substance abuse), neurological disorder (brain infarction, traumatic brain injury, epilepsy, dementia), without chronic or acute pain affecting quality of life, without excessive daytime sleepiness, with non-compromised functional ability due to somatic disease or trauma and without uncorrected sensory impairment. In this project, we use the same inclusion criteria as in the National Normative Study of Cognitive Determinants of Healthy Ageing (NANOK), which was realized by the same research group and reflect factors intervening with cognitive performance. In an effort to exclude persons with yet undiagnosed cognitive impairment exclusion criteria based on Mini-Mental State Examination (MMSE) score  $\geq 26$  and ex-post exclusion criteria based on scores in Instrumental Activities of Daily Living scale (IADL) and The Geriatric Depression Scale (GDS15) were applied (Štěpánková, Nikolai, et al., 2015). Only older adults who were retired and not economically active at least for two years are included in the study.

Participants were recruited by 17 internal and external trained psychometrists in 10 out of 14 regions in the Czech Republic to represent fairly even regional spread within the country. The recruitment of each cohort was based on the age of participant (60 to 74 years old) with regard to the level of education (lower and higher education level), and gender, with the ratio 1:1.

As the purpose of this study is to examine the perception of life pace in three different environments, the recruitment was stratified according to the settlement type (a large city – capital city of Prague, mid-sized towns and small villages with considerably rural features). There are various definitions of the settlements used for different purposes and based on the cultural and national policy contexts. In the Czech Republic, the rural areas (villages) are commonly defined as settlements with less than 5000 inhabitants and towns are the settlements with more than 10 thousand inhabitants. Cities have over 100 thousand inhabitants. The settlements ranging from 5000 to 10 thousand inhabitants are considered as extremely heterogeneous types whose urban/rural character is often ad hoc defined by a combination of various aspects such as urbanistic structure, architectonic quality of the houses, structures of economic activity, geographical positioning or level of social deprivation (Perlín, Kučerová, & Kučera, 2010; Petr, 2015).

In this study, we used the convenience sampling in purposefully defined types of settlements as follows:

1. A large city – capital city of Prague – The city has 1.280.508 inhabitants (as of January 1st, 2017) (Czech Statistical Office, 2017), which represents more than 11 % of total population of the Czech Republic and is the only city with the population over one million people within the country. There are a dense traffic and public transportation network including metro. It is an economic and cultural center of the region and the country and residence, among others, of government bodies and tertiary education institutions. Prague is also famous touristic sight with 7.07 millions of visitors per year, in which slightly more than one million tourists come from other parts of the CR (Prague City Tourism, 2017).

2. Mid-sized towns – with the status of a town and about 20–50 thousand inhabitants (e.g., Jihlava, Karlovy Vary), have two or more urban characteristics but are of considerably smaller scale than the capital. In total, 46 mid-sized towns (out of 265 towns) met the inclusion criteria.
3. Villages – settlements without the status of a town, with less than 5000 inhabitants and having at least two other aspects defining the settlement as rural. We used typology proposed by Petr (2015) which is based on five composite indicators: a ratio of occupied flats in family houses to all flats; density of inhabitants on built areas; a ratio of jobs in typical city economic areas (e.g. ICT); a ratio of jobs per one economic active person and number of selected amenities in the municipality (e.g. schools, health care providers, post office, etc.). In our research, we followed only rural municipalities. Although according to Petr (2015) more rural types of settlements represent more than 95 % of all Czech municipalities, only 38 % of inhabitants live here. In total 5445 villages were used as a selection pool in this project.

We included only individuals who spent a majority of their productive adulthood (since their age of 40) in the particular settlement environment (both as a residence and employment location). Persons who moved from a city to countryside (or vice versa) after retirement were not included in this study to reduce the number of intervening variables.

Moreover, COURAGE aims to examine a settlement impact on cognition. Performance in most cognitive tests is related to age, level of education and gender. Thus norms are usually adjusted for these three demographic variables. In our study, we use a category of young old adults (60–74 years of age) (Neugarten, 1974), and division of education level to lower (basic or lower secondary schools, in Czech there are trade schools without the state leaving exam “maturita”), and higher (secondary / high schools – in Czech with “maturita”, and tertiary faculties or universities), which is usually used in normative studies (e.g. Horáková, Štěpánková, Bezdiček, & Kopeček, 2017; Štěpánková et al., 2015).

