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## PATTERNS OF ACTIVITIES AMONG CRACOW'S YOUNG RETIREES IN AN URBAN ENVIRONMENT (AN EXAMPLE OF CLUSTER ANALYSIS)

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**ABSTRACT:** Population ageing has drawn increasingly more attention to the question of retirement. On the one hand, the number of retirees increases and retirement becomes a more prominent part of life. As a result, people at present have developed a distinct retirement lifestyle and retirees become more diverse. This study presents how the choices of young retirees (individuals that are retired for no longer than 10 years) in urban environment differ. The empirical material used for this study consisted of 206 interviews conducted with inhabitants of Cracow. Interviews were conducted from June to December 2014. Hierarchical cluster analysis enabled to differ two type of time usage models (traditional and open) and 3 types of young retirees (active retirees residing in districts that have a wide offer dedicated to senior citizens, passive retirees with limited funds and moderately active older young retirees ).

**KEYWORDS:** cluster analysis, retirement, lifestyle, ageing, urban studies, social gerontology.

### WZORY AKTYWNOŚCI KRAKOWSKICH MŁODYCH EMERYTÓW W ŚRODOWISKU WIELKOMIEJSKIM (PRZYKŁAD ZASTOSOWANIA ANALIZY SKUPIEŃ)

**ZARYS TREŚCI:** Tekst prezentuje analizę 206 wywiadów z mieszkańcami Krakowa, którzy przebywają na emeryturze nie dłużej niż 10 lat. Dzięki zastosowaniu hierarchicznej analizy skupień, wyodrębniono dwa modele spędzania czasu przez młodych

emerytów w przestrzeni wielkomiejskiej (tradycyjny i otwarty) oraz trzy typy emerytów, które zidentyfikowano w Krakowie (aktywnych młodych emerytów z dzielnic z bogatą ofertą dla osób starszych, biernych emerytów z ograniczonymi możliwościami finansowymi oraz umiarkowanie aktywnych starszych młodych emerytów).

SŁOWA KLUCZOWE: analiza skupień, emerytura, style życia, starzenie się, studia miejskie, gerontologia społeczna.

## 4.1. Introduction

Although interest in ageing has increased (e.g. Perek-Białas, Hoff 2012) there are some blank spaces in sociological analysis of its different aspects. Especially the sociological analysis of everyday life of polish retirees in urban environment is lacking. Publications that partially deal with this topic concentrate on wider category of elderly in a given city. What is typical for such a publication is the focus on only representatives of solely one profession. The intent of this article is to fill in this gap by presenting the activity of retirees with a different professional background in urban environment. The very vital aim of the presented analysis is to present the use of cluster analysis in the process of finding answer the question: how do the choices of retirees differ in an urban environment? As an example of an urban environment, the city of Cracow has been chosen<sup>1</sup>. The sample involved only such individuals that are retired for no longer than 10 years – this group has been, for the purpose of this study, called *young retirees*. So this criterion describes, not the metrical age of respondents, but their retirement stage. This criterion was established on the basis of results of previous research concerning the phases that individuals undergo after entering the retirement period (Feldman & Beehr 2011). It is important to stress that in this study retirement is understood as a phase of life and is conceptualised in the frame of the lifecycle perspective (Elder, Johnson & Crosnoe 2003; Jałowiecki 1973; Moen 1996).

## 4.2. Theoretical background

The processes of ageing are becoming more interesting for researchers all over the world, however there are not many polish publications that would analyze retirees as a separate social category in Poland. More often, a wider category of elderly is the subject of research. Sociological publications that would focus on only retirees are not numerous. Among the few that exist, the following should be kept in mind: *Przejście na emeryturę jako proces zmian aktywności społecznej* (Jałowiecki 1973) oraz *Młodzi emeryci* (Synak 1987), monography *Życie na*

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<sup>1</sup> Cracow, being one of the largest cities in Poland, has a wide offer devoted to elderly citizens and retirees but at the same time still struggles for a coherent policy toward old age, therefore making an interesting case for such analysis.

*emeryturze w warunkach polskich przemian systemowych* (Trafiątek 1998) and the recently published: *Młodzi emeryci w Polsce. Między biernością a aktywnością* (Krzyżowski et al. 2014). A separate group, that is also connected to retirees, are the publications that analyse the issue of transitioning into retirement as a social process (Liwiński 2008; Krzyżanowska 2011; Krzyżowski 2011; MPiPS 2012; Stankiewicz, Richert-Kaźmierska 2012).

In the studies on the functioning of the elderly in the city much attention is paid to the housing conditions – both in private homes and in care institutions (Niezabitowski 2011, 2012; Zaniewska 2001). This is due to the fact that older people spend more and more time in their own dwelling or resort and not outside it. In this paper, however, a broader perspective has been adopted. From this perspective not only indoor spaces but whole urban environment can be considered as friendly or unfriendly for retirees.

