

Research Article

Determinants of Successful Aging: Integrity and Psychophysical Health

Djerdji Erdes Kavecan*abc, Anida Vrcicd Amar, Milena Belicd

- [a] Study Program of Psychology, Faculty of Organizational Studies "Eduka", Belgrade.
- [b] University Business Academy in Novi Sad, Novi Sad, Serbia.
- [c] College of Vocational Studies for the Education of Preschool Teachers and Sports Trainers, Subotica, Serbia.
- [d] Study Program of Psychology, State University of Novi Pazar, Novi Pazar, Serbia.

Abstract

Several studies have attempted to define the overall health condition of the third age as the basis of the successful aging concept. In this paper, we aimed to explore the significance of psychophysical health with the elderly and identify the dimensions of psychophysical health that could impact the level of integrity during this stage of life. The respondents involved in this research were elderly persons (N = 101), with an average age of 71.7. Most respondents live in urban areas (76.2%) and have only completed primary education (51.6%). The research utilized the following instruments: a questionnaire to evaluate socio-demographic characteristics (developed specifically for the study), the RAND-36 Health Survey (Hays & Shapiro, 1992; Stewart et al., 1992), and the Scale of Integrity (SI) (Lacković-Grgin et al., 2006). Significant differences in physical and psychosocial health, as well as in the level of integrity among the elderly, were identified based on the analyzed socio-demographic variables, such as place of residence and educational attainment. All dimensions of physical and psychosocial health were found to be significantly correlated with the level of integrity, with emotional well-being emerging as the sole significant predictor of integrity. The findings of this research may serve as valuable information, primarily for professionals but also for family members, indicating which aspects of psychosocial and physical health should receive particular attention in order to ensure that the elderly are provided with appropriate forms of assistance in their daily activities.

Keywords: successful aging; psychophysical health; integrity; socio-demographic characteristics.

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Handling Editor: Marius Drugaş, University of Oradea, Romania. *Corresponding author at: Study Program of Psychology, Faculty of Organizational Studies "Eduka", Belgrade. E-mail: djerdji.erdes.kavecan@vos.edu.rs



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The study of psychology is now paying more attention to the process of aging, highlighting the importance of understanding and supporting individuals as they grow older. The increasing proportion of elderly individuals in the overall population has sparked a growing interest, driven by various health, social, and economic factors. Modern conceptions progressively emphasize the concept of optimal aging, which implies a positive notion of self that could be maintained through the ability to assess one's condition concerning residual levels of physical and mental ability (Cho et al., 2015; according to Estebsari et al., 2020). The concept of successful aging emphasizes opportunities to preserve or even further develop potentials and abilities in old age, suggesting that, even in old age, health, and vitality may be preserved, and the elderly could still be socially active and contribute significantly to the society (Kim & Park, 2016). Some of the positive psychological indicators associated with successful aging are: a sense of happiness, intellectual curiosity, gratitude, spirituality and sense of community (Carr & Weir, 2017; Despot Lučanin, 2003; Hörder et al., 2013). From the point of view of lifelong development, healthy aging is the absence of disease, supported by good physical functioning, preserved cognitive abilities and active life (Abud et al, 2022).

Over the last several decades, concerns about determinants of successful aging and quality of life in older adults have increased. According to the World Health Organisation (WHO, 2023), a positive quality of life is seen as a major indicator of an active and successful aging. The focus on physical health in determining effective aging, however, is where quality of life and successful aging diverge. Bryant et al. (2001) claimed that aging well improves quality of life and that effective aging frequently includes well-being. The term "health-related quality of life" describes how a person's perceived physical, mental, and social well-being as well as their capacity to perform are all impacted by their health (WHO, 2022). The health-related

quality of life is a multifaceted and intricate notion that reflects an individual's view of their own health (Ware et al., 1993). Because of its predictive validity, it is commonly utilized as a gauge of overall health status (Ware & Gandek 1998). The most widely used health-related quality of life survey instrument in the world is the RAND-36 survey (Hays & Morales, 2001). It yields eight scales and includes a single item that indicates the perceived change in health. Physical and mental health summary scores are also derived from the eight scales. The RAND- survey is based on the model whose authors are Ware and Sherbourne (1992). The advantage of this instrument is based on its high validity, frequent practical use and its applicability with clinical and non-clinical population (Andersen et al., 2022). Due to the reasons specified above, the research presented below was based on the concept of psychophysical health.

