Kurtanović, A., & Avdović, A. (2025). Some significant mental health factors of blind and visually impaired in Southwest Serbia, *SCIENCE International journal, 4*(1), 155-160.
10.35120/sciencej0401155k UDK: 613.86-056.262

SOME SIGNIFICANT MENTAL HEALTH FACTORS OF BLIND AND VISUALLY IMPAIRED IN SOUTHWEST SERBIA

Adžlan Kurtanović[1], Atif Avdović[1]*

[1]State university of Novi Pazar, Serbia,
e-mail: akurtanovic@np.ac.rs, aavdovic@np.ac.rs

Abstract: There have been many practical and theoretical solutions for improving the quality of life of the blind and visually impaired and their integration into society and contribution to it. However, the results have not proven to be noticeable or significantly better as time passes. This fact can be an indicator of various factors that can cause low life quality or inability to integrate. Working with the blind and visually impaired might only be adequate with their specific categories, which are easier to access, both physically and verbally. Some mental health factors may be neglected as crucial or essential, or ignored altogether. In this work, the goal is to determine whether residence, education and age of the respondents are such factors. The study is conducted with 81 blind and visually impaired persons that have access to professional help. We offer a detailed statistical analysis, as well as a detailed commentary and discussion of them. All three factors have shown significant impact on both mental health and social support access.

Keywords: Residence; Education; Age; Mental health indicators; Social support; Blind and Visually Impaired.
Field: Clinical psychology, Statistics in psychology.

1. INTRODUCTION

Today, in various ways, efforts are made to facilitate the functioning of blind and visually impaired people in the social world. It is common knowledge that blind and visually impaired people have an alphabet specific to them, which is Braille alphabet (Jiménez et al., 2009). There is a whole range of aids and assistive technologies for blind and visually impaired people, e.g. special drawing accessories, special keyboards for typing, etc. (Brabyn, 2009; Singh & Kapoor, 2018).

Both blind and visually impaired people need means of subsistence, so they too strive to get a job and thus earn a living. This is also one of the most difficult challenges for this population. Blind and visually impaired people are often victims of discrimination, tortures, and often underpaid for the jobs they perform (Tuttle & Tuttle, 2004; Mucić, 2016). Various models have thus been developed in the Republic of Serbia that will facilitate employment of people with disabilities. Some of these models are employment in open economy (competitive employment), protective employment and self-employment (Žuvela, 2013). The education of blind and visually impaired people is also very important, and today, in this sense, the so-called inclusive education is very often mentioned.

Despite efforts to make blind and visually impaired people active participants in our society, research shows that this population has huge mental health problems. Nearly a third of people with vision problems report having mild symptoms of depression (Rees et al., 2010). In another study, in which the sample consisted of adolescents, it was found that anxiety and tension were extremely present in those with visual impairment compared to those who did not have these problems (Garaigordobil & Bernaras, 2009). The same can be concluded for general population (Demmin & Silverstein, 2020). The reasons may be shame, fear of stigmatization, stereotypes, and more, which are more characteristic of respondents of lower education and those living in rural areas (Chevalier & Feinstein, 2006; Wainer & Chesters, 2000).

Also, the idea of suicide is more prevalent in the visually impaired population. This idea is especially present in older adults, and at the age of 53 - 55 years (Cosh et al., 2019). Meyer – Rochow et al. (2015) found that there was an elevated suicide rate in men who had visual impairment or blindness.

Blind and visually impaired people experience visual hallucinations. Approximately 41 to 59% of visually impaired people report elementary visual hallucinations (for example, flashes). It is estimated that about one-quarter of these patients exhibit anger, anxiety, or mild paranoia, all as a result of these experiences (Menon et al., 2003).

Therefore, we can see that there are many theoretical and practical proposals for solutions that should improve the quality of life and improve the process of integration of blind and visually impaired people, but it turns out that there are no significant results and progress towards the goal except in controlled conditions. This indicates the possibility that treatments for care and assistance to the blind

*Corresponding author: akurtanovic@np.ac.rs

and visually impaired are more accessible only to certain categories of them. Another possibility is that although attention is paid to more vulnerable categories, it should be more intense.