The urban environment can be considered unfriendly for the elderly for the same reasons as it is unfriendly also for younger age groups. For older people, increased vulnerability due to aging processes and longer exposure to the harmful effects of urban environment is especially important. Areas degraded economically and socially are especially unfavourable environment for the elderly. This problem is raised in many publications devoted to the functioning of the elderly in such areas. They emphasize the high level of stress experienced by elderly people and the fear-induced anxiety (e.g., theft or failure of public spaces) in neglected areas (Scharf, Phillipson & Smith 2003). Studies also show that in degraded neighbourhoods, older people tend to consider social support less accessible in comparison to more affluent neighbourhoods (Brown et al. 2009: 235). The access to essential services that are distant from home is also a major problem. In large Polish cities, changes resulting from the transformation of the political system and the progressive processes of globalization are especially visible. In this context, the concept of a city as a new consumption center (Savage, Warde & Ward 2003: 149) suggests that elderly, due to inadequate resources, may be subject of social exclusion, and cannot fully benefit from the city's offer (Rodwin & Gusmano 2006: 7).

On the other hand, in many publications the merits of the urban environment are emphasized. Allison E. Smith (2009) points out that the urban environment, due to social and cultural diversity, offers opportunities for creating spaces adapted to the different needs and lifestyles of older people. In addition, it should be noted that even in deprived environments, older people exhibit a high level of identification with the local community (Scharf 2002). Strong ties of friendship are of special importance for singles or widows (Bernard et al. 2001).

A thesis developed during the research on the preferences of the post-war baby boomers in London and Paris also stress the positive aspects of urban environment. According to the authors of the study (Bonvalet & Ogg 2008), the city may be a desirable living environment for those who are retired. The authors divided the

baby boomers into three types: pioneers of gentrification, who gained at the rising prices of real estate in city centers, those who moved to the city from suburban areas, and permanent residents of the city. In each of these groups the attitude to living in the city is slightly different, but for everyone, the urban environment is a positive reference point as a place to meet their needs.

The need for theoretical and practical reflection on the adaptation of cities to the needs of older people is highlighted by the World Health Organization report, which explicitly states that the creation of age-friendly cities is a necessary and logical consequence of the need to improve the living standards of older people and to maintain a resilient urban condition (WHO 2007: 4) .

Despite the increasing relevance of social proximity, the spatial dimension of ageing has not been thoroughly addressed by research yet – except when dealing with a specific architectural project for „housing for the elderly” and well-being of elderly in a given environment (Carp & Carp 1984; Altman & Low 1992; Bonvalet & Ogg 2008; Temelová & Slezáková 2014). In critical urban research social, economic, physical as well as spatial structures of neighbourhoods and cities are understood as being in constant change and producing relational spatial structure (Hague & Jenkins 2005; Haase 2011; Temelová & Slezáková 2014). Such spaces are understood not only as being the results of human actions, but also as mirroring social relations and being influenced by the wide scope of human action (Harvey 2008). Henri Lefebvre (1991) stated that place is a product of the dynamic between everyday practices and perceptions of people (spatial practice), cognitive concepts or theories of space (representations of space) and the spatial imaginary (space of representation).

This paper focuses on the spatial practice in terms of choices undertaken by young retirees and the social context of those choices. Most Polish publications focus on a group of elderly in a given city (Halicka & Pędich 1997; Woźniak 1997; Dzięgielewska 2006; Klimczuk 2012; Niezabitowska et al. 2012). Whereas in this paper investigated population is narrowed down to young retirees, as a group of people that are in the transition phase. Concepts such as the age-friendly city focus on the city as a whole and this paper address the question of differences between cadastral units within the city.

### **4.3. Materials and methods**

The empirical material used for this study consisted of 206 interviews conducted with inhabitants of Cracow. Interviews were conducted from June to December 2014. The characteristic of the sample is presented in Figures 1–3. Quota sampling was employed using the following criteria: age, gender, and district of residence.

The aim was to get a representation of all cadastral units within the  $\pm 10\%$  margin<sup>2</sup>. The age criterion used in the study was 60–74 years old. The aim was to acquire a sample of respondents who retired in the period of last 10 years and have been retired for longer than 3 months. The results presented in this study should be treated as exploratory research and do not intend to claim representativeness for the whole population of retirees.

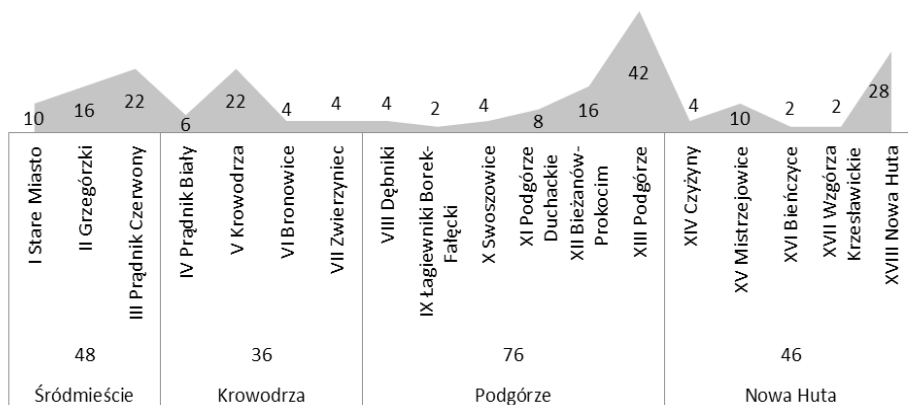


Figure 1. Structure of the sample by respondents districts of residence and its cadastral units

Source: own calculations.

