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**Quality of Life.**

**Human and Ecosystem Well-being**



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## **Introduction**

On September 21-22, 2015, 6th International Scientific Conference “Quality of Life 2015. Human and Ecosystems Well-being” was held in Wrocław.

The conference was a part of the cycle of the conferences on the topic of quality of life that have been organized by the Department of Statistics (Wrocław University of Economics) since 1999. The aim of the cycle is to participate in the still rising all over the world wave of scientific studies on quality of life: ethical background and definitions of quality of life, investigating (how to measure it), presenting the results of differences of quality of life over time and space, its interdependences with natural environment, mathematical methods useful for the methodology of measuring quality of life and finally – possible methods of improving it. The conferences are meant to integrate the Polish scientific community doing research on these topics as well as to make contacts with foreign scientists.

This year our honorary guest was Professor Filomena Maggino, past President of International Society for Quality-of-Life Studies (ISQOLS), who presented a plenary lecture.

We hosted about 30 participants, among them scientists from Spain, Romania, Italy and Japan. We had 24 lectures on such a variety of topics as carbon footprint and mathematical properties of some estimators. The common background of all of them was to better comprehend, measure and possibly to improve the quality of humans' life.

The present volume contains the extended versions of some selected lectures presented during the conference. We wish to thank all of the participants of the conference for co-creating very inspiring character of this meeting, stimulating productive discussions and resulting in some potentially fruitful cooperation over new research problems. We wish also to thank the authors for their prolonged cooperation in preparing this volume, the reviewers for their hard work and for many valuable, although anonymous, suggestions that helped some of us to improve their works.

Finally, we wish to thank the members of the Editorial Office of Wrocław University of Economics for their hard work while preparing the edition of this volume, continuous kindness and helpfulness exceeding their duties of the job.

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**THE QUALITY OF LIFE OF THE ABORIGINAL RURAL  
PEOPLE 60+ IN POLAND.  
SELECTED RESEARCH RESULTS, 2014**

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**JAKOŚĆ ŻYCIA RDZENNYCH MIESZKAŃCÓW WSI  
W WIEKU 60+ W POLSCE.  
WYBRANE REZULTATY BADAŃ, 2014**

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**Summary:** The topic of considerations concerns the influence of demographic and social features on the life quality with the assumption that the feeling of social exclusion (marginalization) is its representative. Additionally life satisfaction resulting from the estimation of the basic needs satisfaction degree is one of the determinants. The subject of the research was a person aged 60+, a native inhabitant of one of four voivodeships of so called "Poland B". Quantitative-qualitative research performed on a purposeful sample ( $n=400$ ) was conducted in autumn 2014. The results of modelling with the use of logistic regression acknowledge the necessity of careful investigation of variables distribution structure because the prevailing frequency of the only one variant from possible variants of dependent variable observed in two voivodeships deteriorated the results of the whole sampling.

**Keywords:** aboriginal rural population aged 60+, social exclusion, quality of life, logistic model.

**Streszczenie:** Temat rozważań dotyczy wpływu cech społeczno-demograficznych na jakość życia, której reprezentantem uczyniono poczucie marginalizacji społecznej. Jedną z determinant było ponadto zadowolenie z życia jako wynik oceny stopnia zaspokojenia podstawowych potrzeb. Podmiotem badań była osoba w wieku 60+, rdzenny mieszkaniec jednego z 4 województw tzw. Polski B. Badanie ilościowo-jakościowe na próbie celowej ( $n=400$ ) przeprowadzono jesienią 2014 roku. Rezultaty modelowania z użyciem regresji logistycznej potwierdzają konieczność uważnego badania struktury rozkładów zmiennych, bowiem przeważająca częstość występowania tylko jednego z możliwych wariantów zmiennej zależnej zaobserwowana w dwóch województwach zniekształciła wyniki dla całej próby.