The subject of this research would be the mental health of blind and visually impaired people in Southwest Serbia. We shall confirm that the impact of socio-demographic variables age, education and residence on mental health is statistically significant in the Southwest Serbia. In this paper we offer an overview of the variables of positive and negative mental health indicators of 81 respondents from Southwestern Serbia, their sociodemographic characteristics of importance as well as their interconnectedness, which is manifested by extensive and advanced statistical analysis. All of the above is enriched with a detailed methodological review and commentary on the results.

2. MATERIALS AND METHODS

Variables

In the following paragraph research variables are listed and references for works containing more information about each variable are given.

Sociodemographic variables: **sex** (male/female), **age**, **education** (elementary school/high school/ bachelor's degree), **residence** (village/city). Indicators of positive mental health: **life satisfaction** (Kovčo – Vukadin, Novak and Križan, 2016) and self-esteem (Bhatt, 2024). Indicators of mental health problems: **depression** (Stanojevic, 2013), **anxiety** (Stanojević, 2013; Daniel-Watanabe & Fletcher, 2022) and **stress** (Chu et al., 2024). **Social support** indicators: **advisory**, **belonging** and **practical** (Jakovljević, 2004).

Research instruments

The basic sociodemographic data questionnaire was used to collect basic data about respondents, such as gender, age, education and settlement type (village/town).

Scales used to calculate scores of the research variables are The Rosenberg Self-esteem Scale (Rosenberg, 1965), The Satisfaction With Life Scale SWLS; (Diener et al., 1985; Vasić & Trogrlić 2010), Dass – 21 (Jovanović, Gavrilov-Jerković, Žuljević & Brdarić, 2014) and The social support scale (Cohen et al., 1985).

Sample

The study was conducted on a sample of 81 respondents from the population of blind and visually impaired. There are 43 men and 38 women aged 19 to 80 years. Out of a total of 81 respondents, 67 are from the territory of Novi Pazar, 4 are from the territory of Raska, 5 are from the territory of Sjenica, and 5 respondents are from the territory of Tutin. Out of the 81 respondents, 32 were blind and 49 were visually impaired. There are 31 (38.27%) respondents that live in the village and 50 (61.73%) live in the city; 19 (23.5%) have completed only primary school, 55 (67.9%) high school, and 7 (8.6%) bachelor's degree. The average age of the respondents is 48.77 years with standard deviation of 16.25 years. The youngest respondent is 19 and the oldest is 88 years old.

All of the respondents have given informed consent for research participation. Due to respondents' difficulties in data collecting, final data was incomplete. Based on prior information on data that was successfully gathered, missing data is resampled using Bootstrap method (Carsey & Harden, 2014).

3. RESULTS AND DISCUSSION

To determine whether mental health and social support of respondents is satisfactory, the mean value of each indicator variable scores is compared to neutral theoretical median value. For results to be considered good or usual, good metal health indicators should have mean score significantly higher than the neutral one, negative mental health indicators should have significantly lower mean score than the neutral one, social support indicators should have significantly higher mean scores than the neutral one.

Table 1. Descriptive statistics of mental health indicator variables (Theoretical – Scale median, minimum and maximum).

Variable	Median	Mean	SD	Min	Max	Skew.	Kurt.
Self-esteem	26 (25)	25,80	5,858	14 (10)	39 (40)	0.451	-0.328
Life satisfaction	14 (15)	14,23	4,442	5 (5)	25 (25)	0.361	-0.309
Depression	10 (10)	9,53	5,158	0 (0)	20 (20)	0.081	-0.363
Anxiety	8 (10)	8,21***	4,949	0 (0)	20 (20)	0.434	-0.808
Stress	10 (10)	10,60	4,404	1 (0)	20 (20)	0.249	-0.796
Advisory support	10 (10)	10,51	3,214	4 (4)	16 (16)	0.104	-0.860
Belonging support	10 (10)	10,09	3,026	5 (4)	16 (16)	0.227	-0.275
Practical support	9 (10)	10,05	3,413	4 (4)	16 (16)	0.047	-0.263

*p<0.1; **p<0.05; ***p<0.01

Source: Calculated by authors.