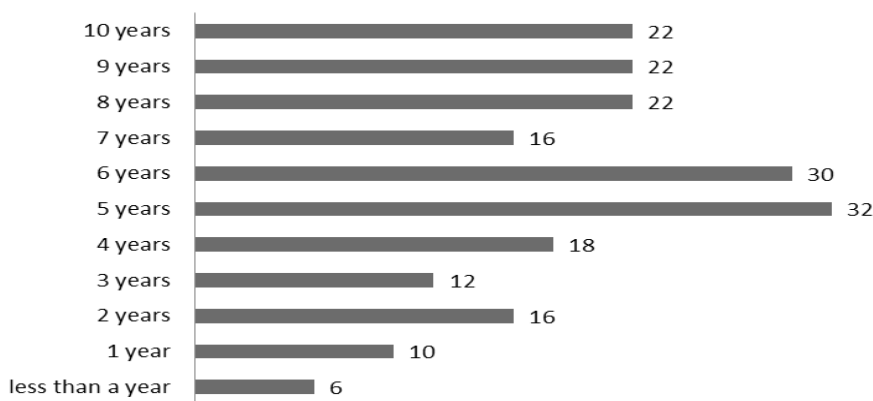
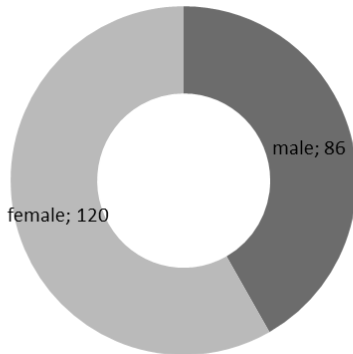


Figure 2. Structure of sample by the length of respondents retirement period

Source: own calculations.

<sup>2</sup> The basis for the quota sampling was the number of inhabitants in post – productive age in cadastral units due to lack of more precise sampling frame.



**Figure 3.** Structure of the sample by respondents gender

Source: own calculations.

Considering the age of the respondents, it is important to note that due to the fact that there are different regulations for different professional groups the difference between the youngest and the oldest participant is visible. The youngest of the participant was 54 years old and the oldest 82 years old. Vast majority of the respondents (74) was between the ages of 60–64, 66 respondents were between the ages of 65–69, 40 respondents were between the ages of 70–74, older than 75 years old were 16 respondents and 8 were younger than 59.

After coding the gathered material the hierarchical cluster analysis was used in order to identify the types of activities that young retirees undertake in the urban environment. The next step in the analysis was to profile the clusters using the demographic characteristics. The final step was designed to check whether the respondents from each cluster differ in their views on retirement and activity. In this step, the analysis of variance was used. All calculations were conducted using IBM SPSS Statistics 22 Software.

#### 4.4. Results

The first step of the analysis was to carry out a hierarchical cluster analysis (HCA). This is one of the tools for exploratory data analysis. The hierarchical cluster analysis begins by the separation of each object into a cluster by itself. At each stage of the analysis, the criterion by which objects are separated is related in order to link the two most similar clusters until all of the objects are joined in a complete classification tree. The basic criterion for any clustering is distance. Objects that are near each other should belong to the same cluster, and objects that are far from each other should belong to different clusters. At this point the objects in HCA were variables that described the amount of time<sup>3</sup> spent on following activities:

<sup>3</sup> Measured by the number of hours spent on each activity during past month.

1. Reading books and newspapers,
2. Spending time with family at home,
3. Spending time with family outdoors,
4. Spending time with friends at home,
5. Spending time with friends outdoors,
6. Individual participation in cultural activities
7. Participation in cultural activities with others,
8. Activities related to a hobby,
9. Social activity (volunteering, etc.),
10. Activity associated with health and wellbeing (including sport and recreation),
11. Organized educational activity (courses, training, u3a),
12. Individual educational activity,
13. Organized religious activity,
14. Watching TV and listening to the radio,
15. House maintenance (cleaning, renovating),
16. Garden maintenance,
17. Professional activity,
18. Country excursion,
19. Excursion abroad,
20. Caring for of grandchildren,
21. Caring for adult family members/friends,
22. Surfing the internet.

