ПСИХОЛОГІЯ ОСОБИСТОСТІ ТА ПСИХОЛОГІЧНА ПРАКТИКА

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BIOELECTROGRAPHIC PARAMETERS AT DIFFERENT PSYCHO-EMOTIONAL STATES OF THE PERSON

The article discusses the relationship between bioelectrographic indicators received by the method of discharge gas visualization and indicators of the person's emotional state. The certain general theoretical – methodological grounds for investigating GDV indicators – gram have been identified, the complex of methods, which was adequate to our research purpose have been chosen, as well as psycho-emotional states of the respondents have been diagnosed and analyzed.

The article also analyzes the prospects of the method of GDV – analysis in the diagnosis of mental states, and ways of further bioelectrographic research in psychology.

Key words: bioelectrography, method of discharge gas visualization (GDV – analysis), stress, frustration, state of health, activity, mood.

Outline of the topic. The article considers the issue, which is one of innovations in the field of psychology and bioelectrographic that is based on the method of gas discharge visualization. This issue **consists of interrelation bio-**electrographic potential of the person and the person's mental states. Today, we know that the person's emotional state changes can be caused by information that coming from external and internal sources. For example, the person has much better mood when she/he gets the good news. On the other hand, when somebody feels little pricked in the heart, the person experiences a significant deterioration of his/her health at that time. Biophysics, that is just beginning to develop as an independent field of scientific research, deals with these aspects [1]. In other words, it studies how the various range of information can affect the psychological, physiological, and biological indicators of living organisms. Probably some years ago such kinds of study could be considered unbelievable, beyond reality, but today the members of the International Union of Medical and Applied Bioelectrography have concluded that physical activity and the high energy level is directly related to the psychological state of the person [2].

The purpose of the article. Investigate correlation of the emotional state and bioelectrographic parameters obtained by the method of gas discharge visualization.

The discussion of the topic. For studying of the presence of correlation we conducted the empirical study, 45 people took part in the empirical investigation as respondents. 20 men and 25 women aged from 19 – 37 with different statuses.

The study was divided into 3 stages:

At the first stage of our research, we investigated psycho-emotional states of the respondents. Methods of «Express – diagnostic of the personal frustration level» by V.V. Boyko, «Scale of psychological stress PSM-25» and also the test – FMA questionnaire (feeling, mood and activity) were used. At this point it should be noted that today it does not exist the accurate and clear understanding of the concept of emotional state in psychology. Therefore, this paper will be considered only the main aspects of the most common and complete definition [8].

During quantitative data processing and qualitative analysis presented in Table 1.1, it was found that most of the subjects had the average level of performance on all scales of emotional states such as stress, frustration, feeling, activity, and mood.

Table 1.1

Distribution of subjects by the levels of scales of emotional state questionnaires

Scale	Low level		Intermediate level		Advanced level	
	Number of persons	%	Number of persons	%	Number of persons	%
Stress	18	40	19	42,2	8	17,8
Frustration	17	37,8	20	44,4	8	17,8
Feeling	12	26,7	17	37,8	16	35,6
Activity	14	31,1	19	42,2	12	26,7
Mood	6	13,3	21	46,7	18	40

At the second stage we researched bioelectrographic parameters with the program complex «GDV – camera». «The bioelectrographic method of GDV-analysis is a computer registration and analysis of glowing induced by objects, including biological, with electromagnetic field stimulation increasing of the gas discharge.» [6] In medicine, it is the relatively new and prospective method for diagnostic of different diseases in the early stages. Discharge parameters depend on the object properties and thus we can analyze the nature of glowing objects. It is also possible to assess the bioelectrographic state of the object at particular moment. [6] This method is based on the Kirlian effect.

The term «Kirlian effect» [4] is understood as a visual observation or registration on photo materials of gas discharge glowing, which occurs near the surface of the object of studying, when we put it in the electric field of high intensity [7]. When we describe research results of biological objects we sometimes used the term «bioelectrography» or «kirlianography» – glowing registration on the photographic material, or other storage mediums. Today, the GDV technique is increasingly used in medical, scientific, psychological and sports studies all over the world. GDV-grams register – the non-invasive, painless, safe and quick research: screening of 10 fingers requires no more than 5 minutes. It can be repeated many times and there are no restrictions or consequences for health [10].

The Third Stage was revealing the presence and nature correlation of the psycho-emotional states and respondents' bioelectrographic indicators. At this stage, STATISTICA 6.0. program for calculating Pearson correlation coefficient was used [9].

Table 1.2

Results of correlation coefficients – r, and statistical significance – p.