Personality integrity may be defined as personality maturity or as an integrated system of all personality components (Lacković-Grgin, 2014). The concept of integrity is predominantly featured in Erik Erikson's psychodynamic theory, which explores human development and maturation from birth to death, conceptualized through stages involving specific crises and their outcomes. Erikson derives his conception from the epigenetic principle of a programmed development taken from embryology, according to which development has a predetermined direction and course from which certain aspects appear at a certain phase/time (Jerković & Zotović, 2008). In each phase, the emphasis is on the development of the ego, and the way each developmental crisis is resolved affects the future success or failure in overcoming the next developmental stage. Erik Erikson defined age as a stage of life at which an individual must try to balance their search for ego integrity with a sense of despair. This conflict may result in wisdom, a human virtue associated with age (Erikson, 1980, according to Schaie & Willis, 2001). In accordance with Erikson's theory, the early stages of life culminate in a synthesis that forms the foundation for development in later stages, such as old age. Therefore, the ego integration in the eighth stage entails integrating elements from previous stages. During the eighth stage, individuals reflect on their life up to that point and assess it. Attainment of ego integrity signifies a fundamental acceptance of one's life, regardless of its perceived quality. This could be considered successful aging. In the ninth developmental stage, added later, Erikson believes the previously resolved crises are being reconsidered. While earlier in life, the positive elements of the developmental stages were a source of strength, in the last stage, strength arises from overcoming the negative elements (Erikson, 1980 and 1982, according to Wadensten, 2006).

According to Nedeljković (2008), a well-integrated person accepts themself and other people, is work efficient, controls emotions, has particular and clear goals, a well-established value

system and an appropriate level of aspiration. The research demonstrated a high correlation of integrity with self-esteem, life satisfaction and health (Tucak Junaković, 2015). A correlation between integrity and gratitude in the elderly was also found (Erdes Kavecan, Fazlagic, 2018). Several previous studies suggest that aspects of ego integrity, such as life review and reminiscence, could be beneficial in reducing mental illnesses, including depression (Bohlmeijer et al., 2003). Additionally, ego integrity has been found to have a positive impact on mental health (Tahreen & Shahed, 2014).

Method

This study is designed to assess the psychophysical health and integrity of senior citizens in relation to specific sociodemographic traits, and to identify the psychophysical health variables that may contribute to maintaining the integrity of the elderly.

Participants

The research was conducted on an appropriate sample, consisting of 101 elderly persons, aged 65 to 85. The sample included approximately the same number of men and women respondents (43% men and 57% women). Most respondents, 77 of them, live in urban areas (76.2%), while 24 live in rural areas (23.8%). Half of the respondents completed primary (51.6%) and secondary education (36.8%), whereas only 11.6% stated they had acquired college or university degree. The research was conducted in Novi Pazar, Serbia, with the support of family members of the elderly living with their families and in cooperation with Old People's Home employees. The respondents were selected randomly, irrespective of whether they had acute or chronic mental and/or physical illnesses. They were informed about the purpose of the research and assured of data confidentiality.

Instruments

The research used several instruments, including the RAND-36 Health Survey (Hays and Shapiro, 1992; Stewart et al., 1992), the Scale of Integrity (SI) (Lacković-Grgin et al., 2006), and a questionnaire designed for research purposes to examine socio-demographic characteristics.

The RAND-36 Health Survey (Version 1.0), developed by Hays and Shapiro (1992), along with Stewart et al., (1992), is a tool for evaluating the physical and psychosocial health of both healthy and chronically ill adults. It comprises eight subscales grouped into two domains: psychosocial health (emotional well-being, role limitations due to emotional problems, social functioning, and energy/fatigue) and physical health (physical functioning, role limitations due to physical health, physical pain, and general health). Along with demographic data, the questionnaire includes an item indicating the perceived change in the

respondent's health status. The survey features 36 questions identical to those used in Hays and Shapiro's Medical Outcomes Study MOS (Hays & Shapiro, 1992; Stewart et al., 1992). Higher scores on all subscales correspond to better individual health. The reliability of the instruments in our sample falls within acceptable limits: the Physical functioning subscale consisted of 10 items (α = .927), the Role limitations due to physical health subscale consisted of 4 items (α = .955), the General health subscale consisted of 5 items (α = .785), the Physical pain subscale consisted of 2 items (α = .845), the Energy fatigue subscale consisted of 4 items (α = .796), the Emotional well-being subscale consisted of 5 items (α = .865), the Social functioning subscale consisted of 2 items (α = .837) and the Role limitations due to emotional problems subscale consisted of 3 items (α = .945).