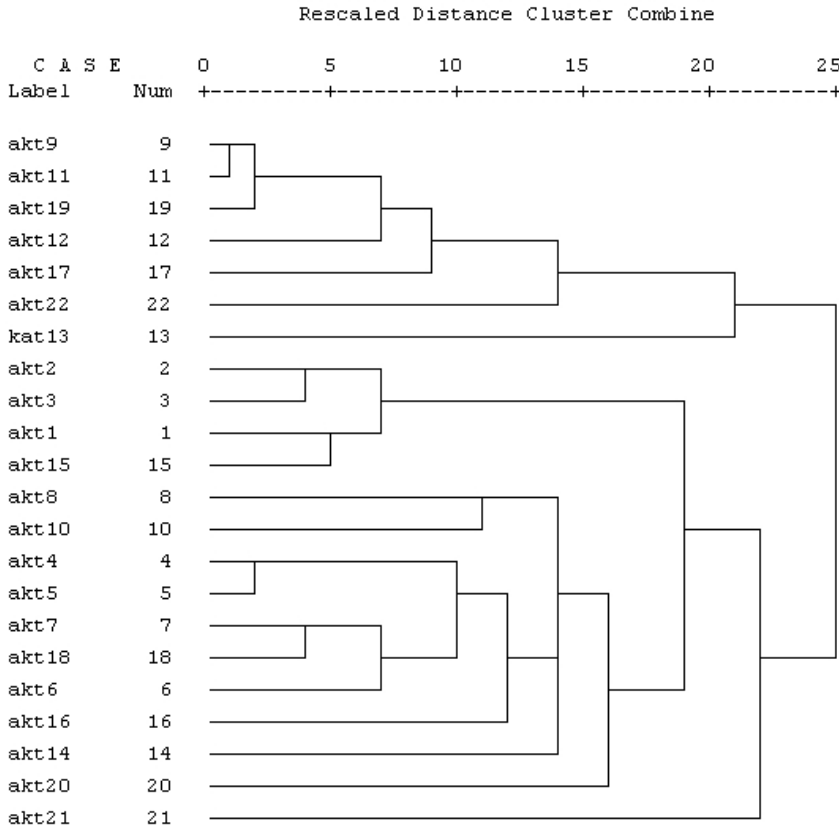
The analysis was performed using the method of similarity between design using a quantitative measure: the Euclidean distance squared<sup>4</sup>.

The greatest difference in the values was observed between Steps 20 and 21 (suggesting a solution with the two clusters), and between the step 17 and 18 (which would suggest a solution with five clusters). Figure 4 presents the dendrogram with the course of agglomeration.

As is visible in Figure 4, the better solution is seemingly the one with two clusters instead of five. Choosing this solution provides clearer interpretation of the results and helps avoid the situation in which there is a cluster with only a single variable. To make the point of providing a clearer interpretation of the data, the dispersion of the variables among the clusters is presented in table 1. It helps to understand how the distribution of variables changes in the solution with 2 and with 5 clusters.

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<sup>4</sup> As the most common used agglomeration method that provides interesting and adequate results.



**Figure 4.** HCA Dendrogram carried out for the variables

Source: own calculations.

In the first formed cluster the following variables were placed into a group: reading books and newspapers, spending time with family at home, spending time with family outdoors, spending time with friends at home, spending time with friends outdoors, individual participation in cultural activities, participation in cultural activities with others, activities associated with taking care of health and wellbeing (including sport and recreation), activities related to a hobby, watching TV and listening to the radio, house maintenance (cleaning, renovating), garden maintenance, professional activity, country excursion, taking care of grandchildren and taking care of adult family members/friends.

In the second cluster the following variables were placed into a group: social activity, professional activity, educational activity – both individual and organized, organized religious activities, abroad excursions and surfing the internet.



**Table 1.** Distribution of variables in solution with 5 and 2 clusters

Activity	Cluster in solution with 2 clusters	Cluster in solution with 5 clusters
Reading books and newspapers	1	1
Spending time with family at home	1	1
Spending time with family outdoors	1	1
Spending time with friends at home	1	2
Spending time with friends outdoors	1	2
Individual participation in cultural activities	1	2
Participation in cultural activities with others	1	2
Activities related to a hobby	1	2
Social activity (volunteering, etc.)	2	3
Activities associated with health and wellbeing (including sport and recreation)	1	2
Organized educational activity (courses, training, U3A)	2	3
Individual educational activity	2	3
Organized religious activity	2	4
Watching TV and listening to the radio	1	2
House maintenance (cleaning, renovating)	1	1
Garden maintenance	1	2
Professional activity	2	3
Country excursion	1	2
Excursion abroad	2	3
Caring for grandchildren	1	2
Caring for adult family members/friends	1	5
Surfing the internet	2	3

Source: own construction.

For the clusters the following names have been proposed:

- Cluster 1: traditional time usage model (ie. activities closely linked with the cultural definition of traditional retirees in the polish context);
- Cluster 2: open time usage (ie. open for giving and receiving, open for experiences, self-development, society).

The cluster analysis relies on the discriminant analysis to check whether or not the groups are statistically significant, and if the variables significantly discriminate between groups. What is important is the fact that a cluster analysis presents the way in which the variables could be grouped in terms of similarity in one cluster and difference with the other. This doesn't necessarily mean that cluster 1 has to be opposite to cluster 2. Therefore the names of the cluster are also not constructed as linguistic oppositions. The aim is to present what is common to variables in each cluster. As usual in cluster analysis, interpretation and choosing the right clustering is something of an art, one that makes sense as long as it is useful for the next steps in analysis.

Clustering certain variables into subgroups of the presented models allows for the argument that certain activities are more similar to each other than they are to others. The suggested models of time usage (the traditional and open) point out to two kind of time usage that organize the activity in the period of retirement. A better understanding of the choices of young retirees in the sphere of activity requires, above all, the inclusion of the similarities and differences between several types of retirees.

