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Original Article

Socioeconomic and Health Characteristics as Predictors of Social Support in Elderly People with Visual Impairment: Evidence from Serbia

Natalija Djurovic [1], Snezana Radovanovic [2,3,4], *Olgica Mihaljevic [5], Jovana Radovanovic [6], Milos Stepovic [7], Marija Kovacevic [7], Katarina Janicijevic [2], Gordana Djordjevic [6], Ognjen Djordjevic [6], Gordana Gajovic [8], Nela Djonovic [3,9], Tamara Dimovic [3], Nikoleta Janicijevic [9], Milena Maricic [10], Dragan Vasiljevic [9], Viktor Selakovic [11]

1. *Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
2. *Department of Social Medicine, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
3. *Institute for Public Health Kragujevac, Kragujevac, Serbia*
4. *Center for Research on Harmfull Effects of Biological and Chemical Hazards, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
5. *Department of Pathophysiology, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
6. *Department of Epidemiology, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
7. *Department of Anatomy, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
8. *Health Center Arandjelovac, Arandjelovac, Serbia*
9. *Department of Hygiene and Ecology, Faculty of Medical Sciences, University of Kragujevac, Kragujevac, Serbia*
10. *The College of Health Sciences, Academy of Applied Studies Belgrade, Belgrade, Serbia*
11. *Department of Communication Skills, Ethics and Psychology, Faculty of Medical Sciences, University Kragujevac, Kragujevac, Saerbi*

***Corresponding Author:** Email: vrndic07@yahoo.com

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Abstract

Background: Social networks and support have an independent and strong influence on health and quality of life at all stages of the life cycle, especially in the elderly. We aimed to determine the level of social support among the elderly population of the Republic of Serbia.

Methods: The survey is part of the fourth Health survey of the population of Serbia, which was conducted in 2019 by the Republic Institute of Statistics with the Institute for Public Health of Serbia "Dr. Milan Jovanović Batut" and the Ministry of Health of the Republic of Serbia. The research instrument was standardized questionnaires constructed in accordance with the European Health Interview Survey (EHIS, wave3) and the social support score (Oslo-3 Social Support Scale). For the purposes of this research, data on the population aged 65 and over were used.

Results: In terms of social support, 85.8% of respondents had bad , 13.9% moderate and 0.3% strong. Univariate regression analysis determined that respondents from the territory of Vojvodina had a 1.6 times higher chance of poor social support compared to respondents from southern and eastern Serbia. The probability of bad social support was 1.5 times higher in persons who were never married/cohabiting, persons with secondary education were at 1.6 times higher risk of poor social support compared to persons with higher education. Inactive persons had poor social support 1.4 times more often than employed persons, as well as persons with comorbidities (OR=1.218).

Conclusion: These researches are of great importance for public health because it provides valuable data for the creation of interventions that will intensify activities related to providing adequate social support to the elderly.

Keywords: Social support; Elderly population; National survey; Republic of Serbia

Introduction

The global population is aging due to increasing life expectancy and declining fertility rates. It is expected that by 2050, the number of old people will increase to 1.5 billion, which represents about 16% of the world's population. Age is an independent risk factor for the development of non-communicable diseases such as cardiovascular disease, cancer, diabetes and dementia (1). Function and independence generally decline in old age as a result of declining cognitive and physical capacities (2). Therefore, it is necessary to explore ways to encourage good aging or "active aging". It refers to older adults who are enabled to continue to participate in social, economic, cultural, spiritual and civic affairs and maintain a good quality of life (3).

The quality of life of the elderly is directly related to the degree of social interaction, the degree of social engagement and social networks. Social factors are positive resources against adverse events in old age. The elderly who have a lower level of social activities and fewer contacts have a higher level of cognitive impairment. They are more likely to feel lonely and more likely to develop mental health disorders (4).