The Scale of Integrity (SI) developed by Lacković-Grgin et al., (2006) was designed to assess integrity as a unified system comprising all aspects of an individual's personality. It is grounded in Erikson's theory of psychosocial development, with the eighth stage representing the culmination and integration of previous life experiences. The SI is a single-factor scale consisting of 11 items, with respondents using a five-point Likert scale to evaluate how each item reflects their past experiences. Higher scores indicate greater levels of integrity. In the present sample, the scale achieved a reliability coefficient (Cronbach's alpha) of $\alpha = 0.85$.

Procedure

The research was conducted in Novi Pazar, Serbia, with the support of family members of the elderly living with their families and in cooperation with Old People's Home employees. The respondents were selected randomly, irrespective of whether they had acute or chronic mental and/or physical illnesses. They were informed about the purpose of the research and assured of data confidentiality.

Statistical analysis

Version 20 of the SPSS statistical program was used to process the data. Data processing techniques included multiple regression analysis, post hoc testing, t-tests for independent samples, descriptive statistical approaches, and Pearson's correlation coefficient.

Results

Tabel 1 presents data on differences in physical and psychosocial health dimensions, as well as integrity based on the place of residence.

Table 1.Differences in physical and mental health related to place of residence.

Variable	Category	Ν	М	SD	t	df	р
Physical functioning	city	77	54.49	29.59	2.234	99	.028
	village	24	38.95	30.25			
Role limitations	city	77	34.63	44.73	1.910	99	.059
due to physical health	village	24	15.62	34.43			
General health	city	77	48.84	20.93	2.646	99	.009
	village	24	35.62	22.76			
Physical pain	city	74	58.51	28.16	3.095	96	.003
	village	24	38.54	25.17			
Energy fatigue	city	74	49.55	22.24	2.164	96	.033
	village	24	38.33	21.50			
Emotional well-being	city	74	63.73	22.65	2.600	96	.011
	village	24	50.50	18.15			
Social functioning	city	77	68.18	29.56	1.284	99	.202
	village	24	59.37	28.61			
Role limitations	city	77	45.02	47.68	.427	99	.671
due to emotional problems	village	24	40.27	47.11			
Integritet	city	77	37.74	9.29	2.366	99	.020
	village	24	32.75	8.06			

The results of the t-test for independent samples showed significant differences between urban and rural respondents in several dimensions of health. Specifically, there were differences in physical functioning t(99) = 2.234, p = .028, general health t(99) = 2.646, p = .009, physical pain t(96) = 3.095, p = .003, energy fatigue t(96) = 2.164, p = .033, emotional well-being t(96) = 2.600, p = .011), and integrity level t(99) = 2.366, p = .020. The scores were higher for the elderly living in cities in the dimension of integrity level (Table 1).

Table 2 presents data on differences in physical and psychosocial health, as well as integrity related to educational attainment.

Table 2.Differences in physical and mental health related to educational attainment

Variable	Category	N	М	SD	SS	df	MS	F	р
Physical	ELEM	49	43.175	28.300	8122.317	2	4061.158	4.848	.01
functioning	HSC	35	62.786	27.230	77067.331	92	837.688		
	FAC	11	56.616	36.627	85189.647	94			
	Total	95	51.956	30.104					
Role limitations	ELEM	49	18.878	37.337	15535.812	2	7767.906	4.425	.015
due to physical	HSC	35	39.048	44.500	161515.358	92	1755.602		
health	FAC	11	54.545	52.223	177051.170	94			
	Total	95	30.439	43.400					
General	ELEM	49	42.857	20.817	1234.610	2	617.305	1.356	.263
health	HCS	35	49.036	19.483	41874.700	92	455.160		
	FAC	11	52.273	28.580	43109.309	94			
	Total	95	46.224	21.415					
Physical pain	ELEM	48	49.635	27.132	2518.254	2	1259.127	1.575	.213
	HSC	33	59.621	30.639	71155.930	89	799.505		
	FAC	11	61.364	25.529	73674.185	91			
	Total	92	54.620	28.454					
Energy	ELEM	48	41.771	21.916	2234.907	2	1117.454	2.3	.106
fatigue	HSC	33	50.202	20.606	43234.749	89	485.784		
	FAC	11	54.545	26.595	45469.656	91			
	Total	92	46.322	22.353					
Emotional	ELEM	48	57.833	21.020	923.194	2	461.597	0.9	.410
well being	HSC	33	63.152	24.078	45666.545	89	513.107		
	FAC	11	66.182	25.195	46589.739	91			
	Total	92	60.739	22.627					
Social	ELEM	49	61.735	29.360	2367.066	2	884.168	1.339	.267
functioning	HSC	35	72.500	27.252	81343.460	92	1183.533		
	FAC	11	65.909	38.361	83710.526	94			
	Total	95	66.184	29.842					
Role limitations	ELEM	49	39.456	47.470	2089.640	2	1044.820	0.459	.634
due to emotional	HSC	35	47.619	47.338	209606.267	92	2278.329		
problems	FAC	11	51.515	50.252	211695.906	94			
	Total	95	43.860	47.456					
Integrity	ELEM	49	35.184	8.435	516.716	2	258.358	3.363	.039
	HSC	35	37.066	9.210	7067.552	92	76.821		
	FAC	11	42.727	8.765	7584.269	94			
	Total	95	36.751	8.982					

