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The mediation model of the effect of intelligence on the personal well-being of people with dementia

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Abstract

The article is devoted to the study of factors influencing the level of psychological well-being of elderly people with dementia. As a result of statistical calculations, a model was built that proves the indirect influence of intellectual development on subjective well-being. Mediating factors are the ability to interact with others, the emotional regulation, existential fulfillment and the analysis of inner states.

Key words: dementia, psychological well-being, cognitive processes, elderly age, existential fulfillment

Mental aging is conveyed by changes in the brain and in the nervous system as a whole, which in turn reduces productivity of cognitive, emotional-volitional, everyday-practical and social spheres [Luria, 218; Zakharov, 2012; Zakharova, 2013]. Elderly and senile people mostly suffer from impaired cognitive and emotional spheres in connection with involutive morphofunctional changes in the brain: a decrease in brain mass, smoothing of grooves and convolutions, expansion of the cerebral ventricles and subarachnoid spaces [Ovsyannikova, 2007; Dubinin, 2016; Eslinger, 2011].

Researchers note that cognitive impairments are often associated with reduced ability to recognize own emotions and emotions of another people, as well as impaired self-knowledge and self-control [Korsakova, 2020] negatively affects mental well-being [Suvorova, Efremova, Glebov, 2020]. The huge role in self-knowledge is played by existential fulfillment [Bocharova, 2008]. The way these factors interact with each other is unknown as well as their sum and specific effect on psychological wellbeing. Thus, the purpose of this article is to find a complex factor caused psychological well-being for older people and include cognitive, emotional and existential spheres.

The study involved 180 people from ten regions of Russia (Moscow, Nizhny Novgorod Oblast, Tver, Krasnodar, Penza, Vladimir, Volgograd, Altai, Irkutsk and Khanty-Mansi Region). In sum we interviewed 147 women and 33 men, aged 38 to 89 (M = 68, Std.D = 7.9).

Research hypothesis: the emotional and existential spheres mediate the influence of the level of cognitive development on the personal well-being.

To study the relationship between cognitive, emotional, meaning-making components and personal well-being, the following methods were chosen: determining the level of emotional intelligence (EMIN, [Lyusin, Maryutina, Stepanova, 2004]); questionnaire "Cognitive regulation of emotions" (N. Garnefsky and V. Craig "Cognitive Emotion Regulation Questionnaire" (CERQ), adapted by EI Rasskazova [Rasskazova]); Lyubomirsky test adapted by E.N. Osina [Osin, Leontiev, 2008]; The results of the method of existential fulfillment (Existenz-Skala, (ESK) A. Langle Christina Orgler, translation by V. Krivtsova, adap. Shumsky, [Shumsky, 2016]); SAGE (Self Administrated Gerocognitive Exam) aims to identify mild impairments in memory and thinking, as well as early symptoms.

Correlation analysis

Before building one-way connections, we calculated the relationship between IQ, subjective happiness, cognitive regulation of emotions and existential fulfillment (Tables 2, 3).

Table 1.

Correlation between intelligence, subjective happiness, and cognitive emotional regulation

	1	2
Subjective happiness		
Intelligence		
Self-blame		0,208**
Adoption		0,268**
Rumination		0,239**
Positive focus	0,272**	0,177*
Focus on planning	0,198*	0,271**
Positive reappraisal	0,239**	0,294**
Perspective view		0,310**
Catastrophic	-0,352**	
0		
1		
Accusation	-0,266**	

* - significance level $p \leq 0.05$

** - significance level $p \leq 0.01$

As we can see, the level of subjective happiness and cognitive indicators are interconnected with the cognitive regulation of emotions, but they are not connected with each other. In other words, the higher the indicators of the intellectual sphere, the higher the ability for cognitive regulation of emotions and the higher, in turn, the level of subjective happiness. However, there is no direct relationship between high levels of cognitive sphere and the level of subjective happiness. The obtained result may indicate that the ability for cognitive regulation is not an unconditional criterion for the level of subjective happiness.

The relationship between intelligence, subjective happiness, emotional regulation and existential fulfillment are shown below.

Table 2

Correlation between intelligence, subjective happiness, emotional regulation and existential fulfillment

	1	2
1 Subjective happiness		
2 Cognitive sphere		
3 Understanding other people's emotions	0,185*	0,199*
4 Managing other people's emotions	0,226**	0,201*
5 Managing own emotions	0,372**	0,181*
6 Interpersonal emotional intelligence	0,238**	0,215**
7 Intrapersonal emotional intelligence	0,263**	
8 Understanding emotions	0,189*	
9 Managing emotions	0,331**	0,173*
10 General level of emotional intelligence	0,297**	0,177*
11 Fundamental trust	0,450**	
12 Fundamental value	0,415**	
13 Self-worth	0,375**	0,273**
14 Sense of life	0,332**	0,342**
15 Emotional intelligence	0,460**	0,267**

* - significance level $p \leq 0.05$

** - significance level $p \leq 0.01$

The level of subjective happiness and cognitive indicators are interconnected with emotional regulation and existential fulfillment: the higher the intellectual indicators, the higher the understanding of one's own and other people's emotions, and the higher the level of subjective happiness; the higher the intellectual indicators and existential fulfillment, the higher the level of subjective happiness.