All of the variables have mean value that does not significantly differ from theoretical median. The exception is anxiety where there is a significant difference, however, the negative one, meaning that the anxiety score is significantly (p<0.01) lower than the theoretical median. These results do, however, indicate that both social support and mental health of blind and visually impaired are not satisfactory. Empirical medians are equal or almost equal to theoretical median indicate that at least 50% of respondents reported disssatisfactory self-esteem, life satisfaction, social support and mental health. Since theoretical median is considered neutral (inconclusive) value, results indicate significant proportion of respondents reporting dissatisfactory scores of both positive and negative mental health indicators, and social support indicators. Values of skewness and kurtosis lower than 1 indicate normal or aproximately normal distribution of all of the research variables. The results are thus consistent and mean with consideration of median and standard deviation gives enough information on sample.

A huge number of studies have looked at the mental health of people in the city and in the countryside. Poverty, poor life experiences characteristic of rural areas, and many other factors affect the mental health of rural people can worsen it (Wainer & Chesters, 2000; Batterham et al., 2022).

Table 2 The results of the t-test of independence; Residence (village - city).

Variable	t	Mean difference	95% CI for mean difference	
			Lower bound	Upper bound
Self-esteem	-2.277**	-2.972	-5.570	-.374
Life satisfaction	-2.006**	-2.000	-3.984	-.016
Depression	2.694***	3.059	.799	5.319
Anxiety	1.657	1.855	-.373	4.083
Stress	2.710***	2.626	.697	4.555
Advisory support	-2.083**	-1.499	-2.932	-.067
Belonging to society	-1.975*	-1.342	-2.694	.011
Practical support	-1.944*	-1.491	-3.018	.036

*p<0.1; **p<0.05; ***p<0.01

Source: Calculated by authors.

The results of the Leven's test showed that for all variables variances did not differ significantly between village and city respondents (p>0.05). In other words, deviations from the average value in mental health indicators are the same. Negative mean differences positive mental health indicators indicate that the mental health of village residents is impaired compared to the city residents. The significance of the difference was confirmed in Self-esteem, Life Satisfaction and Advisory Support (p<0.05). In belonging support and practical support, we have p=0.052 and p=0.055, but since the significance is slightly higher than the level of significance of 0.05 (5%) (at the same time, the upper limit of the confidence interval is close to zero), we can consider that even in this case the differences are statistically significant, say with the level of significance of 6%. This is due to for retaining the hypothesis of equality of means, p-value should be more conclusive (Reinhart, 2015, pp. 8-10). See Table 5.

Positive mean differences of negative mental health indicators point to the same conclusion. Significance was confirmed in Depression and Stress, while Anxiety is an exception (p=0.101>0.1). See table 5. Thus, most mental health indicators indicate a statistically significant mean difference of mental health indicator scores to the detriment of the village residents, which confirms our assumption.

When considering impact of education on mental health, we can say that there are many studies

that have found the positive impact of education on people's mental health. For example, it has been found that education and different forms of learning have a positive effect on different health outcomes. Also, education directly affects health by making individuals more capable of processing information and improving the effectiveness of treatment. It has also been found that more educated people are more willing to detect the disease and are more diligent in following treatment (Chevalier & Feinstein, 2006).

Table 3. ANOVA results.

Variable	Levene statistics	F
Self-esteem	1.361	5.274***
Life satisfaction	0.094	7.111***
Depression	2.602*	9.663***
Anxiety	1.741	5.491***
Stress	1.144	6.229***
Advisory support	2.740*	4.148**
Belonging to society	1.369	3.743**
Practical support	1.632	4.950***

Source: Calculated by authors.