**Słowa kluczowe:** rdzenni mieszkańcy wsi w wieku 60+, wykluczenie społeczne, jakość życia, model logistyczny.

## 1. Introduction

The age and place of living can be included, among others, into the basic determinants of the life quality differentiation. The subjects of the work were older people aged 60+. The studies distinguished the age groups. The respondents were living in one of 4 voivodeships of so called “Poland B” (Świętokrzyskie, Podlaskie, Lubelskie or Warmińsko-Mazurskie), and the selection of these voivodeships was based on the expectation of lower level of life of rural population there if compared to other voivodeships, which could be determined – aside from respondents’ features – by the feeling of social exclusion as one of the life quality measures.

Demographic structure regarding age of the rural population in Poland is characterized by great regional differentiation. In 2014, older people at rural areas constituted only 13% of population in scale of Poland (16% in cities), however, for example in the Świętokrzyskie Voivodeship persons aged over 65 constituted 16% of inhabitants in total [*Sytuacja demograficzna...* 2014].

Hitherto existing surveys on rural population were featured with incompetence in studying the methodology suitability to specific character of life and demographic-social structure of the mentioned part of Polish society, especially because social-cultural aspects were disregarded [Bukraba-Rylska 1997, p. 70 and the following]. At the beginning of transformation in Poland its negative outcomes were mostly noticed in rural environment. However, studies conducted by Public Opinion Research Centre in 1993-1997 showed that village inhabitants may have had the other system of values differentiating the criteria of own life conditions estimation.

The financial situation of older persons is relatively stable due to disability pensions or old-age pensions. Quite often their children and grandchildren are jobless which also often causes the deterioration of older people’s life situation. There are also acts of violence on the part of younger members of family. Co-authors’ research on conditions, levels, quality and dignity of life of older aboriginal village inhabitants aged 60+ [Grant NCN 2013...], conducted in 2014 in four so called “poor” voivodeships of eastern Poland, made much more closer estimations of current situation which allowed to increase the chance for social politics changes addressed to this part of population.

In the work the following definition was assumed: Social exclusion (marginalization) is the feeling of being “worse” than others regarding material state, impeded access to public goods, health state, loneliness, lack of social aid, access to new technologies. The quality of life was characterized by the feeling of social exclusion.

## 2. Statistical data

Four hundred respondents in total participated in quantitative studies (each voivodeship was represented by 100 aboriginal village inhabitants). The distributions in four voivodeships according to sex, education, age and kind of education (agricultural or nonagricultural) are presented in Table 1. In each voivodeship group the number of women was by 10% higher than men participating in the research. Generally persons with elementary education (76%) predominated in the group, but, what is interesting, the majority of respondents had nonagricultural education. Distinguishing four age groups, the most numerous was a group of “younger” seniors (60-65 years old), both in general and in the section of 4 voivodeships. This rate in the remaining three age groups’ representatives was approximately the same (from 17% to 20%).

**Table 1.** Structure of the sample regarding demographic-economical and geographical features in total

Feature	Variant	%	Feature	Variant	%
Sex	Woman	58	Voivodeship	Lubelskie	25
	Man	42		Świętokrzyskie	25
				Podlaskie	25
				Warmińsko-Mazurskie	25
Age	60-65	33	Estimation of material state	Better than others	10
	66-70	17		The same	70
	71-75	15		Worse	17
	76-80	15		Difficult to say	3
	81 and more	20			
Education	elementary/vocational	75	Life satisfaction	Yes	85
	secondary/higher	25		No	15
Living	Alone	20			
	With family	80			

Source: own elaboration based on the results from research conducted in September-November 2014.