	Shape Coefficient	Glow Area	Entropy	Glowing Intension
Stress	**-,4243**	**-,3564**	,1197	**-,3259**
	p=,004	**p=,016**	p=,434	**p=,029**
Frustration	-,0982	-,0316	,0835	-,1285
	p=,052	p=,083	p=,085	p=,400
Feeling	-,0662	,0541	-,1170	,1671
	p=,666	p=,724	p=,444	p=,273
Activity	,0280	-,0242	-,0917	-,1335
	p=,855	p=,875	p=,054	p=,382
Mood	,0452	-,1572	,0513	**,2340**
	p=,768	p=,302	p=,738	**p=,122**

Due to the empirical study of the issue of the bioelectrographic parameters and people's psycho-emotional states correlation, we can make the following conclusions:

– There is a moderate inverse connection between indicators of Stress and Shape coefficient ($r = 0,4243$; $p ≤ 0,05$). This means, the larger values of Shape coefficient, the lower Stress level. Thus, we can conclude that people who stay in a state of extreme stress during a lot of time will deteriorate shape of electromagnetic field. It can have negative effect on the nervous system and internal organs, according to the research conducted by K.G. Korotkov [5].

Visually, we can see it on the figure 1. Recipient №36 with high stress level (167) on the left GDV – gram, with a Shape coefficient of 10 656. On the right picture is recipient № 43, with the least rate of stress among the sample – 40, and Shape coefficient – 23 653. We can see that being in a state of extreme stress particularly affected the fields form in the head, ears, neck and right arm. It should be noted that the respondent complained of pain in the neck and right shoulder.
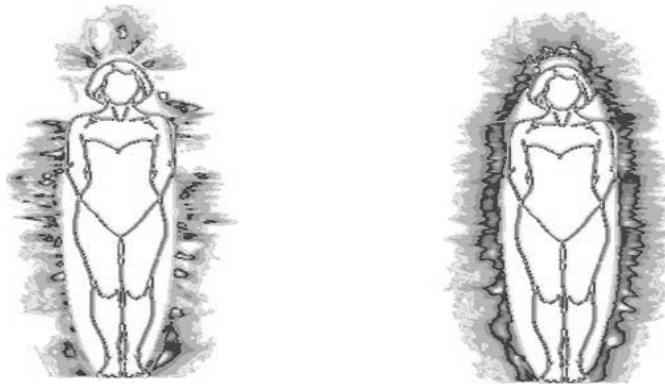

Fig. 1. GDV-grams of respondents 43 and 36

– In addition, a moderate inverse correlation index ($r = 0,3564$; $p ≤ 0,05$) was identified between indicators of stress and Glow area. The larger section area of glow the less Stress level is. We can conclude that indicators of Glow area in GDV – grams, can be deteriorated onto a person who stays in the stress.

We can see the presence of such a connection on the figure 2. On the left side you can see respondent 25 with Stress level – (which is equal to) 165, and the Glow area – 10 998. On the right side respondent 5 has indicators of Stress – 54, and Glow area – 20 294.
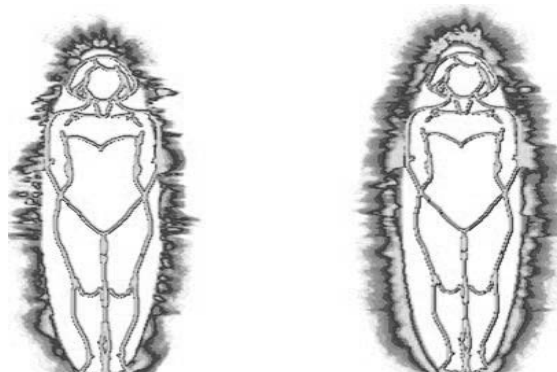

Fig. 2. GDV-grams of respondents 25 and 5

– There is a moderate inverse connection between indicators of Stress and Glowing intension ($r = 0,3259$; $p ≤ 0,05$). While indicators of Glowing intension are being increased, indicators of stress are being decreased. Thus, we can conclude that a person in a state of stress intensity deteriorates of GDV – grams glowing.

More details we can see in the bright example of next respondents (Figure 3). Respondent 1, which GDV – gram is located on the right has indicators of stress 44 (low level) and indicators of Glow intensity – 27 125. In the center, respondent 11 with Stress indicators 131 (intermediate level), and Glow intensity – 16 456. And on the left side, respondents 16 with a very high rate of stress 185, and very weak Glow intensity 7995.
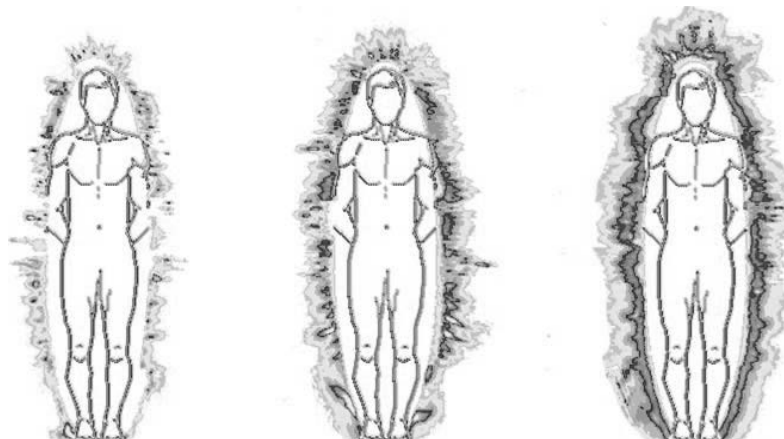

Fig. 3. GDV-grams of respondents 16, 44, and 1

– During the correlation analysis we revealed, the evident direct relationship between indicators of Mood scales (poll FAM), and Glowing intension (r = 0,2340; p ≤ 0,05). So, the higher level of respondents' mood is the greater rate of Glowing intension.