**Table 01.** Socio-demographic data of the analyzed sample

Place of residence	Gender	Age	Level of education	Years of retirement
<b>Whole sample</b> N=131	44.3 % men; 55.7% women	60–74 years of age (M=68.47; SD=3.69)	39.7 % lower education; 60.3 % higher education	2–32 years (M=10.03; SD=6.11)
<b>Prague</b> N=25	42.3 % men; 53.8 % women	61–74 years of age (M=69.5; SD=3.6)	34.6 % lower education; 65.7 % higher education	2–26 years (M=10.77; SD=5.64)
<b>mid-sized town</b> N=46	41.3 % men; 58.7 % women	63–74 years of age (M=69.15; SD=3.47)	37 % lower education; 63 % higher education	2–22 years (M=10.7; SD=5.93)
<b>village</b> N=59	47.5 % men; 52.5 % women	60–74 years of age (M=67.49; SD=3.72)	44.1 % lower education; 55.9 % higher education	2–32 years (M=9.18; SD=6.44)

## 2.2. Methods

Due to our previous experience with research studies with the Czech older population, we expected small interest especially from men and persons with lower education (Štěpánková, Bezdíček, et al., 2015). We attempted to offer participants as comfortable/favorable conditions as possible. Hence we provided them the opportunity to pass the assessment near to their place of living and gave them monetary remuneration (300 CZK; approx. 11 EUR).

Psychometrists were instructed to provide a calm and sufficiently illuminated place for the assessment to ensure conditions as similar as possible. All psychometrists received a thorough training in tests administration and scoring rules to ensure inter-rater reliability.

Participants completed a battery including a screening method, neuropsychological tests, tests/experiments on tablets, and questionnaires. They were interviewed about lifestyle and assessed the life pace in three pre-set environments. The phrase was as follows “I perceive the life pace in countryside/towns/Prague as...” and participants were asked to evaluate their answer on a 4-point scale (1 = very calm; 2 = rather calm; 3 = rather hectic; 4 = very hectic).

## 2.3. Statistical analysis

All data were analyzed with the Statistical Package for the Social Sciences for Windows, version 23. Data were inspected for normality (Shapiro-Wilk Test and normal Q-Q plot), and they did not meet the requirements for parametric statistics. Therefore, we approached to use non-parametric methods.

We used Kolmogorov-Smirnov test to assess differences in the whole sample. For the assessment of differences between the groups were used Mann-Whitney U test (based on the level of education and gender), and Kruskal-Wallis H test (based on the place of residence). The association between age and the evaluation of life pace was analyzed with Spearman's rank correlation coefficient.

Only for the analysis of an interaction of sociodemographic variables (age, gender, and education) we used ANOVA. As the sample was not so large, it was not possible to split the file into three groups according to the place of residence for further analysis of interactions. Therefore, we analyzed the whole sample and then split the sample into two groups – Praguers and Non-Praguers. An alpha level of 0.05 was used to judge whether findings were significant.

## 3. Findings

Our results reveal significantly different evaluation of life pace in three types of environment regardless the place of residence. Most of our sample, 89.3 % of older adults regardless their place of residence consider life pace in Prague as rather hectic or very hectic ( $M=3.43$ ;  $SD=0.70$ ;  $Me=4$ ;  $Mo=4$ ). Mid-sized towns are perceived as rather calm or rather hectic ( $M=2.49$ ;  $SD=0.68$ ;  $Me=2$ ;  $Mo=2$ ) according to 89.3 % of our sample and 96.7 % of participants evaluated countryside as very calm or rather calm ( $M=1.52$ ;  $SD=0.59$ ;  $Me=1$ ;  $Mo=1$ ).

There is a significant positive relationship between the perception of life pace in towns and Prague ( $\rho=.476$ ;  $p<.001$ ), which is even tighter in older adults from villages ( $\rho=.517$ ;  $p<.001$ ). Thus, older adults, especially the ones from rural area, perceive both towns and the capital city of Prague as hectic place, even

though there is a large difference in the size and other characteristics between mid-sized towns and the capital. There is no significant association between the perception of life pace neither in Prague and villages ( $\rho = -.093$ ;  $p = .291$ ) nor towns and villages ( $\rho = .055$ ;  $p = .536$ ).

### 3.1. Influence of socio-demographic variables on perception of pace of life

We found a significant difference in evaluation of life pace in three types of the environment based on the place of residence (Table 02). Persons from Prague perceive life pace in towns and the capital significantly less hectic than ones from mid-sized towns and villages. However, Praguers perceive life pace in countryside less calm compared to villagers, persons living in this type of settlement.