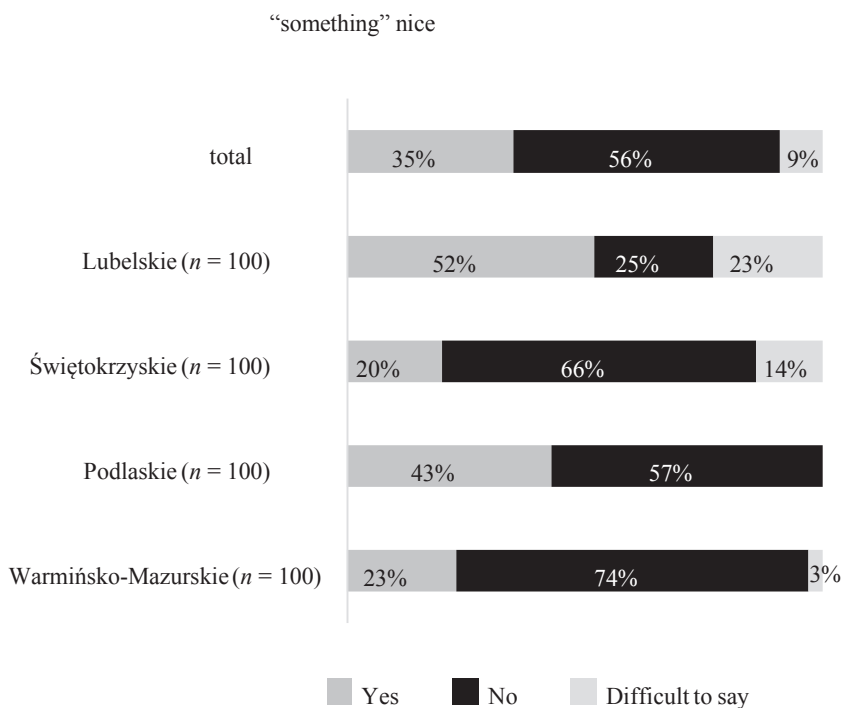
**Table 2.** Distribution of answers for the question “What mood are you today in?” according to voivodeships (%)

Voivodeships	Mood variants						
	Very good	Good	Sad	Depressed	Worried	Unheeding of everything	”so so”
Lubelskie	5	57	5	3	2	5	23
Świętokrzyskie	0	60	11	1	5	4	29
Podlaskie	5	50	13	12	5	5	10
Warmińsko-Mazurskie	4	23	26	10	3	6	28
Total	4	47	11	7	4	5	22

Source: own elaboration based on the results from research conducted in September-November 2014.

Fulfilling the aim of the research, namely the identification of the social exclusion symptoms, interviews conducted in the way of subjective opinions characterizing four research categories were required. To recognize the answers as not deteriorated (sharpened) by the current mood, the question was asked: “What mood are you in today in?”. The distributions according to voivodeships and groups in total are presented in Table 2.

Although the state of good mood decidedly prevailed (except the respondents from the Warmińsko-Mazurskie voivodeship) it is to be noticed that about half of the respondents, and almost 70% of the respondents from above mentioned voivodeship showed various states characteristic of bad mood. It could be a result of difficult life conditions. The respondents from this voivodeship more often indicated that “something bad” had happened during the previous month (see Figure 1 and 2).