ANOVA's results (see Table 3) show the existence of significant differences ($p<0.05$) in the average scores of all mental health indicators for at least one pair of groups. The results of the Leven test indicate that all variables have equal deviations from the mean per group determined by educational status ($p<0.05$). Tukey's test shows that all indicators of positive mental health are significantly higher in respondents who have completed bachelor's degree than those with elementary or high school education.

Table 5. The results of Tukey's post hoc test.

Variable	Group	Mean difference	95% CI for mean differences	
			Lower bound	Upper limit
Self-esteem	BE	7.992***	2.11	13.87
	BH	5.735**	0.40	11.07
Life satisfaction	BE	6.835***	2.46	11.21
	BH	5.499***	1.53	9.47
Depression	BE	-9.075***	-14.02	-4.14
	BH	-6.904***	-11.39	-2.42
Anxiety	BE	-6.654***	-11.61	-1.70
	BH	-5.795***	-10.29	-1.30
Stress	BE	-6.444***	-10.82	-2.07
	BH	-4.977***	-8.95	-1.01
Advisory support	BE	3.662**	0.39	6.93
	BH	3.460**	0.49	6.43
Belonging to society	BE	3.489**	0.40	6.58
	BH	2.875**	0.07	5.68
Practical support	BE	4.293**	0.85	7.73
	BH	3.914***	0.79	7.04

BE: Bachelor's degree – Elementary school; BH: Bachelor's degree – High school; *p<0.1; **p<0.05; ***p<0.01

Source: Calculated by authors.

When it comes to negative mental health indicators, respondents with bachelor's degree have significantly lower average scores compared to respondents with high school or elementary school only. In indicators of negative mental health, respondents with bachelor's degree have significantly lower average score values. See table 5. The results of post-hoc tests have not detected significant difference in the mean scores between high school and elementary school respondents ($p>0.05$) for none of the variables.

Table 6. Results of univariate linear regression analysis.

Variable	B	R^2	95% IP for B	
			Lower bound	Upper limit
Self-esteem	-0,124***	0,344	-0,200	-0,048
Life satisfaction	-0,041	0,150	-0,101	-0,020
Depression	0,115***	0,363	0,049	0,182
Anxiety	0,145***	0,477	0,085	0,205
Stress	0,039	0,142	-0,022	0,099
Advisory support	-0,088***	0,443	-0,127	-0,048
Belonging to society	-0,066***	0,124	-0,105	-0,027
Practical support	-0,081***	0,149	-0,124	-0,038

Source: Calculated by authors.

Statistically significant age impact was confirmed in all indicators of mental health except life satisfaction (p=0.182>0.05) and Stress (p=0.205>0.05). The strongest recorded impact in our age structure sample has on anxiety. Namely, by increasing respondent's age for 1, the anxiety score increases by 0.145 and this increase is statistically significant because p = 0.000<0.05. 47.7% of anxiety variability is determined by age-related changes.

Age is one of the factors that can affect both physical and mental health. For example, in one study (Kowalska, Mazurek & Rymaszewska, 2019) conducted in a nursing home, it was found that users of that nursing home had a very difficult time accepting the fact that they had certain illness. After three months of rehabilitation, they were more willing to accept their illness, but it was still not at a high level. On the other hand, it has been found (Allen et al., 2022; Gruber et al., 2021) that adolescents and young adults, who have chronic illness, face complex issues that require unique psychological support and certain health services.

4. CONCLUSIONS

The basic socio-demographic factors are severely neglected in both scientific and practical work with the blind and visually impaired. These factors are those that cannot be controlled. In treatment they should take precedence over those that are not an integral part of life, i.e. can be controlled or eliminated (media exposure, lack of hobbies, diet, opiates and drugs, etc.). Such a situation indicates that their neglect could result in a significant impairment of quality of life, working capacity, ability to integrate or even fatal in the form of suicidal thoughts and actions of the blind and visually impaired.