**Table 02.** Perception of life pace in different types of environment and the place of residence

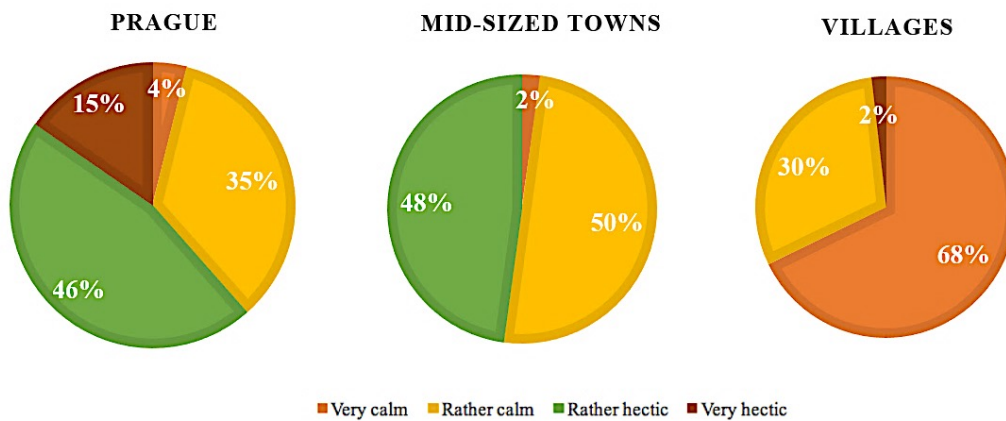
Variable	p	df	Chi square	Praguers			mid-sized towners			villagers		
				M (SD)	Me	Mo	M (SD)	Me	Mo	M (SD)	Me	Mo
Prague	***	2	30.821	2.73 (0.778)	3	3	3.48 (0.587)	4	4	3.7 (0.702)	4	4
towns	***	2	21.126	2.04 (0.446)	2	2	2.46 (0.546)	2	2	2.73 (0.762)	3	3
countryside	***	2	13.225	1.5 (0.509)	1.5	1	1.74 (0.575)	2	2	1.36 (0.580)	1	1

Note: 1 = very calm; 2 = rather calm; 3 = rather hectic; 4 = very hectic

\*\*\* –  $p < .001$

We also focused on the perception of the environment in congruence with the place of residence. As seen in Figure 01, older adults living in Prague evaluate the capital as rather calm (35 %) or rather hectic (46 %). Most of older persons from mid-sized towns perceive towns as rather calm (50 %) or rather hectic (48 %). Older persons living in villages evaluate countryside as very calm (68 %) or rather calm (30 %), they perceive the environment in which they live as the calmest one.

According to Non-Praguers, older adults living outside Prague, the capital city is rather hectic (32.4 %) or very hectic (63.8 %). It seems that persons living in Prague do not perceive the life pace of capital as busy as Non-Praguers. ANOVA with Bonferroni correction confirmed that Praguers significantly differ from mid-sized towners ( $p < .001$ ) and villagers ( $p < .001$ ) in the perception of Prague, but persons living in villages and mid-sized towns do not evaluate life pace in Prague significantly different ( $p = .215$ ). The same results were confirmed by posthoc test – Fisher's Least Significant Difference (LSD).



**Figure 01.** The perception of the location by its residents

In Non-Praguers there was a significant positive association between the year of last visit and evaluation of life pace in Prague ( $\rho=0.247$ ;  $p=0.004$ ). This association suggests that the ones visiting Prague more recently evaluate life pace in the capital as busier compared to those with a long ago experience. Though, when comparing respondents whose last visit was before the retirement and the ones with the latest experience after retirement we found no significant difference ( $U= -0.009$ ;  $p=0.993$ ). We found no significant difference ( $U= -1.457$ ;  $p=0.145$ ) between older adults with experience less than 5 years ago and more than five years ago neither.

We analyzed the relationship between age and the evaluation of life pace in three different types of environment. There was no significant association between the age and the perception of life pace in Prague ( $\rho= -0.149$ ;  $p=0.089$ ), towns ( $\rho= -0.088$ ;  $p=0.316$ ) or villages ( $\rho=0.081$ ;  $p=0.359$ ).