Therefore the next step in analysis was the Twostep cluster analysis, the aim of which was to group cases (in this case: individuals) using the following variables:

- time use model,
- year of birth,
- year of transition into retirement,
- gender,
- district of residence,
- educational level,
- position held just before transition into retirement,
- household composition,
- professional activity,
- subjective assessment of the situation,
- subjective assessment of health.

The TwoStep Cluster Analysis procedure is useful for finding the natural groupings of cases or variables. The algorithm employed by this procedure possesses several desirable features which differentiate it from traditional clustering techniques and are important from the perspective of this analysis. First is the ability to create clusters based on both categorical and continuous variables and second is the automatic selection of the number of clusters. Table 2 presents the results of auto clustering with Schwarz's Bayes Information Criterion.

The analysis led to a 3 clusters solution. Using this solution in the next steps of analysis the aim was to check if respondents in each cluster differ by the variables introduced in the analysis. The first the time the usage models were compared in each clusters, than year of birth and year of transition into retirement. In the

**Table 2.** Auto clustering with Schwarz's Bayes Information Criterion

Number of clusters	Schwarz's Bayesian Criterion	BIC change	Ratio of BIC changes	Ratio of distance measures
1	5 665,81	–	–	–
2	5 608,88	-56,93	1,00	1,03
3	5 561,77	-47,11	0,83	1,29
4	5 599,13	37,36	-0,66	1,21
5	5 686,36	87,24	-1,53	1,04
6	5 783,47	97,11	-1,71	1,29
7	5 931,13	147,66	-2,59	1,02
8	6 082,23	151,10	-2,65	1,32
9	6 275,82	193,59	-3,40	1,02
10	6 472,39	196,57	-3,45	1,06
11	6 676,47	204,08	-3,58	1,09
12	6 890,49	214,02	-3,76	1,02
13	7 107,00	216,51	-3,80	1,04
14	7 327,34	220,33	-3,87	1,20
15	7 565,18	237,85	-4,18	1,02

Source: own calculation.

following steps: gender, district of residence, educational level, position held just before the transition into retirement, household composition, professional activity, subjective assessment of the material situation and finally subjective assessment of health. The results of this analysis are presented in tables 3 to 12.

Table 3 presents the results of the comparison of the time usage models in each constructed cluster. Analysis has proven that respondents from different clusters vary in values of analysed variables. Multiple comparisons (with Bonferroni's adjustment<sup>5</sup>) have proven that respondents from cluster I spend more time in the traditional time usage model as compared to clusters II and III:  $p < 0,001$  (no significant difference between clusters II and III:  $p = 0,071$ ), and respondents from cluster II spend less time in the open time usage model when compared to respondents from cluster I and III:  $p < 0,001$  (no significant difference between clusters I and III:  $p > 0,999$ ).

<sup>5</sup> The analysis used 3 comparisons, Bonferroni's test takes into account the number of comparisons.

**Table 3.** Traditional and open time usage models in constructed clusters

Time usage model	Cluster	Mean	Standard deviation	Test score	P-value
Traditional	I	<b>58,67</b>	13,47	27,54	<b>&lt;0,001</b>
	II	41,62	12,87		
	III	47,33	16,29		
Open	I	10,00	6,51	9,19	<b>&lt;0,001</b>
	II	<b>5,85</b>	5,08		
	III	9,17	6,48		

Source: own calculation.

Table 4 presents the results of the comparisons of the year of birth and year of transition into retirement in each constructed cluster.

**Table 4.** Year of birth and year of transition in constructed clusters

Year	Cluster	Mean	Standard deviation	Test score	P-value
Year of birth	I	1950,4	3,0	42,99	<b>&lt;0,001</b>
	II	1946,9	4,7		
	III	1943,4	5,6		
Year of transition	I	2009,2	2,8	9,39	<b>&lt;0,001</b>
	II	2007,4	2,1		
	III	2007,8	3,0		

Source: own calculation.

The analysis has proven that respondents from different clusters vary in values of analysed variables. Multiple comparisons (with Gamesa-Howella<sup>6</sup> adjustment) has proven that respondents from cluster I were younger as compared to those of clusters II and III:  $p < 0,001$ ; and the respondents from cluster II were younger than those from cluster III:  $p = 0,001$ , and that respondents from cluster I have retired later as compared to those from cluster II:  $p < 0,001$  and cluster III:  $p = 0,017$  (no significant difference between clusters II i III:  $p = 0,645$ ).

In the next table (Table 5) the percentage of sex (male and female) in each cluster is presented.

<sup>6</sup> Used when variance between groups is different.

**Table 5.** Percentage of sex in each cluster

Sex	Cluster			Total
	I	II	III	
Male	10,26	29,41	96,67	41,75
Female	89,74	70,59	3,33	58,25

Source: own calculation.

The analysis with the chi-square test has shown significant differences between respondents from different clusters:  $\chi^2(2) = 110,48$ ;  $p < 0,001$ . In cluster III majority were men, in cluster I – women and in cluster II number of women was higher than men.