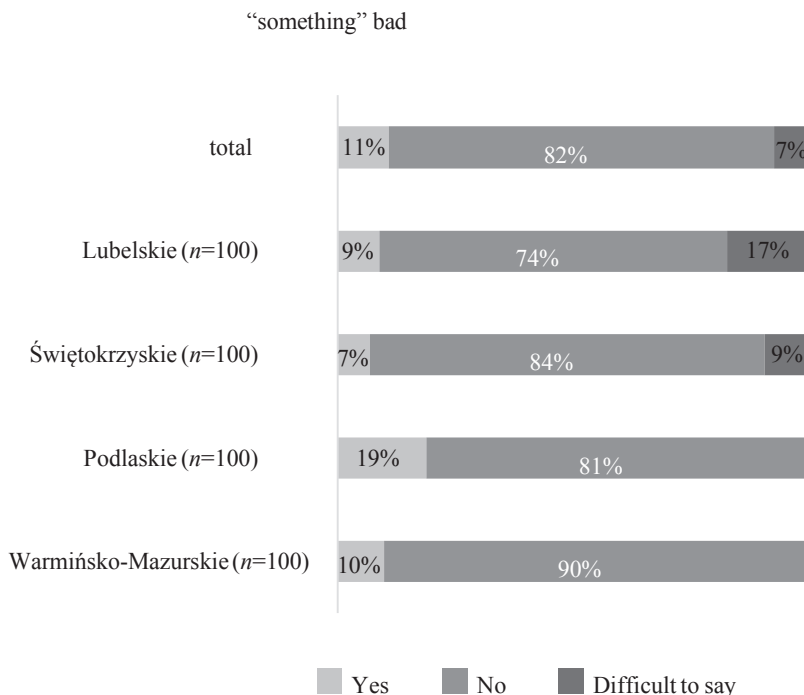


**Figure 1.** Distribution of answers for the question: “Has “anything nice” happened in your closest family during last month?”

Source: own elaboration based on the results from research conducted in September-November 2014.

The reasons of bad mood prevalence in all four voivodeships: the awareness of loss of health (especially in the Świętokrzyskie voivodeship, where it was indicated by 89% of respondents), lack of money and lack of help from the State are characteristic of persons of older age in general.





**Figure 2.** Distribution of answers for the question: “Has “anything bad” happened in your closest family during last month?”

Source: own elaboration based on the results from research conducted in September-November 2014.

Usually the material situation is a factor with the strongest influence on life conditions. Respondents comparing their situation related to other older people living in the same village did not consider their material state as worse than others. Such estimations were given by 70% of respondents in each voivodeship. Therefore this factor did not differentiate the opinions about worse life conditions if compared to the situation of other inhabitants of similar age living in the same village.

An important determinant of life quality estimation is the degree of needs satisfaction, which is building the estimations defined as a category of life level. The question about life satisfaction brought distributions of answers presented in Table 3. Therefore, in the total scale, 85% of respondents answered this question positively. The most satisfied persons were in the Lubelskie Voivodeship (97%), and the least in Warmińsko-Mazurskie (83%). The most often source of dissatisfaction was lack of health (31% of answers), loneliness (20%), old age (16%), depression (about 15%), and lack of money (10%).

The distributions of answers presented in Table 3 allow to assess influence of basic features on the differentiation of the respondents’ life satisfaction. Persons

**Table 3.** Do you feel more often satisfied with life than before (answers yes and no given in %)

Respondents' features	Respondents in total	Yes	No
		%	%
Total	400	85	15
Sex			
woman	233	85	15
man	167	85	15
Age			
60-65	132	89	11
66-70	69	90	10
71-75	61	85	15
76- 80	59	86	14
81 and more	79	71	29
Education			
Elementary/vocational	301	78	22
secondary/higher	99	94	6
Do you live			
alone	79	73	27
with a spouse	180	88	12
with a spouse and children	81	93	7
with children	57	79	21
with siblings	3	67	33
Estimation of material state			
Better than others	39	92	8
Others have similar conditions	280	90	10
Worse than others	67	61	39
Difficult to say	14	71	29
Estimation of health state			
positive	214	95	5
negative	153	72	28
difficult to say	33	76	24
Voivodeship			
Lubelskie	100	97	3
Świętokrzyskie	100	73	27
Podlaskie	100	86	14
Warmińsko-Mazurskie	100	83	17

Source: own elaboration based on the results from research conducted in September-November 2014.

aged 60-70 answered that they were decidedly satisfied with life (90%), but the older a person the more rarely a positive answer was given. However, positive answers predominated in general, which may be a certain surprise in case of older people. Positive answers concerning life satisfaction could have a source in the estimation of life of closest family members. Over half (62%) of the respondents in general stated that their children and grandchildren were rather happy. However, this opinion was

**Table 4.** Distribution of answers for the question “Do you feel being on the margin of life, which is inevitable in old age?”