There was a significant difference in the perception of life pace in Prague between persons with lower and higher education. This statistically significant difference was evident in the whole sample ( $U=1665.500$ ;  $p=0.041$ ) and Non-Praguers ( $U=1040.000$ ;  $p=0.023$ ). Lower educated Non-Praguers perceive Prague significantly busier compared to Non-Praguers with higher education (Table 03). Though as seen in the table the effect size is rather small. There was not a significant difference between lower and higher educated Praguers ( $U=67.000$ ,  $p=0.225$ ). We did not find a significant difference between lower and higher educated persons in the evaluation of life pace neither in towns ( $U=1918.500$ ;  $p=0.482$ ) nor villages ( $U=1977.00$ ;  $p=0.680$ ).

We did not find a significant difference between men and women (regardless the place of residence) in the evaluation of life pace in Prague ( $U=1965.000$ ;  $p=0.430$ ), towns ( $U=2012.500$ ;  $p=0.593$ ) or villages ( $U=2102.500$ ;  $p=0.939$ ).

**Table 03.** Perception of life pace in Prague and the level of education

Variable	p	U	r	M (SD)	Me	Mo
Whole sample – lower education	.041*	1665.500	-0.16	3.56 (0.70)	4	4
Whole sample – higher education				3.34 (0.70)	3	4
Praguers – lower education	.225	67.000	-0.21	2.67 (0.866)	2	2
Praguers – higher education				2.77 (0.752)	3	3
Non-Praguers – lower education	.023*	1040.000	-0.22	3.74 (0.493)	4	4
Non-Praguers – higher education				3.5 (0.594)	4	4

Note: 1 = very calm; 2 = rather calm; 3 = rather hectic; 4 = very hectic  
 \* –  $p<0.05$

Further, we analyzed the perception of life pace in one's type of place of residence, and its relations to sociodemographic variables (age, level of education and gender). We found a significant negative association between age and the perception of life pace in the same type of environment as a place of residence only in mid-sized towners ( $\rho = -0.292$ ;  $p = 0.049$ ), but not in Praguers ( $\rho = -0.201$ ;  $p = 0.325$ ) nor villagers ( $\rho = 0.008$ ;  $p = 0.95$ ). Thus, with increasing age, older adults living in towns perceive life pace there less busy. In case of the level of education, we did not find a significant difference between lower and higher educated older adults living in Prague ( $U = 67.000$ ;  $p = 0.58$ ), mid-sized towns ( $U = 236.000$ ;  $p = 0.785$ ) and villages ( $U = 405.500$ ;  $p = 0.659$ ). There was not a significant difference between men and women living in Prague ( $U = 66.000$ ;  $p = 0.413$ ), mid-sized towns ( $U = 253.500$ ;  $p = 0.939$ ) nor villages ( $U = 410.000$ ;  $p = 0.654$ ).

### 3.2. The interaction of socio-demographic variables in perceptions of pace of life

We analyzed interactions of age, level of education, gender and the place of residence. We found only one significant interaction between the place of residence (Praguers and Non-Praguers), age (3 groups – 60–64, 65–69 and 70–74) and the level of education (lower and higher). This interaction had a significant influence on the perception of life pace in Prague ( $F(1,110) = 3.987$ ;  $p = 0.048$ ). However, we did not find a significant interaction that has an impact on the perception of life pace in towns ( $F(1,110) = 0.232$ ;  $p = 0.631$ ) and villages ( $F(1,110) = 1.132$ ;  $p = 0.290$ ).

When splitting the file into Praguers ( $F(1,21) = 0.234$ ;  $p = 0.633$ ) and Non-Praguers ( $F(2,98) = 4.211$ ;  $p = 0.018$ ), the interaction of these sociodemographic variables was significant only in the latter group. As seen in Table 04, there is an opposite tendency in the evaluation of life pace in Prague in older Non-Praguers with lower and higher education. With increasing age Non-Praguers with higher education evaluate Prague less hectic. Conversely, with increasing age those with lower education perceive Prague busier. Though the difference in the evaluation between lower and higher educated is not so large (about  $\frac{1}{2}$  – 1 SD), it is more prominent in the oldest age group (70–74 years of age) compared to the youngest one (60–64 years of age).