Social support can influence health and well-being by modifying individual behavioral factors and adoption of healthy lifestyles. It also enables better emotional adaptation to stressful and negative life events (5). Older adults living alone are a population at risk. Studies have found that living alone can predict a wide range of poor health outcomes. However, older adults living alone are not homogeneous. Some older adults living alone are socially well supported and may not be as vulnerable as their living status suggests (6). Regardless of whether they live alone, among all older adults, higher levels of quantified or perceived social support are associated with improved quality of life, better physical and mental health, and lower rates of frailty and mortality (7). Also, social support is useful when a person has a chronic illness and functional limitations, as well as in preventing institutionalization (8).

People with clinically diagnosed sensory loss typically receive little, if any, relationship and communication counseling. Individuals with sensory impairments can also be targeted for community interventions aimed at increasing engagement and reducing loneliness and isolation (9).

Comprehensive studies of social support in the elderly population are rare. These results used data from the 2019 Serbian National Population Health Survey to deepen the understanding of social support and the factors associated with it. The results of this research will serve as a basis for the development and formulation of strategies that will intensify activities related to the provision of social support to the elderly.

Methods

This research was conducted as a descriptive, analytical, cross-sectional study on a representative sample of the population of Serbia. The research is part of the Health Research of the Population of Serbia conducted in the period from October to December 2019 by the Republic Institute of Statistics, in cooperation with the Institute for Public Health of Serbia "Dr. Milan Jovanović Batut" and the Ministry of Health of the Republic of Serbia.

For the purposes of this research, data on the population aged 65 yr and over with visual impairments, a total of 2849 respondents were used. The sample will be stratified according to gender and age groups.

The research was conducted during three months (October - December) 2019, in accordance with the recommendations of the European Health Survey - third wave, according to which the period of data collection in the field must last at least three months, of which at least one month must be in the period September - December, i.e. in autumn.

Ethical standards in population health research of Serbia are aligned with the international Declaration of Helsinki (Declaration of Helsinki), adopt-

ed at the General Assembly of the World Medical Association in 1964, and improved with amendments ending in 2013, as well as with the legislation of the Republic of Serbia, and based on the Decision on the official statistics program in the period from 2016-2020 (Official Gazette of the RS, No. 55, June 25, 2015) and the Regulation on Establishing the Official Statistics Plan for 2019 (Official Gazette of the RS, number 105, December 29, 2018). In order to respect the privacy of research subjects and the confidentiality of information collected about them, all necessary steps were taken in accordance with the General Data Protection Regulation (GDPR). Signed informed consent for participation in the research was obtained from each respondent. This study was approved by the Ethics Committee of the Republic Institute for Public Health of Serbia.

The existing database was transferred to the University of Kragujevac by official letter from the Institute of Public Health of Serbia.

The research instrument is standardized questionnaires constructed in accordance with the European Health Interview Survey (EHIS – European Health Interview Survey, wave3) and which are adapted to the specifics of our area (10).

The social support score (Oslo-3 Social Support Scale) was formed based on three questions from the questionnaire and by assigning a certain number of points for each answer: "How many people are so close to you that can you count on them when you have serious personal problems?" (the number of points ranges from 1 ("None") to 4 ("6 or more")), "How many people are really interested in you, in what you do, what you happening in life?" (the number of points ranges from 1 ("They are not at all interested") to 5 ("They are very interested")), "How easy is it to get practical help from your neighbors if you need it?" (the number of points ranges from 1 ("Very difficult") to 5 ("Very easy")). After adding up the points, a social support score was formed: strong social support (12-14 points), moderate (9-11 points) and bad (3-8 points) (10).

The results are presented using descriptive methods: tabulation, graphic presentation, measures of central tendency and measures of variability. Continuous variables are presented as the mean ± standard deviation, and categorical variables as the proportion of subjects with a certain outcome. Among the analytical tests, Chi-square ($\chi 2$) test, *t* test, ANOVA were used. The relationship between dependent variables and a series of independent variables was examined by bivariate and multivariate logistic regression. The risk was assessed using the OR (odds ratio) size, with a 95% confidence interval. Results where the probability is less than 5% are considered statistically significant ($P<0.05$). All statistical calculations were performed using the commercial, standard software package SPSS, version 20.0(IBM Corp., Armonk, NY, USA).