Features	Answers variants (%)				
	Decidedly yes	Yes	Rather not	Decidedly not	Difficult to say
Total	8	22	42	26	2
<b>Sex</b>					
Woman	8	24	39	27	1
Man	7	19	47	25	4
<b>Age</b>					
60-65	3	11	47	37	2
66-70	6	17	42	29	6
71-75	15	30	38	16	2
76-80	5	27	44	24	0
81 and more	13	35	37	14	1
<b>Education</b>					
Elementary	11	32	38	18	3
Vocational	4	12	50	31	3
Secondary/ higher	4	13	44	37	1
<b>Do you live alone</b>					
with a spouse	8	28	41	23	0
with a spouse and children	6	19	50	21	4
with children	3	17	37	42	1
with siblings	19	32	26	23	0
	0	0	67	33	0
<b>Estimation of material state</b>					
Better than others	5	18	28	49	0
Similar	5	21	47	25	3
Worse	22	24	34	19	0
Difficult to say	0	36	29	21	4
<b>Voivodeships</b>					
Lubelskie	2	9	58	27	4
Świętokrzyskie	14	34	44	4	4
Podlaskie	13	41	24	22	0
Warmińsko- -Mazurskie	1	4	43	51	1

Source: own elaboration based on the results from research conducted in September-November 2014.

territorially strongly differentiated. In the Lubelskie voivodeship 47% of respondents decidedly consider their families as happy ones, but such positive answers were not noticed in the Świętokrzyskie voivodeship. Therefore one can state that two measures of life quality, namely life satisfaction and family's happiness were observable with high rate of occurrence among older people in the selected voivodeship.

Before the identification of social exclusion determinants as one of life quality measures distributions of dependent variable were examined according to the answers for the question: "Do you feel being on the margin of life, which is inevitable in old age?" The distributions according to the selected features of respondents and the answers for the questions concerning life conditions which may differentiate the answers are presented in Table 4.

Distributions of answers related to the feeling of life marginalization according to estimations given by older aboriginal inhabitants of rural areas presented in Table 4 are quite important for the results in the logistic regression model. The answers in the scale of four voivodeships indicate in total that 30% of respondents were of opinion that important matters in their life had already passed because they were seniors. However, the answers given by almost 70% of investigated persons who did not think that due to advanced age their life had to be deprived of activity, happiness and satisfaction were quite surprising. It is interesting to notice that the distributions in two voivodeships two times showed strong similarity, namely in the Lubelskie and Warmińsko-Mazurskie voivodeships definitely prevailed the answers negating an opinion that in old age life may go on listlessly. However, in the Świętokrzyskie and Podlaskie voivodeships prevailed rather the answers confirming that life of older people was not as active as of young and matured persons.

### 3. Logistic regression analysis

Modelling goal: how several features along with life satisfaction influence the feeling of social exclusion or social marginalization – one of the measures of the life quality of older people aged 60+ aboriginally inhabitants of rural areas. The posed hypothesis was that other factors apart from age may stimulate the odds of marginalization feeling among older persons. As for the diagnosis measurable variable (age) and qualitative variables (province, education, living alone, estimation of material state and life satisfaction) were taken into account, which were introduced into a model using two-valued variables.

The results for qualitative variables were obtained using ordinal scale. Due to an unsolved contention about treating the results derived from ordinal scale as from quotient or interval scales (see among others [Francuz, Mackiewicz 2005, p. 390]) it was decided to introduce qualitative variables into a model as two-valued ones. A vote in this case was a positive answer obtained from the test with numbers from ordinal scale treated as numeral data, conducted by S.M. Kot and T. Słaby [Kot, Słaby 2013, pp. 201-228]. However, the authors pointed out that this positive answer was obtained only for a defined sample – without grounds for the generalization. Moreover, the authors stated that in such a situation parallel models should be habitually used for the same set of data.

To write down the model the following denotations were used for qualitative variables:

$Y = 1$  – a dependent dichotomous variable for respondents who answered “decidedly yes” or “yes” for question: Do you feel being on the margin of life, which is inevitable in old age?”