Table 3

Correlation between cognitive emotional regulation, emotional regulation, and existential fulfillment

	1	2	3	4	5	6	7	8	9
1 Fundamental trust									
2 Fundamental value	,598**								
3 Self-worth	,675**	,623**							
4 Sense of life	,627**	,575**	,643**						
5 Emotional intelligence	,851**	,804**	,675**	,623**					
6 Positive focus	,206**	,325**	,206**	,325**	,350**				
7 Focus on planning	,287**	,260**	,342**	,503**	,411**	,573**			
8 Positive reappraisal	,296**	,257**	,337**	,482**	,404**	,560**	,730**		
9 Perspective view	,184*	,149*	,287**	,384**	,298**	,460**	,562**	,669**	
10 Understanding other people's emotions	,264**	,332**	,407**	,305**	,372**	,165*	,202**	,199**	
11 Managing other people's emotions	,322**	,398**	,357**	,285**	,388**			,192**	,190*
12 Managing own emotions	,330**	,377**	,370**	,350**	,408**	,348**	,200**	,260**	
13 Understanding own emotions	,288**	,331**			,202**				
14 Interpersonal emotion. intelligence	,333**	,403**	,443**	,333**	,430**	,158*	,197**	,213**	,154*
15 Intrapersonal emotion. intelligence	,355**	,352**	,244**	,248**	,333**	,204**	,169*		
16 Understanding emotions	,355**	,397**	,331**	,240**	,359**				
17 Managing emotions	,357**	,401**	,389**	,333**	,422**	,272**	,177*	,236**	
18 General emotion. intelligence	,397**	,443**	,428**	,343**	,457**	,209**	,200**	,189*	

* - significance level $p \leq 0.05$

** - significance level $p \leq 0.01$

As we can see in nab.3, there are strong relationships between cognitive regulation of emotions, emotional regulation and existential fulfillment.

Using factor analysis (Varimax rotation method), 5 factors were grouped. We named the selected factors as follows: I - the possibility to interact with others, II - constructive regulation of emotional states, III - existential fulfillment, IV – the ability to analyze inner states, V - destructive cognitive regulation.

Thus, relying on correlation and factor analysis, we get the following model (Fig. 1):

Fig.1. The mediation model of the effect of intelligence on the subjective happiness

This model was tested using mediation analysis using Process Macro for SPSS version 3.5 [Hayes, 2013]. Model 4 and bootstrap sample 5000 were used for calculations. The model was built taking into account the covariates "age" and "sex".

The influence of the intellectual development on the ability to interact with others was found to be significant with a probability of error $p \leq 0.046$ at $t = 2.01$. The influence of the intellectual development on the constructive regulation of emotional states is significant at $p \leq 0.0006$ at $t = 3.55$.

The influence of the intellectual development on existential fulfillment and analysis of inner states is not significant. The intellectual development has an inverse effect on destructive cognitive regulation ($t = -2.19$; $p \leq 0.03$). The effect of being able to interact with others on subjective happiness is not significant. The influence of constructive regulation of emotional states on the subjective level of happiness is statistically significant at $t = 2.48$ and $p \leq 0.014$. The influence of existential fulfillment on the subjective happiness is statistically significant ($t = 4.94$; $p \leq 0.000$). The influence of the intellectual development on the ability to interact with others was found to be significant with a probability of error $p \leq 0.046$ at $t = 2.01$. The influence of the intellectual development on the constructive regulation of emotional states is significant at $p \leq 0.0006$ at $t = 3.55$. The influence of the analysis of inner states on the subjective happiness ($t = 2.06$; $p \leq 0.04$) has been proved. The effect of destructive cognitive regulation on the level of subjective happiness is also statistically significant ($t = -4.74$; $p \leq 0.000$). According to calculations there is no direct influence of the intellectual development on the level of subjective happiness. Thus, our model has the form (Fig. 2):

A – коэффициент уравнения $y = Ax + B$

se – стандартная ошибка значения A

Fig. 2. The mediation model of the effect of intelligence on the subjective happiness with statistical coefficients

We see that the intellectual development affects the ability to build relationships with other people and regulate own emotional states but has not influence on existential fulfillment, whereas these components have the greatest influence on the personal well-being. In turn, the ability to build relationships with other people does not affect the level of subjective happiness.

Thus, it was proved ($0.0001 \leq p \leq 0.04$) that the intellectual development affects the ability to build relationships with other people and regulate own emotional states. However, the existential fulfillment does not depend on intellectual development but has the greatest influence on the subjective well-being. Apparently, the cognitive sphere of the personality and the meaningfulness of life belong to different spheres of personality. However, the level of cognitive development indirectly influences the subjective well-being through cognitive regulation of emotions. Therefore, in order to increase the feeling of the level of subjective happiness, it is necessary to develop both cognitive abilities (the basis for the perception and

processing of external and internal information), and to form a new adequate palette of existential fulfillment of the personality, as a condition for the prevention and rehabilitation of cognitive and emotional disorders in old age.