Table 6 presents the percentage of the residence district in each cluster. The analysis performed with the chi-square test has demonstrated shown significant differences between respondents from different clusters:  $\chi^2(34) = 131,97$ ;  $p < 0,001$ . In cluster I most often respondents were residents of the Podgórze district (38,46%) and the Nowa Huta district (20,51%); in cluster II respondents were most often residents of Bieżanów-Prokocim district (17,65%) and Podgórze district (also 17,65%), in cluster III respondents were most often resident of the Prądnik Czerwony district (23,33%), Grzegórzki district (20%) and the Nowa Huta district (16,67%).

**Table 6.** Percentage of district of residence in each cluster

District of residence	Cluster			Total
	I	II	III	
Stare Miasto	5,13	5,88	3,33	4,85
Grzegórzki	2,56	2,94	<b>20,00</b>	7,77
Prądnik Czerwony	0,00	11,76	<b>23,33</b>	10,68
Prądnik Biały	2,56	2,94	3,33	2,91
Krowdrza	12,82	11,76	6,67	10,68
Bronowice	2,56	0,00	3,33	1,94
Zwierzyniec	0,00	0,00	6,67	1,94
Dębniaki	2,56	2,94	0,00	1,94
Łagiewniki-Borek Fałęcki	0,00	2,94	0,00	0,97
Swoszowice	0,00	0,00	6,67	1,94
Podgórze Duchackie	5,13	2,94	3,33	3,88

**Table 6** (continued)

District of residence	Cluster			Total
	I	II	III	
Bieżanów-Prokocim	5,13	<b>17,65</b>	0,00	7,77
Podgórze	<b>38,46</b>	<b>17,65</b>	0,00	20,39
Czyżyny	0,00	5,88	0,00	1,94
Mistrzejowice	0,00	11,76	3,33	4,85
Bieńczyce	2,56	0,00	0,00	0,97
Wzgórze Krzesławickie	0,00	0,00	3,33	0,97
Nowa Huta	<b>20,51</b>	2,94	<b>16,67</b>	13,59

Source: own calculation.

In Table 7 the structure of the level of education in each cluster is presented. The analysis performed with the chi-square test has shown significant differences between respondents from different clusters:  $\chi^2(16) = 58,54$ ;  $p < 0,001$ . Respondents in cluster I had higher educational level than those in cluster II and III, and respondents in cluster II lower than those in cluster III.

**Table 7.** The structure of education level in each cluster (percentage)

Education level	Cluster			Total
	I	II	III	
Primary	0,00	2,94	0,00	0,97
Basic vocational	5,13	14,71	10,00	9,71
General secondary	7,69	8,82	6,67	7,77
Secondary vocational (without certification – „matura”)	5,13	0,00	10,00	4,85
Secondary vocational (with certification – „matura”)	<b>20,51</b>	<b>35,29</b>	16,67	24,27
Post-secondary	5,13	2,94	0,00	2,91
Tertiary (1 <sup>st</sup> degree)	2,56	11,76	<b>20,00</b>	10,68
Tertiary (2 <sup>nd</sup> degree)	<b>53,85</b>	<b>23,53</b>	<b>23,33</b>	34,95
Tertiary (doctorate)	0,00	0,00	13,33	3,88

Source: own calculation.

The next table (Table 8) presents the respondents' position held just before transition into retirement in each cluster. The analysis performed with the chi-square test has shown significant differences between respondents from different clusters:  $\chi^2(16) = 49,11$ ;  $p < 0,001$ . Respondents in cluster I were most often representatives of Directors, CEOs and managers of enterprises (33,33%) and creative professions and specialists with higher education (33,33%). Respondents in cluster II were most often the representatives of creative professions and specialists with higher education (29,41%) and administration, office, secretary (17,65%). Respondents from cluster III were most often representatives of directors, CEOs and managers of enterprises (23,33%) and creative professions and specialists with higher education (23,33%) and technicians and associate professionals, nurses, non-commissioned officers (20%).

**Table 8.** The structure of occupational status before transition into retirement in each cluster (percentage)

Occupational status before transition	Cluster			Total
	I	II	III	
Directors, CEOs and managers of enterprises	<b>33,33</b>	14,71	<b>23,33</b>	24,27
Creative professions and specialists with higher education	<b>33,33</b>	<b>29,41</b>	<b>23,33</b>	29,13
Technicians and associate professionals, nurses, non-commissioned officers	0,00	11,76	<b>20,00</b>	9,71
Administration, office, secretary	15,38	<b>17,65</b>	3,33	12,62
Employees of shops, services, personal services	7,69	14,71	10,00	10,68
Skilled workers and foremen employed outside agriculture and forestry	7,69	2,94	3,33	4,85
Employees performing simple tasks outside agriculture and forestry	0,00	8,82	6,67	4,85
Owners and co-owners of companies, establishments	2,56	0,00	6,67	2,91
Never gainfully employed	0,00	0,00	3,33	0,97

Source: own calculation.

The household composition of respondents in each cluster is presented in Table 9.