$Y = 0$  – a dependent variable in case of opposite answer (“decidedly no” or “No”);

$X_1 = 1$  – a respondent was a man;  $X_1 = 0$  – for women (reference group);

$X_2 = 1$  – a respondent aged 66-70;  $X_2 = 0$  – a respondent in other age;

$X_3 = 1$  – a respondent aged 71-75;  $X_3 = 0$  – a respondent in other age;

$X_4 = 1$  – a respondent aged 76-80;  $X_4 = 0$  – a respondent in other age;

$X_5 = 1$  – a respondent aged 80 and more;  $X_5 = 0$  – a respondent in other age.

As a reference was the age ranging from 60 to 65

$X_6 = 1$  – for secondary/higher education;  $X_6 = 0$  – for remaining education levels.

As a reference group were persons with elementary/vocational education

$X_7 = 1$  – a respondent lives alone;  $X_7 = 0$  – in opposite case (reference group);

$X_8 = 1$  – a respondent is not satisfied with their life;  $X_8 = 0$  – in opposite case (reference group).

$X_9 = 1$  – a respondent estimated the material state as better than others;  $X_9 = 0$  – for remaining respondents;

$X_{10} = 1$  – a respondent estimated the material state as worse than others;  $X_{10} = 0$  – for remaining respondents.

As reference point the answer “the same” was used

$X_{11} = 1$  – a respondent lived in the Lubelskie voivodeship;  $X_{11} = 0$  – for remaining respondents;

$X_{12} = 1$  – a respondent lived in the Świętokrzyskie voivodeship;  $X_{12} = 0$  – for remaining respondents;

$X_{13} = 1$  – a respondent lived in the Podlaskie voivodeship;  $X_{13} = 0$  – for remaining respondents.

As reference group was the Warmińsko-Mazurskie voivodeship

Denoting an opinion about marginalization as event  $A$  and probability of this event as  $P(A)$  the logistic regression function with independent variables  $X_1, X_2, \dots, X_k$  takes the form:

$$\ln \frac{P(A)}{1-P(A)} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k. \quad (1)$$

Natural logarithm of quotient  $\frac{P(A)}{1-P(A)}$ , called logit is a linear function of variables  $X_1, X_2, \dots, X_k$ , therefore  $\beta_i$  can be interpreted as logarithm increase of quotient  $\frac{P(A)}{1-P(A)}$  caused by independent variable increase by one unit.

Increase of  $X_i$  by one unit with unchanged values of remaining independent variables causes multiplying the quotient  $\frac{P(A)}{1-P(A)}$  by factor  $e^{\beta_i}$ .

The hypothesis that the independent variable does not influence probability of event denominated as  $H_0$  while  $H_1: \beta_i \neq 0$  is verified in logistic analysis using Wald statistic of  $W = \left( \frac{\hat{\beta}_i}{S(\hat{\beta}_i)} \right)^2$  form, where  $S(\hat{\beta}_i)$  is a standard error of parameter evaluation. At true  $H_0$  the Wald statistic has distribution  $\chi^2$  (chi-square) with 1 degree of freedom.

High value of Wald statistic testifies against  $H_0$ . Critical level  $p$  is calculated as  $p = p(\chi_{(1)}^2 \geq W)$ .

Among others, an evaluation of assessed model's matching can be done on the base of described events occurrence or nonoccurrence correct prediction percentage (%) – the higher percentage the better matching.