Results

Analyzing the demographic characteristics of the respondents, it was observed that the total number of respondents aged 65 and over was 2.849 who declared themselves to have visual impairments.

The female gender was more represented with (56%) while the percentage of the male gender was (44%). The largest percentage of surveyed respondents was in the age group of 65-79 years (62.7%), followed by the age category of 75-84 years (29.7%) and 85 and over (6.6%). In relation to the region, the majority of respondents aged 65 and over with sensory impairments came from the region of Šumadija and Western Serbia (29.8%). The Belgrade region follows with 26.1%. In terms of marital status, the majority of respondents were married/cohabiting (59.3%). Most were couples without children, 30%. According to the educational structure, high school education is the most represented among (43%) respondents, while primary and lower education was represented in a significantly higher percentage than higher education (40.3% versus 16.7%), which speaks in favor of the fact that sensory impairments are more common in less educated people. According to the well-being index, elderly people with sensory impairments more often be-

longed to richer (39.6%) and poorer strata (37.5%). The largest percentage of the surveyed population assesses their health condition as average (39.6%) and almost a third as bad or very bad (32.3%). While 24.2% of the respondents believe that their health is good or very good and 65.3% of respondents had multimorbidity.
In terms of social support, 85.8% were bad, followed by moderate 13.9%, and strong 0.3%.

The chi-square test determined the existence of statistical significance between the degree of social support and the following socioeconomic variables: region, marital status, household type and education. The social support has a significant relationship with self-assessment of health status and comorbidity (Table 1).

Table 1: Social support of the elderly population aged 65 and over with sensory impairments according to demographic and socioeconomic characteristics

Variables		***Social support***			***P****
		Bad	Moderate	Strong	
Gender	Male	43.8	45.2	22.2	$P = 0.367$
	Female	56.2	54.8	77.8	
Age(yr)	65-74	64.3	63.0	44.4	$P = 0.275$
	75-84	29.4	28.8	33.3	
	80+	5.3	6.6	22.2	
Region	Vojvodina	22.3	32.5	11.1	
	Sumadija and Western Serbia	32.5	18.5	0.0	$P < 0.001$
	Southern and Eastern Serbia	19.7	19.8	55.6	
	Belgrade	25.5	29.1	33.3	
Marital status	Never married or cohabiting	1.8	2.1	0.0	
	Divorce, separation, death of partner	38.3	36.9	44.4	$P < 0.001$
	Marriage/cohabiting	59.9	61.0	55.6	
		Houshold types			
Single households		17.3	20.1	33.3	$P = 0.028$
One parent with at least one child under the age of 25		0.1	0.3	0.0	
One parent with children aged 25 and over		6.7	6.3	0.0	
Couples without children		30.1	33.3	44.4	
Couples with at least one child under the age of 25		0.2	0.5	0.0	
Couples with children aged 25 and over		9.0	13.0	0.0	
Other households		36.6	26.5	22.2	
Education	Elementary school and lover	38.8	43.4	55.6	
	Secondary school	38.8	36.5	0.0	
	High and high school	16.4	20.1	44.4	
					$P < 0.001$
Employment Status	Unemployed	1.7	1.9	0.0	$P = 0.777$
	Inactive	97.2	97.9	0.0	
	Employed	0.7	0.0	0.0	
Index of well-being	Poor	36.9	39.9	55.6	
	Middle level	23.5	21.2	11.1	$P = 0.541$
	Wealthy	39.6	38.9	33.3	
Self-assessment of general health	Bad and very bad	34.8	27.3	11.1	$P< 0.001$
	Average	41.5	39.5	33.3	
	Good and very good	23.7	33.2	55.6	
Comorbidity	No comorbidity	36.7	27.2	0.0	$P< 0.001$
	Comorbidity	63.3	72.8	100.0	

* Chi-square ($\chi 2$) test

The analysis of the predictive significance of the socio-demographic characteristics of the respondents on the existence of weak social support indicated the statistical significance of the following variables: region, marital status, educational level and work status observed both univariately and multivariately.