1. Bocharova E.E. Correlation of emotional and cognitive components of subjective well-being in different conditions of socialization [Sootnosheniye emotsional'nykh i kognitivnykh komponentov sub'yektivnogo blagopoluchiya v raznykh usloviyakh sotsializatsii] // Problems of social psychology of personality [Problemy sotsial'noy psikhologii lichnosti]. - 2008.
2. Dubinina E.A. et al. Features of self-awareness in non-dementia cognitive impairment and vascular dementia in old age [Osobennosti samosoznaniya pri nedementnykh kognitivnykh narusheniyakh i sosudistoy dementsii v pozhilom vozraste] // ADVANCES. - 2016. - T. 29. - No. 2. - S. 329-336.
3. Eslinger P.J. et al. Social cognition, executive functioning, and neuroimaging correlates of empathic deficits in frontotemporal dementia // The Journal of neuropsychiatry and clinical neurosciences. - 2011. - T. 23. - №. 1. - C. 74-82.
4. Hayes A. F. Introduction to mediation, moderation, and conditional process analysis: Methodology in the Social Sciences // Kindle Edition. - 2013. - T. 193.
5. Korsakova, N.K. Clinical neuropsychology: a textbook for universities [Klinicheskaya neyropsikhologiya: uchebnoye posobiye dlya vuzov] / N.K. Korsakova, L.I. Moskovichyute. - 2nd ed., Rev. and add. - Moscow: Yurayt Publishing House, 2020. -- 165 p
6. Luria A.R. Higher cortical functions of a person [Vysshiye korkovyye funktsii cheloveka]. SPb.: Peter, 2018. -- pp. 357-383.
7. Lyusin D.V., Maryutina O.O., Stepanova A.S. The structure of emotional intelligence and the relationship of its components with individual characteristics: empirical analysis [Struktura emotsional'nogo intellekta i svyaz' yego komponentov s individual'nymi osobennostyami: empiricheskiy analiz] // Social intelligence: theory, measurement, research: collection of articles. scientific. tr. - 2004. -- S. 129-140.
8. Osin E.N., Leontiev D.A. Approbation of Russian-language versions of two scales for rapid assessment of subjective well-being [Aprobatsiya russkoyazychnykh versiy dvukh shkal ekspress-otsenki sub'yektivnogo blagopoluchiya]. In collection: Materials of the III All-Russian Sociological Congress. Moscow: Institute of Sociology RAS, Russian Society of Sociologists - 2008.
9. Ovsyannikova V.V. The role of cognitive factors in the recognition of emotional states [Rol' kognitivnykh faktorov v raspoznavanii emotsional'nykh sostoyaniy] // Avtoref. diss. ... cand. psy. sciences. M. - 2007.
10. Rasskazova E.I. Development of the Russian-language version of the questionnaire of cognitive regulation of emotions [Razrabotka russkoyazychnoy versii oprosnika kognitivnoy regulyatsii emotsiy] / E.I. Rasskazova, A.N. Leonova, I.V. Pluzhnikov // Bulletin of Moscow University. Ser. 14, Psychology. - 2011. - No. 4. - S. 161-179
11. Shumsky V.B. et al. Diagnostics of existential fulfillment: the original Russian version of the test of existential motivations [Diagnosticska ekzistentsial'noy ispolnennosti: original'naya russkoyazychnaya versiya testa ekzistentsial'nykh motivatsiy] // Psychology. Journal of the Higher School of Economics. - 2016. - T. 13. - N4.
12. Suvorova I.Yu., Efremova DN, Glebov V.V. Memory training as a way to improve the quality of life of elderly people with dementia [Trenirovka pamyati kak sposob uluchsheniya kachestva zhizni lyudey pozhilogo vozrasta s dementsiyey] // Zeigarnikovskie readings. Collection of materials. - 2020. -- T. 18. - P. 627.
13. Zakharov V.V. Lecture Evolution of cognitive deficits: mild to moderate cognitive impairment. [Lektsiya Evolyutsiya kognitivnogo defitsita: legkiye i umerennyye kognitivnyye narusheniya] // Journal of Neurology, Neuropsychiatry, Psychosomatics [Zhurnal Nevrologiya, neyropsikhiatriya, psikhosomatika]. -- Nizhny Novgorod: Dekom, 2012. - No. 2, - 108 p.
14. Zakharova I.A. Compensatory potential in normal and pathological aging [Kompensatornyy potentsial pri normal'nom i patologicheskom starenii] / I. A. Zakharova // Journal of System Psychology and Sociology [Zhurnal Sistemnaya psikhologiya i sotsiologiya] . - 2013. - No. 7. S. 46-57.