As for the residence, it turned out that the mental health of respondents living in the village is significantly worse. This can be explained by the fact that there are fewer activities in the countryside that blind and visually impaired people can perform, and that, apart from family and friends, there are few people to whom they can turn for help and support. With the impact of education, we found that those with higher levels of education are more likely to cope with blindness or impaired vision compared to those who have a lower level of education. Those who have higher levels of education have more information and more knowledge that can make it easier for them to cope with blindness or low vision. When it comes to the age impact indications, older respondents experienced more mental health problems, which are associated with, or caused by blindness or impaired vision. Older people often reported that they had less social support, and that they often had no one to talk to about their problems.

In future work, we will include more independent variables, expand population, examine bias trends with some answers, and eventually work with respondents who would have another type of health problem. Establishing new and more advanced models of interdependence and influence is also a very important possibility.

REFERENCES

Allen, T., Reda, S., Martin, S., Long, P., Franklin, A., Zadeh Bedoya, S. et al. (2022). The Needs of Adolescents and Young Adults with Chronic Illness: Results of a Quality Improvement Survey. Children (Basel) 2022 Apr; 9(4): 500.doi: https://doi.org/10.3390/children9040500.

Batterham, P. J., Brown, K., Trias, A., Poyser, C., Kazan, D., & Calear, A. L. (2022). Systematic review of quantitative studies assessing the relationship between environment and mental health in rural areas. Australian Journal of Rural Health, 30(3), 306-320. https://doi.org/10.1111/ajr.12851

Bhatt, S. (2024). Self Esteem & Motivation for College Success. OrangeBooks Publication.

Brabyn, J. (2009) Developments in Electronic Aids for the Blind and Visually Impaired. IEEE Engineering in Medicine and Biology Magazine, 4(4):33-37. https://doi.org/10.1109/MEMB.1985.5006225.