Univariate regression analysis determined that respondents from the territory of Vojvodina have a 1.6 times higher chance of bad social support (OR=1.634) compared to respondents from South and East Serbia. The probability of bad social support is also higher by 1.5 times among persons who have never been married/cohabiting (OR=1.505) compared to respondents cohabiting. Respondents with high school education are 1.6 times at higher risk of bad social support compared to persons with higher education (OR=1.603). Inactive people also have bad social support 1.4 times more often than employed people (OR=1.497). People with comorbidities are 1.2 times more likely to have poor social support than those without comorbidities (OR=1.218). Multivariate regression analysis confirmed the results obtained by univariate regression (Table 2).

Table 2: Regression analysis of the assessment of the predictive significance of social support and socio-demographic variables

Variables		***Social support***			
		Univariant model		Multivariant model	
		OR (95%CI)	*P*	OR (95%CI)	*P*
Gender	Male	0.367 (0,076–1.770)	0.212	0.402 (0.071–2.264)	0.301
	Female	1		1	
Age(yr)	65-74	2.959 (0.659–4,283)	0.157	2.289 (0.436–5.028)	0.328
	75-79	4,927 (0.899–7.003)	0.066	4.672 (0.795–7.467)	0.088
	80+	1		1	
Region	Belgrade	2.622 (0.272–5.282)	0.404	2.457 (0.239–5.317)	0.450
	Vojvodina	1,634 (0.912–2,553)	<0.001	1.502 (0.778–2.598)	0.006
	Sumadija and Western Serbia	0.462 (0.110–1.943)	0.292	0.545 (0.108–2.758)	0.463
	Southern and Eastern Serbia	1		1	
Marital status	Never married or cohabiting	1.505 (0.814–3.431)	<0.001	1.017 (0.571–2.634)	<0.001
	Divorce, separation, death of partner	0.800 (0.214–2.987)	0.740	1.163 (0.251–3.388)	0.712
	Marriage/cohabiting	1		1	
Education	Elementary school and lover	1.898 (0.507–7.107)	0.151	1.274 (0.456–3.575)	0.341
	Secondary school	1.603 (0.678–4.424)	<0.001	1.783 (0.803–3.959)	0.011
	High and high school	1		1	
Employment Status	Unemployed	0.914 (0.090–1.627)	0.993	1.017 (0.127–2.260)	0.998
	Inactive	1.497 (0.591–2.749)	<0.001	1.053 (0.332–2.658)	<0.001
	Employed	1		1	
Index of well-being	Poor	1.781 (0.85–4.165)	0.618	1.561 (0.141–4.258)	0.716
	Middle level	0.558 (0.133–2.344)	0.426	0.554 (0.084–3.637)	0.539
	Wealthy	1		1	
Self-assessment of general health	Bad and very bad	1.991 (0.853–3.295)	0.069	1,834 (0.617–3.520)	0.123
	Average	1.070 (0.694–2.134)	0.144	0,937 (0.572–2.553)	0.220
	Good and very good	1		1	
Comorbidity	No comorbidity	1.218 (1.066–1.392)	<0.001	1.505 (1.187–1.909)	0.001
	Comorbidity	1		1	

reference category: bad social support

Discussion

By the world standards, the Republic of Serbia is the country in the group of extremely aged population with average population with about 16.5% of population being more than 65 years old (11). Average life expectancy in Serbia is 76 years and it is predicted that it is going to be higher in the future (12). Countries with higher levels of socioeconomic development have a lower prevalence of visual disabilities (13).