Table 2 shows the differences with respect to the educational attainment for two dimensions of physical health: physical functioning and role limitations due to physical health (p > .05) as well as integrity level (p < .05).

In a Post hoc test, it was found that the respondents with secondary school qualifications were of better physical health compared to those having only primary school qualifications, in all health dimensions. Statistically significant differences were noted in two aspects of physical health: physical functioning and role limitations due to physical health. Differences were also noted between respondents with secondary school qualifications and those with university degree, in case of the dimension concerning role limitations due to physical health and variable concerning the integrity level, where minor problems were observed related to physical functioning, with a higher level of integrity being registered in respondents who

acquired college or university degree, compared to those with secondary school qualifications.

Table 3 presents the intercorrelations between all dimensions of physical and psychosocial health and levels of integrity.

Table 3.Correlation between dimensions of physical and psychosocial health and integrity

Correlations	1	2	3	4	5	6	7	8	9
Phys. funct.									
Role lim. health	.637**								
General health	.646**	.477**							
Physical pain	.603**	.520**	.587**						
Energy fatigue	.476**	.485**	.631**	.567**					
Em. well-being	.459**	429**	.504**	.492**	.667**				
Social funct.	.608**	.509**	.618**	.593**	.578**	.703**			
Role lim. emot.	.427**	.554**	.558**	.520**	.507**	.520**	.624**		
Integrity	.429**	.472**	.515**	.469**	.548**	.602**	.556**	.480**	

^{**}The correlation presented in the table is statistically significant at the .01 level of significance

The data specified in Table 3 indicate the fact that all dimensions of physical and psychosocial health correlate significantly, and that the observed dimensions of both physical and psychosocial health also have a medium-high or high correlation with the integrity level. When it comes to dimensions of psychosocial health, the highest correlation values were registered between emotional well-being and social functioning r(95) = .703, p < .01, as well as between emotional well-being and energy fatigue r(95) = .667, p < .01. Integrity indicated the highest correlation with emotional well-being r(95) = .602, p < .01 and social functioning r(98) = .556, p < .01). Among the physical health dimensions, general health r(98) = .515, p < .01 and role limitations due to physical health r(98) = .472, p < .01 indicated the most significant correlation with the Integrity level.

Prediction of the degree of integrity based on psychophysical health

It was examined the importance of the integrity prediction model based on the eight characteristics of psychosocial and physical health that were employed as predictors using a linear regression analysis. Before the study, eight predictors were centred to prevent the collinearity issue.

Table 4.Results of standard multiple regression analysis for integrity prediction

				-		
Model	Regression	SS	df	MS	F	р
1	Rezidual	3911.117	8	488.890	9.522	.000
	Total	4569.780	89	51.346		
	Total	8480.897	97			

 $R = .679, R^2 = .461$

The regression analysis found that the model involving eight predictor variables was statistically significant ($p \le .001$). These eight predictors explain 46% of the integrity variance. Table 5 shows the regression coefficients for the eight variables of psychophysical health.