**Table 9.** Household composition of respondents in each cluster (percentage)

Household composition	Cluster			Total
	I	II	III	
No data	0,00	0,00	6,67	1,94
Alone	23,08	<b>32,35</b>	<b>33,33</b>	29,13
With spouse/partner	<b>35,90</b>	23,53	<b>56,67</b>	37,86
With spouse/partner and children	<b>33,33</b>	14,71	0,00	17,48
With spouse/partner and children and grandchildren	5,13	8,82	0,00	4,85
With children and grandchildren (without spouse/partner)	2,56	8,82	0,00	3,88
With children (without spouse/partner)	0,00	5,88	3,33	2,91
With grandchildren	0,00	5,88	0,00	1,94

Source: own calculation.

The analysis with the application of the chi-square test has shown significant differences between respondents from different clusters:  $\chi^2(14) = 65,50$ ;  $p < 0,001$ . Respondents in cluster I most often lived with their spouses/partners (35,9%) and with their spouses/partners and children (33,33%). Respondents from cluster II most often lived alone (32,35%), and respondents from cluster III lived most often with their spouse/partner (56,67%) and alone (33,33%).

In Table 10 the current professional activity of respondents in each cluster is presented.

**Table 10.** Professional activity of respondents in each cluster (percentage)

Professional activity	Cluster			Total
	I	II	III	
Not working	71,79	<b>94,12</b>	<b>80,00</b>	81,55
Working full time	0,00	0,00	3,33	0,97
Working part – time	<b>23,08</b>	5,88	10,00	13,59
Running own business	5,13	0,00	6,67	3,88

Source: own calculation.

The analysis done with the chi-square test has shown significant differences between the respondents from different clusters:  $\chi^2(6) = 18,15$ ;  $p = 0,002$ . The respondents in cluster II were found to be inactive in the sphere of employment more prevalently than those from other clusters. Respondents from cluster I were found to work part-time more often than those in other clusters.



In the next table (Table 11) the self-evaluation of material status of the respondents in each cluster is presented.

**Table 11.** Self-evaluation of material situation of respondents in each cluster (percentage)

Self-evaluation of material situation of respondents	Cluster			Total
	I	II	III	
I live poorly – I do not have enough even for basic needs	2,56	0,00	3,33	1,94
I live modestly – in everyday life I need to manage my money carefully	12,82	<b>61,76</b>	10,00	28,16
I live on average level – I am able to afford everyday expenditure but not big ones	<b>46,15</b>	32,35	<b>43,33</b>	40,78
I live well – I can afford most things without having to save	35,90	2,94	<b>43,33</b>	27,18
I live very well – I can afford a certain level of luxury	2,56	0,00	0,00	0,97
No data	0,00	2,94	0,00	0,97

Source: own calculation.

The analysis done with the chi-square test has shown significant differences between the respondents from different clusters:  $\chi^2(10) = 75,16$ ;  $p < 0,001$ . Respondents in cluster II evaluated their material situation worse than those in cluster I and III.

In Table 12 the self-evaluation of the health of respondents in each cluster is presented. The analysis done with the chi-square test has proven significant differences between respondents from different clusters:  $\chi^2(8) = 122,46$ ;  $p < 0,001$ . Respondents from cluster II evaluated their health worse than those from clusters I and III and respondents from cluster I evaluated their health better than those from cluster III.

**Table 12.** Self-evaluation of health of respondents in each cluster (percentage)

Health in perception of respondents	Cluster			Total
	I	II	III	
Good	12,82	0,00	6,67	6,80
Average	<b>61,54</b>	0,00	<b>63,33</b>	41,75
Neither good, nor bad	15,38	<b>67,65</b>	20,00	33,98
Bad	5,13	29,41	6,67	13,59
No data	5,13	2,94	3,33	3,88

Source: own calculation.

The above analysis has enabled the characterisation of respondents in each cluster as well as the preparation of a short description of each from constructed clusters.

**Cluster I: active retirees residing in districts that have a wide offer dedicated to senior citizens**

Respondents spending lot of time on activities from both of the time usage models: active and open, female in the majority, younger, with shorter retirement period, predominantly residing in the Podgórze district and the Nowa Huta district, with a higher level of educational, holding a high professional position before transition into retirement, living with spouse/partner and children, more often than others involved in professional activity (part – time), evaluating their material situation and health as good.

**Cluster II: passive retirees with limited funds**

Respondents spending the least amount of time on activities from both of the time usage models: traditional and open, middle- aged (compared to other clusters, not in genre), most often females, residing in different districts, with lower educational level, holding middle professional position in last work, living alone or with spouse/partner in majority, rarely active professionally, evaluating their material situation the worst and their health as average.

**Cluster III: moderately active older young retirees**

Respondents with a moderate level of activities in both time usage models: traditional and open, the oldest in comparison to other clusters, more often males more often residents of the Grzegórzki district and the Prądnik Czerwony district, holding a higher position or working as middle level staff in their last-held work position, most often living alone or with a spouse or partner, evaluating their health and material situation as good. In the sample, respondents from cluster I made up the majority – 38%, from cluster II – 33% and from cluster III – 29%.

In the final phase of analysis the aim was to examine whether respondents from constructed clusters differ in their views on retirement, their satisfaction of life and attitudes toward urban environment and the city of Cracow. The results of the ANNOVA test are presented in the Table 13.