Elderly people are experiencing different socioeconomic circumstances and different impacts of illness which contributes to the factors of social inequalities that are numerous. This is becoming a challenge for the public policy too (14). Our research highlighted certain socioeconomic factors influencing the challenges of older people with visual impairments in Serbia such as gender, settlement type, marital status, and education level but also the comorbidity diseases and social support. Self-reported health status of older individual was significantly dependent on the level of social support.

Only a small proportion of people over the age of 65 are employed and majority of elderly people is retired (15). Our research found the significance between the unemployment status and low social support but didn't find the relationship with income level.

In the contrary, the education level may be used as a constant variable when observing its influence on visual impairment as it stays unchanged with age (16). Social isolation is most common among older adults who are unmarried, male, and/or have lower education (17, 18). This was also proven in our research with unvariant and multivariate analysis where people with high school education level, unmarried had much greater possibilities for having poorer social support. This is consistent with previous studies (19, 20). People with lower levels of education are more likely to engage in agricultural activities and due to that have extensive exposure to ultraviolet radiation, lack of medical knowledge, smoking and others (21-23). Our research did not find the difference between genders, but bigger percentages of respondents with visual impairments were females.

Study on the elderly people with sensory impairment shows that along different social and psychological factors, a big influence have the physical health, lifestyle and family conditions and this is also in the line with our findings (24). Visual impairment is linked with risk factors, such as poor health, low financial status, poorer relationship and consequently less support, but also with the feelings of loneliness which is very important to be analyzed with association to the mood disorders and importance of mental health among older people with sensory impairments (25-27). Social support is associated with good health, including lower mortality and faster recovery (28). So, link between social isolation and sensory impairments, separately hearing and vision loss, but also combined, has been described in the literature (29-31).

Study among Chinese population showed that visual disabilities was prevalent among 7.29% of Chinese adults aged 65 and older, and was higher in rural areas and lower education (32). Our research shows that people with visual impairments were more prominent in settlements with single member. Our research showed that older, working inactive people were the most dominant group. Similar study emphasized the experiencing of high levels of loneliness and low social support in the group of participants who were unemployed, lived alone, or was unable to move independently (33).

Subjective social status was significant factors connected to the visual impairment where risk of onset of moderate visual impairment was significantly higher for the lowest and second lowest wealth group (34). In our research, 37.5% of the participants belong to the group of poor people. The severely visually impaired people are more likely to be unemployed and received medical aid and also had more comorbidity (35). Our research did not include the level of visual impairment but it proven that older people with impairments were in 97% inactive and 65% had comorbidity. Multivariate analyses showed that

women and persons living in large households and with a spouse/partner or other persons were more likely to experience high levels of social support and more frequently use the health care services (36). This finding is in correlation to our multivariate analysis which showed that predictors for bad social supports are people that never were in marital relationship.

Visual impairment is becoming more noticeable in the eyes of the public health agenda as the leading cause of age-related disability. Vision loss is related with different factors like age related eye conditions but also, the quality of vision is expected to be present in the aging people. The other very important aspects are social support of people living with visual impairments which is mostly limited to the family members and/or their partners, because as they retired from work, they are excluded from that part of their life. The health of older adults can be improved by promoting active and healthy aging. Health promotion, specific to the elderly, involves creating living conditions and environments that support well-being and enable people to lead healthy and integrated lives.

Conclusion

Our research highlighted certain socioeconomic factors influencing the challenges of older people with visual impairments in Serbia such as gender, settlement type, marital status, and education level and comorbidity diseases. By reducing socioconomic disparities of older people with visual impairments and improving social support among older adults is a vital step but should not be seen as the final step in ensuring healthy aging.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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The database from the National Health Survey of 2019 was handed over for use for scientific research purposes to the University of Kragujevac by official letter from the Institute for Public Health of the Republic of Serbia "Milan Jovanović Batut".

Conflict of Interest

The authors declare that there is no conflict of interests.

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