Table 5.Regression coefficients - prediction of integrity based on psychophysical health

Predictors	В	Beta	t	р
Physical functioning	022	073	585	.560
Role limitations due to physical health	.035	.164	1.448	.151
General health	.063	.150	1.194	.236
Physical pain	.022	.067	.601	.550
Energy fatigue	.037	.089	.729	.468
Emotional well-being	.132	.314	2.544	.013
Social functioning	.025	.080	.585	.560
Role limitations due to emotional problems	.010	.052	.463	.645

Observing the regression model (Table 5), it could be concluded that emotional well-being is the only significant predictor of integrity in this sample ($\beta = 314$, p = .013), while the remaining variables of the regression model have no statistical significance ($p \ge .05$).

Discussion

Numerous studies have examined the correlates of health, mostly through cross-sectional analysis, directly or indirectly, obtained by self-assessment. Perhaps physical health is the most crucial dimension of all (Bailis et al., 2001; Benyamini & Idler, 1999; Idler & Benyamini, 1997). On the other hand, the other two dimensions of health, i.e. mental well-being and general social health, have been observed to make an important contribution to global health assessment (Bambauer et al., 2005, according to Erdes Kavecan, Fazlagic, 2018).

The process of building integrity begins in earlier stages, but could only be concluded in old age, which is a period of "great generativeness" (Erikson et al., 1986). Review and integration of life events are key tasks in the development of the aging process (Walsh,



2005) and are defined as attitudes towards life and the world in terms of understanding one's position in the succession of generations (Lacković-Grgin, 2014).

When the physical and psychosocial health of the elderly in this study is examined, a significant difference is observed concerning sociodemographic factors. This is particularly evident in the three dimensions of physical health and two dimensions of psychosocial health based on the place of residence. Elderly residents living in urban areas are reported to be more satisfied with their physical functioning, less physical pain is reported by them, and they are considered to be much more vigorous and emotionally satisfied compared to the elderly living in rural areas. The assessment of general health and levels of integrity is also found to be better in urban areas than in smaller settlements. Such findings have been obtained in several other studies (Liamputtong, 2014; Rattanapun Fongkeav et al., 2009), and it is assumed that they are the result of better living conditions, more diverse social facilities, greater accessibility of health institutions, and easier and more efficient care for the elderly by family members and professional caregivers, generally existing in urban areas.

The educational status of our respondents was found to be a variable that highlights significant differences in two dimensions of physical health and at the level of integration. It was revealed that people with higher qualifications (college, university) encounter the least problems in achieving a social role dependent on physical health, and at the same time, they are the most satisfied with their life achievements. However, the best physical functioning is reported by the elderly with completed secondary education, followed by those with a university degree, while those with lower education report the least satisfaction. These results are consistent with previous research, which suggests that a significant association exists between qualifications and functional ability (Ramachandran & Radhika, 2013), as well as the incidence of elderly diseases (Chakraborty, 2005; Joshi et al., 2003). It has been shown in those studies that elderly individuals with higher levels of education experience less interference in performing functional activities compared to those with lower qualifications. Since education contributes to increased health awareness and economic independence, older people with higher educational status tend to follow good examples of health practices and behaviors to achieve good health status. In general, a good health status is more likely to be reported by people with a higher level of education (Subramanian et al., 2005), along with a higher perception of happiness and life satisfaction (Meléndez et al., 2009; Sumngern et al., 2010). According to Solcova et al. (2020), as cited in van der Kaap-Deeder (2022), the completion of a higher level of education is considered a protective factor, with previous studies showing that elderly adults with university education report a higher level of ego integrity and well-being (Wiesmann & Hannich, 2008).

It is shown by the results of our research that significant correlations are found among all dimensions of physical and psychosocial health, and that medium-high or high correlations with the integrity level are also observed for the dimensions of both physical and psychosocial health. These data are consistent with the results obtained in the research conducted by Tahreen and Shahed (2014), where a positive relationship between the level of ego integrity and mental health components in health-related quality of life in older adults was indicated.

According to much of the previous research, ego integrity is correlated with different dimensions of health, social activity, and self-esteem in the elderly and as a result, it has been proven to contribute to successful ageing (Chang et al., 2004). As stated in the paper by Guzman et al. (2011), the achievement of ego integrity is considered to be of fundamental importance and is regarded as the major task of the elderly, since ego integrity is viewed as a more stable factor reflecting the status of psychological well-being at a later stage of life, which is impacted by the overall previous life, according to Erikson's theory of psychosocial development.