The analysis has provided an view of significant differences between respondents from different clusters in the following aspects: satisfaction with their lives before retirement and during retirement, agreement with the statement that retirement is a time of activity and that they are active and in search of new experiences. Multiple comparisons (with Bonferroni's adjustment) enabled conclusion to be reached:

- Respondents from cluster III were more satisfied with their lives before retirement than those from cluster:  $p = 0,012$ ;
- Respondents from cluster II are less satisfied with their lives on retirement than those from cluster I:  $p < 0,001$  and cluster III:  $p = 0,012$ ;

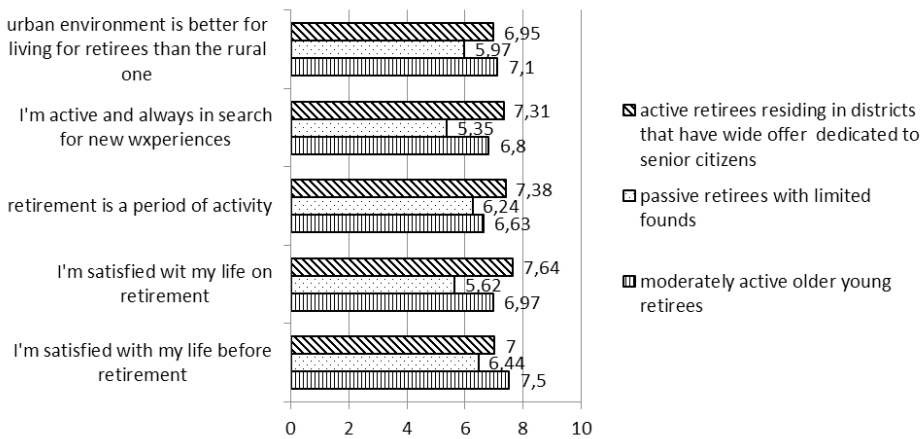
**Table 13.** Attitudes of respondents toward statements (scale 0–10; 0 – no acceptance for the statement, 10 – complete agreement) in each cluster

Statement	Cluster	Mean	Standard deviation	Test score	P-value
I'm very pleased with my life before retirement	I	7,00	2,06	<b>4,24</b>	<b>0,016</b>
	II	6,44	1,99		
	III	7,50	2,13		
I'm very pleased with my life in retirement	I	7,64	2,45	<b>11,16</b>	<b>&lt;0,001</b>
	II	5,62	2,73		
	III	6,97	2,66		
I always lacked leisure time before retirement	I	7,54	2,46	1,94	0,146
	II	6,74	2,76		
	III	7,27	2,15		
I have no leisure time in retirement	I	5,92	2,87	2,06	0,130
	II	5,03	3,08		
	III	5,07	3,10		
Retirement is a period of activity	I	7,38	2,36	<b>4,22</b>	<b>0,016</b>
	II	6,24	2,67		
	III	6,63	2,23		
I'm active and in search of new experiences	I	7,31	2,13	<b>13,09</b>	<b>&lt;0,001</b>
	II	5,35	2,72		
	III	6,80	2,20		
There are many possibilities for retirees to spent time interesting in Cracow	I	7,23	2,24	2,97	0,053
	II	6,50	2,41		
	III	6,33	2,39		
Cracow is retirement – friendly city	I	7,26	2,03	2,74	0,067
	II	6,50	2,31		
	III	6,57	2,16		
An urban environment is better for retirees than a rural environment	I	6,95	2,57	4,40	0,013
	II	5,97	2,30		
	III	7,10	2,26		

Source: own calculation.

- Respondents from cluster I tend to agree more with the statement that retirement is a period of activity than those from cluster II:  $p = 0,015$ ;
- Respondents from cluster II tend to describe themselves as being less active and in search of new experiences than those from cluster I:  $p < 0,001$  and cluster III:  $p = 0,002$ ;
- Respondents from cluster II tend to agree less with the statement that the urban environment is better for retirees than the rural environment than those from cluster I:  $p = 0,044$  and cluster III:  $p = 0,025$ .

The next figure (Figure 5) presents the level of agreement with each statement by the respondents from each cluster. The figure includes only those statements in which there was a significant difference between clusters.



**Figure 5.** Level of agreement with each statement by the respondents from each cluster  
Source: own calculation.

## 4.5. Conclusion

Population ageing has drawn increasingly more attention to the question of retirement. On the one hand, the number of retirees increases and retirement becomes a more prominent part of life. As a result, people at present have developed a distinct retirement lifestyle and retirees become more diverse. As this publication presents one of the sources of this diversification is the character of environment in which individuals make choices that define their lifestyles. Life-course scholars underline that the situation in old age depends on what happened earlier during a person's life (Morgan, Kunkel 2001). Therefore, in order to understand retirement, it is necessary to look at people's youth and the middle-age period of their life. In order to have an influence on retirement, it is necessary to commence at an early age. The analysis presented in this article demonstrates that

in the urban environment activity of young retirees is associated with what the city (or more specifically: a certain district of the city) has to offer. The generation of modern retirees is better educated, evaluate their health and economic situation as good and looks for opportunities to spend their time in open time usage model. This demonstrates that they are open to new experiences and are aware of the changing role of a retiree.

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*Article history*

Received 6 April 2017

Accepted in revised form 29 July 2017