Interpreting the results we concentrated on the explanation of odds of events occurrence described by variable  $X_p$  with the assumption of stability controlling of remaining variables included in the model. The interpreted results that are the odds ratios are presented in the last column in Table 5. If  $\exp(S(\hat{\beta}_i)) > 1$ , then it means that a factor described by independent variable  $X_j$  increases the probability of studied event occurrence. Before that it is to notice that statistical significance of results can be already evaluated using Wald statistic. Basing on the relation of critical level  $p$  lesser than acceptable level of statistical significance, that is according to relation  $p < 0.10$ , one can observe that significance is satisfying only if related to place of living (voivodeship), age and life satisfaction. With relatively small desistance from rule  $p < 0.10$  the influence of sex could be recognized as statistically significant ( $p = 0.1559$ ). One can presume that with a little bigger sample the influence of this variable could be statistically significant. This note concerns also the groups aged 66-70 years ( $p = 0.1536$ ).

Interpreting the results presented in Table 5 very high odds ratios in two voivodeships: Podlaskie and Świętokrzyskie can be noticed, which is a result of empiric distribution structure coming from the answers for a question about marginalization feeling (very strong positive asymmetry of this distribution in these voivodeships). Therefore we have resigned from the interpretation related to voivodeship factor and we developed logistic model separately for each voivodeship (results are showed below). It can only be stated that in the Lubelskie voivodeship the odd ratio of marginalization feeling is by 222.8% higher if compared to the Warmińsko-Mazurskie voivodeship. In logistic model for the marginalization of state feeling in relation to sex it was found that:

- the odds ratio of that state feeling or not feeling for men was by 44.9% lower than for women;
- in subsequent age groups related to the reference group (60-65 years old) the odds ratio of marginalization feeling occurrence or nonoccurrence changed appropriately by 91.1% for persons aged 66-70, 697% for 71-75 years old, 229.8% for 76-80 and 549.2% for 81 and older;

**Table 5.** Results of estimation from logistic regression (for 4 voivodeships)

Independent variables (reference group in brackets)	Regression coefficient $\hat{\beta}$	Standard error	Wald statistic	$p$	$\exp(\hat{\beta})$
Free term	-4.50150	0.637633	49.83951	0.00000	0.011
Voivodeship (Warmińsko- -Mazurskie)	0	-	-	-	1
Lubelskie	1.17184	0.662513	3.12858	0.076930	3.228
Podlaskie	3.19325	0.569425	31.44812	0.000000	24.367
Świętokrzyskie	3.70632	0.579804	40.86241	0.000000	40.704
Sex (woman)	0	-	-	-	1
man	-0.42881	0.302212	2.01331	0.155925	0.651
Age (60-65)	0	-	-	-	1
66-70	0.65064	0.455975	2.03611	0.153602	1.917
71-75	2.07607	0.470897	19.43715	0.000010	7.973
76-80	1.19324	0.468269	6.49329	0.010828	3.298
81 and more	1.87056	0.451669	17.15154	0.000035	6.492
Education (Elementary/vocational)	0	-	-	-	1
Secondary/higher	-0.21572	0.400294	0.29043	0.589946	0.806
Living (Together with others)	0	-	-	-	1
Alone	-0.47041	0.416556	1.27527	0.258780	0.625
Material situation (the same)	0	-	-	-	1
better	-0.11829	0.513004	0.05308	0.817782	0.889
worse	0.33588	0.404601	0.68917	0.406447	1.399
Life satisfaction (Yes)	0	-	-	-	1
No	1.92340	0.458217	17.61968	0.000027	6.844

Source: own calculation using STATISTICA12.

- for unsatisfied persons the odds ratio of the marginalization feeling occurrence or nonoccurrence was higher by 162% if compared to the satisfied ones.

Table 6 presents the odds ratios of event occurrence in relation to nonoccurrence of statistically significant independent variables groups, obtained from logistic regression models for the groups of respondents in four voivodeshps. For two voivodeships, i.e. Podlaskie and Warmińsko-Mazurskie only age was found as a statistically significant feature. In the Podlaskie Voivodeship life satisfaction was found as statistically significant, but very high odds ratio is an indication of very high standard error in the parameter estimation, what makes the result impossible to interpret.