Carsey, T. M., & Harden, J. J. (2014). Monte Carlo simulation and resampling methods for social science. SAGE Publications, Inc., https://doi.org/10.4135/9781483319605.
Chevalier, A., Feinstein, L. (2006). Sheepskin or Prozac: The Causal Effect of Education on Mental Health. IZA Discussion Papers, No. 2231, Institute for the Study of Labor (IZA), Bonn.
Chu, B., Marwaha, K., Sanvictores, T., Awosika, A. O., & Ayers, D. (2024). Physiology, stress reaction. In StatPearls [Internet]. StatPearls Publishing.
Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. (1985). Measuring the Functional Components of Social Support. In I. G. Sarason & B. Sarason (Eds.), Social support: Theory, Research, and Applications (pp. 73-94). The Hague: MartinusNijhoff. https://doi.org/10.1007/978-94-009-5115-0_5.
Cosh, S., Carriere, I., Daien, V., Tzourio, C., Delcourt, C., & Helmer, C. (2019). Sensory loss and suicide ideation in older adults: findings from the Three-City cohort study, Int Psychogeriatrics, 31(1): 139 – 145, https://doi.org/10.1017/S104161021800056X.
Daniel-Watanabe, L., & Fletcher, P. C. (2022). Are fear and anxiety truly distinct?. Biological psychiatry global open science, 2(4), 341-349. https://doi.org/10.1016/j.bpsgos.2021.09.006
Demmin, D.L., & Silverstein, S.M., (2020), Visual Impairment and Mental Health: Unmet Needs and Treatment Options, Dovepress, https://doi.org/10.2147/OPTH.S258783.
Diener, E., Emmons, R.A., Larsen, R.J., & Griffin, S. (1985) The Satisfaction With Life Scale. Journal of Personality Assessment, 49(1):71-5. https://doi.org/10.1207/s15327752jpa4901_13.
Garaigordobil, M., & Bernaras E. (2009). Self-concept, self-esteem, personality traits and psychopathological symptoms in adolescents with and without visual impairment, Span J Psychol, 12(1): 149 – 160. https://doi.org/10.1017/s1138741600001566.
Gruber, J., Prinstein, M. J., Clark, L. A., Rottenberg, J., Abramowitz, J. S., Albano, A. M., ... & Weinstock, L. M. (2021). Mental health and clinical psychological science in the time of COVID-19: Challenges, opportunities, and a call to action. American Psychologist, 76(3), 409. https://psycnet.apa.org/doi/10.1037/amp0000707
Jakovljević, D. (2004). Nezaposleni u Hrvatskoj: povezanost socijalne podrške i psihičkog zdravlja, Diplomski rad, Zagreb, Sveučilište u Zagrebu, Filozofski fakultet, Odsek za psihologiju.
Jiménez, J., Olea, J., Torres, J., Alonso, I., Harder, D., & Fischer, K. (2009). Biography of louis braille and invention of the braille alphabet. Survey of ophthalmology, 54(1), 142-149. https://doi.org/10.1016/j.survophthal.2008.10.006.
Jovanović, V., Gavrilović-Veljković, V., Žuljević, D., & Brdarić, D. (2014). Psychometric evaluation of the depression anxiety stress scales-21 (DASS-21) in a Serbian student sample. Psihologija, 47(1): 93-112. https://doi.org/10.2298/PSI1401093J.
Kovčo – Vukadin, I., & Novak. M., Križan, H., (2016), Zadovoljstvo životom;individualna i obiteljska perspektiva, Kriminologija i socijalna integracija, 24(1): 84 – 115, doi: https://doi.org/10.31299/ksi.24.1.4.
Kowalska, J., Mazurek, J., & Rymaszewska, J. (2019). Analysis of the degree of acceptance of illness among older adults living in a nursing home undergoing rehabilitation - an observational study. Clin Interv Aging, 16(14): 925-933. https://doi.org/10.2147/CIA.S199975.
Menon, G.J., Rahman, I., Menon, S.J., & Dutton, G.N., (2003), Complex Visual Hallucinations in the Visually Impaired:the Charles Bonnet Syndrome. Surv Ophthalmol, 48(1): 58 – 72. https://doi.org/10.1016/s0039-6257(02)00414-9.
Meyer-Rochow VB, Hakko H, Ojamo M, Uusitalo H, Timonen M (2015) Suicides in Visually Impaired Persons: A Nation-Wide Register-Linked Study from Finland Based on Thirty Years of Data. PLoS ONE 10(10): e0141583. https://doi.org/10.1371/journal.pone.0141583.
Mucić, S. (2016). Psihosocijalna prilagodba slijepih i slabovidnih osoba. Završni rad. Filozofski fakultet Osijek.
Rees, G., Tee, H.W., Marella, M., Fenwick, E., Dirani, M., & Lamoureux E.L. (2010). Vision-specific distress and depressive symptoms in people with vision impairment. Invest Opthalmol Visual Sci, 51(6). https://doi.org/10.1167/iovs.09-5080.
Reinhart, A. (2015). Statistics done wrong: The woefully complete guide. San Francisco: No Starch Press.
Rosenberg, M. (1965). Rosenberg Self-Esteem Scale (RSES) [Database record]. APA PsycTests. https://doi.org/10.1037/t01038-000.
Singh, B., & Kapoor, M. (2018, February). A survey of current aids for visually impaired persons. In 2018 3rd International Conference on Internet of things: Smart Innovation and Usages (iot-siu) (pp. 1-5). IEEE. https://doi.org/10.1109/IoT-SIU.2018.8519919.
Stanojević, D.(2013), Korelati mentalnog zdravlja adolescenata srpske nacionalnosti sa Kosova i Metohije. Doktorska disertacija. Filozofski fakultet: Niš.
Vasić, A., i Trogrlić, A. (2010). Merenje i struktura skale zadovoljstva životom SWLS. VI konferencija Dani primenjene psihologije (knjiga rezimea). Niš: Filozofski fakultet.
Wainer, J., & Chesters, J. (2000). Rural mental health: neither romanticism nor despair. The Australian journal of rural health, 8(3), 141–147. https://doi.org/10.1046/j.1440-1584.2000.00304.x.
Žuvela, S.B. (2013). Individualni i kontekstualni činioci zapošljavanja slepih i slabovidih osoba. Doktorska disertacija. Univerzitet u Beogradu, filozofski fakultet.