**Table 04.** Perceptions of pace of life in Prague and the level of education and age in older Non-Praguers

Variables	60–64 years of age (N=18)			65–69 years of age (N=46)			70–74 years of age (N=40)		
	M (SD)	Me	Mo	M (SD)	Me	Mo	M (SD)	Me	Mo
Lower education	3.5 (0.707)	4	4	3.78 (0.428)	4	4	3.93 (0.267)	4	4
Higher education	3.75 (0.463)	4	4	3.61 (0.497)	4	4	3.31 (0.594)	3	3

## 4. Discussion

There is supposed to exist a stereotype of hectic cities and calm rural areas. Therefore we approached, as a part of the ongoing research COURAGE, to examine the occurrence of this proverbial image in older residents of pre-set three types of environment: the capital city of Prague, mid-sized towns, and villages. Our results suggested that most of older adults regardless their place of residence (89 %) do perceive the capital as rather hectic or very hectic, and rural areas are evaluated as rather calm or very calm (97 %).



The image of a hectic city is notable especially in Non-Praguers, who were more extreme in the evaluation of life pace in the capital, 64 % of Non-Praguers compared to 15 % of Praguers evaluated the life pace very hectic. We may presume that Praguers are used to the busy nature of the capital after spending the majority of their lives there. The fact that persons from rural areas are not accustomed to a complex environment with a higher number of stimuli present in towns and cities could cause the extreme evaluation of the life pace in Prague. Based on our findings it is possible to confirm the occurrence of the proverbial image of hectic life pace in cities, and that the stereotype reflects environmental and social differences of settlements. Its occurrence was confirmed in the whole sample regardless the place of residence of participants.

We found a positive relationship between the evaluation of life pace in Prague and the year of the last visit. But to our surprise, we were not able to confirm this finding when splitting the sample into participants with the last visit less or more than five years ago nor into participants with the last visit before and after their retirement. The reason may be only small tightness ( $\rho < .3$ ) of this association though statistically significant. Therefore, this finding needs to be further analyzed.

Whereas we present the first partial data of COURAGE, it is impossible to interpret all findings. The indicated results need to be further analyzed after the whole planned sample of 360 participants is assessed and interpreted in the context of other findings of this project (stress connected with health or individual economic situation, lifestyle before and after retirement, etc.), which primarily aims to examine the individual task-related performance under time pressure concerning the urban and rural environment.

Because of the hectic nature of the cities (according to our results as seen above) it comprises a more complex environment. That offers a higher diversity of stimuli, therefore, requirements to make more decisions and bigger amount of information needs to be taken into account and processed (Schooler, 1984; Wörn et al., 2017). It is possible then to view this type of environment as a source of cognitive stimulation or even a brain training (Cassarino & Setti, 2015) and may potentially promote cognitive reserve (Clarke et al., 2012). Urban areas usually offer a living environment with a greater density of physical, social and institutional resources which may promote protective health behaviors and facilitate mental stimulation (Clarke et al., 2012, 2015; Lee & Waite, 2017). Which is supposed to be beneficial for cognitive functioning especially in late adulthood and seems to be in accord with the hypothesis “use it or lose it” (Salthouse, 2006). Moreover, it has been suggested that residential environment of older adults, because of its long term exposure, may be a mediator of the influence of exposure to nature on attentional skills (Setti, Cassarino, & Tuohy, 2017).

Despite the fact that urban areas bring along a cognitive stimulation, for an older person, it could be too demanding to react in a high variety of situations and keep up with this quick life pace. Perceptual overload, long term exposure to an environment, which is busy and interpreted as stressful and dangerous, may result in poorer cognitive outcomes or even social isolation (Cacioppo & Hawkley, 2009; Caparos et al., 2012; Clarke et al., 2012; Linnell, Caparos, de Fockert, & Davidoff, 2013). Not only overload but also lack of environmental stimulation could be detrimental for cognitive functions in older adults (Schooler, 1984; Wu et al., 2017). The environmental complexity is a key factor for an optimal stimulation (Cassarino & Setti, 2016), while the optimum still needs to be established.

So far, there is a scarce and varying evidence about the impact and contribution of environmental factors on the cognitive functioning in later life. Though there is now some evidence that residents from urban areas are somewhat advantaged regarding cognitive functioning compared to the ones living in rural areas. This finding

was indicated not only in countries where there is a “...historical educational disadvantage in rural areas...”, such as Mexico (Saenz et al., 2017, p. 1), but also in countries where the differences in the level of education between rural and urban areas are not so large (e.g. Ireland, Germany) (Cassarino et al., 2016; Lederbogen et al., 2011).

In addition to that, a pilot study conducted in the Czech Republic brought results indicating the difference between older residents of the capital city and living outside the capital in tests of executive functions (Horáková et al., 2016), which is in congruence with the above described. Environmental influence including life pace on cognitive functioning and development is worthy and needed to be yet researched more in detail.

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