However, the focus of most research is placed on analyzing the predictive value of ego integrity and its effects on health components, rather than the other way around. For the reasons specified, the aim of our research is to analyze the impact of psychosocial and physical health dimensions on the integrity level of the elderly. It is shown by the results of our research that the entire model was significant, but only one aspect of psychosocial health (emotional well-being) was found to emerge as a significant predictor of achieving integrity. Results of other research also indicate that overall mental health does not fully contribute to ego integrity. Instead, it is suggested that each component individually contributes to this variable (Han et al., 2015). According to the findings of the same research, ego integrity could have an impact on successful aging, but the impact is not a direct one, because in the successful and healthy aging process, physical health, in addition to mental, is also considered to play a vital role.

The outcome is aligned with Erikson's theory of psychosocial development, in which the eighth stage is described as a time of reflecting on one's life and accomplishments. According to Erikson, a positive assessment of one's achievements is said to infuse life with meaning and lead to a sense of integrity and satisfaction. Recent research suggests that people who are happy and satisfied with their lives are also considered to be more emotionally stable, have better relationships with the environment, and are able to fulfill their roles more efficiently (Lyubomirsky, according to Kaliterna Lipovčan & Prizmić-Larsen, 2005).

On the other hand, it is stated that social integration provides security, satisfaction, and a sense of identity (Weiss, 1974 according to Pavićević & Živković, 2021).

Based on all the information specified above, it may be concluded that the research of determinants of successful aging is in the offing. It is considered that the emotional well-being of the elderly is important in itself and there is suggestive evidence that positive emotional states and positive assessments of life are important for health and quality of life as people age (Steptoe et al., 2015).

Limitations and implications of the study

It is important to acknowledge certain limitations of this research. Firstly, the findings are based on self-evaluations provided by the elderly. It would be preferable to include other important people from their lives in future research, to be able to get the right idea of the mental and physical functioning of the elderly. On the other hand, the relatively small sample of respondents, as well as the disproportionate accommodation of the elderly in a family or institutional environment, have proved to be some of the limitations of this research.

Research in the field of gerontology certainly has important implications. They may be found useful by professionals and professional caregivers in developing prevention and service programmes to encourage emotional well-being, maintain a good physical health status and provide relevant forms of assistance to the elderly in carrying out the daily activities. At the level of the broader health care system, the information obtained in the mentioned research would certainly have a role to focus the attention not on the disease only, but primarily on those accompanying methods, which would have a positive impact on improving the psychophysical condition of the elderly.

Conclusions

The findings of this research showed that the elderly living in urban areas and those with higher qualifications tend to report better overall health. The level of achieved integrity is relatively good, and emotional well-being has been identified as a significant predictor of the level of integrity. We believe that the conducted research provides insight into the health condition, as well as certain socio-demographic characteristics of the elderly in Novi Pazar, Serbia. The research also provided information regarding the identification and understanding of the correlation between various factors that could play a crucial role in improving the quality of life during the aging process. This information could be effective in planning policies and programs aimed at enhancing and promoting the quality of life at every level of healthcare.



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Competing Interests

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About the Authors

Djerdji Erdes Kavecan works as Associate Professor at the Faculty of Organizational Studies "Eduka" in Belgrade and at the College of Vocational Studies for the Education of Preschool Teachers and Sports Trainers in Subotica. Her primary research interests are related to the field of family, developmental and pedagogical psychology. She has published over 50 scientific papers and published a textbook entitled: Family Psychology – theories and research -. She is a reviewer of scientific papers in several national and international anthologies and journals and participated in the defense of over 30 final Master's theses, both as a mentor and as a committee member. During her career, she participated in numerous scientific projects, as well as projects of development programs of local communities.

Anida Vrcic Amar works as Assistent Professor at the Study Program of Psychology, State University of Novi Pazar, Serbia. Her primary research interests are related to the field of mental health, clinical psychology, developmental and positive psychology. She has published over 30 scientific article and participated over than 20 Conference at Serbia and Europa. She is participated in the defense of several final Master's theses. She participated in scientific and development programs of local communities.

Milena Belić works as Assistant Professor at the State University of Novi Pazar. Her primary reasrch interests are related to the field of personality, communication and interpersonal relationships. She is the author and co-author of several scientific papers and a participant in numerous scientific conferences. She has participated in numeros scientific projects and she is active in professional engagement in the local community.

Corresponding Author's Contact Address^[TOP]

Faculty of Organizational Studies "Eduka", Majke Jevrosime 15, 11000 Belgrade, College of Vocational Studies for the Education of Preschool Teachers and Sports Trainers, Banijska 67, 24000 Subotica.

e-mail: djerdji.erdes.kavecan@vos.edu.rs