Greater strength in the interpretation of occurrence and nonoccurrence of odds ratios for the considered event was obtained in the Lubelskie and Świętokrzyskie voivodeships. Thus at each interpretation of given odds ratio with the assumption that other features of respondent are unchangeable, the man from the Lubelskie voivodeship has over three times greater odds for the marginalization feeling than a woman, while the odds of this event for a man in the Świętokrzyskie voivodeships are by 75% lower than for a woman. In the Podlaskie voivodeship the person with secondary or higher education has these odds by 86.7% lower if compared to persons with elementary or vocational education.

**Table 6.** Specification of logistic regression results for particular voivodeships

Features statistically significant ( $p \leq 0.1$ )	Critical probability and odds ratios exp. ( $\beta$ )			
	Lubelskie	Podlaskie	Świętokrzyskie	Warmińsko-Mazurskie
Sex	$p = 0.08$	insignificant	$p = 0.006$	
Man	4.499	insignificant feature	0.250	insignificant
Education	$p = 0.0626$			
Secondary/Higher	0.133	insignificant	insignificant	insignificant
Living alone	$p = 0.0933$		$p = 0.056$	
	6.119	insignificant	0.250	insignificant
Age				
66-70	insignificant	insignificant	$p = 0.1823$ 2.54	insignificant
71-75	$p = 0.1811$ 7.166	insignificant	$p = 0.0038$ 10.734	insignificant
76-80	insignificant	insignificant	$p = 0.0209$ 5.495	insignificant
81 and more	insignificant	$p = 0.039$ 6.826	$p = 0.002$ 9.981	$p = 0.1009$ 13.418
Satisfied with life				
Dissatisfied	insignificant	$p = 0.002$ 25.297	insignificant	insignificant

Source: own elaboration based on the results from research conducted in September-November 2014.

Diverged results for these two voivodeships are related to the feature of living together with other persons. However, this feature was statistically significant in both voivodeships and the odds for marginalization feeling if living alone in relation to living together with others was over 5 times higher in the Lubelskie voivodeship, whereas in the Świętokrzyskie voivodeship these odds were 75% lower. Age groups were significant only in the Świętokrzyskie voivodeship, except the group aged 66-70. The odds for marginalization feeling by persons older than 60-65 (reference group) do not show growing character. In this case the odds ratio was the highest for persons aged 71-75.



## 4. Conclusions

The failure of this empiric examination should be noticed while evaluating above results in the context of distinguishing the factors which could be statistically significant at the same time for the selected four voivodeships.

As mentioned above, the choice of logistic regression with dependent dichotomous variable and set of independent two-valued variables as the way to distinguish the factors determining the life quality of older persons aged 60+ being aboriginal village inhabitants in four voivodeships considered as the poorest in Poland, was dictated by the notations of answers on ordinal scale not treated as a quantitative scale. The model developed for the set of all units of research was evaluated using two matching measures of Cox-Snell and Nagelkerk [Rószkiewicz 2002, p. 91] coefficients, which were interpreted as determination factors in regression model. In relation to this work data, obtained coefficients were at the level of 9.7% and 13.9%, which means that used model does not match the empirical data.

The second method for the model evaluation in the context of discussed event (marginalization feeling) occurrence forecasting resolves itself to the estimation of percentage of correct predictions. Both for four voivodeships together and separately the percentage of correct predictions was low (maximally 32%).

Therefore there was no confirmation of posed hypothesis that except age, social-economic features could be the determinants of opinions differentiation concerning the life marginalization of older aboriginal inhabitants of villages. The opinions are undoubtedly formulated in high degree on the base of composed psychological and cultural states characteristic for rural population. Anyway the supposition that older seniors living in villages more often feel the social marginalization became quite intuitively confirmed, which should bring greater differentiation in social aid depending on the age of an older person. Therefore further empirical diagnoses of the phenomena characterizing the life of these persons are necessary. The results of pioneer research conducted in Poland with only decided diagnostic character are nothing but just the signals both for researchers dealing with the life of aboriginal rural seniors, and for the persons creating and realizing social politics.

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