If we consider the dependence on respondent 15, who received very high rates of Mood – 64, and a very strong indicator of the Glowing intension 23,111, we can see that respondents who received a high score on a scale infusion have a tight, bright, consistent electromagnetic field. During the diagnostic interview with this respondent we found out that this person may describe himself as «constantly happy and in a good mood». This respondent has good relationships with others, and rarely sick.
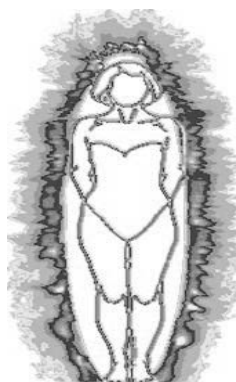

Fig. 4. GDV-grams of respondents #15 with high levels of Mood and Glowing Intension

Conclusions. The received results can be used, in further studies of this area, since this work has considered only 4 parameters of GDV analysis, but the modern system of the gas discharge diagnosis counts more than 20 criteria for diagnosis [7]. Moreover, in our opinion, we can get some interesting results of the research correlation between bioelectrographic indicators and levels of aggression, self-esteem and other personal and social qualities. Summing up all the above information, we can state that the huge field of the future perspective studies is revealed before us.

Therefore, this work has been devoted to revealing correlations between bioelectrographic indicators and emotional states of the person. We achieved the purpose of the work and resolved the main tasks of the research. The problem of the correlation between bioelectrographic indicators and psycho-emotional states of the person is the relevant issue for the further research. The study of this problem can be done on other sampling of respondents (for representatives of other age and social groups). Indeed, due to the obtained results, it is possible to develop GDV software system, and actively implement the method of GDV diagnostics in the area of psychological study of the personality, mental states, etc, since bioelectrographic studies can facilitate the diagnosis procedure of mental and emotional states of the person and reduce the time requiring to answer test questions.

References

1. Ащеулов А.Ю. Диагностика психоэмоционального состояния с помощью метода ГРВ / А.Ю. Ащеулов, А.Н. Пашков, Г.Б. Кащей, М.И. Щевелев. – СПб.: Институт физиологии РАН, 2000. – 153 с.

2. Бундзен П.В. Результаты и перспективы использования технологии квантовой биофизики в подготовке высококвалифицированных спортсменов / П.В. Бундзен, К.Г. Коротков, А.И. Макаренко // Теория и практика физической культуры. – 2003. – № 3. – С. 26–43.

3. Ильин Е.П. Психология индивидуальных различий / Е.П. Ильин. – СПб.: Питер, 2004. – 701 с.

4. Кирлиан С.Д. В мире чудесных разрядов / С.Д. Кирлиан, В.Х. Кирлиан. – М.: Знание, 1964. – 40 с.

5. Короткова А.К. Метод газоразрядной визуализации биоэлектрографии в исследованиях психофизиологического состояния квалифицированных спортсменов: автореферат дис.... канд. психол. наук: спец. 19.00.04 «Медицинская психология» / А.К. Короткова. – СПб.: СПбГУ ИТМО, 2006. – 18 с.

6. Коротков К.Г. Основы биоэлектрографии / К.Г. Коротков. – СПб.: СПбГИТМО (ТУ), 2001. – 360 с.

7. Коротков К.Г. Принципы анализа в ГРВ-биоэлектрографии / К.Г. Коротков. – СПб.: Реноме, 2007. – 286 с.

8. Петровский А.В. Психологический словарь / под общ. ред. А.В. Петровского, М.Г. Ярошевского. – 2-е изд., испр. и доп. – М.: Политиздат, 2004. – 494 с.

9. Сидоренко Е.В. Методы математической обработки в психологии / Е.В. Сидоренко. – СПб.: ООО «Речь», 2000. – 350 с.

10. Milhomens N. Fotos Kirlian Como Interpretar. Ibrasa / Sao Paolo, 1997. – 126 p.

У статті розглянуто взаємозв'язок біоелектрографічних показників, отриманих за допомогою методу газорозрядної візуалізації, і показників психоемоційного стану людини. Під час написання статті було визначено загальні теоретико-методологічні основи для дослідження показників ГРВ-грам, дібрано комплекс методик, адекватних меті дослідження, продіагностовано і проаналізовано психоемоційний стан респондентів. Проаналізовано перспективи впровадження методу ГРВ-аналізу в діагностику психічних станів і шляхи подальших біоелектрографічних досліджень у психології.

Ключові слова: біоелектрографія, метод газорозрядної візуалізації (ГРВ-аналіз), стрес, фрустрація, самопочуття, активність, настрій.

В статье рассмотрена взаимосвязь биоэлектрографических показателей, полученных при помощи метода газоразрядной визуализации, и показателей психоэмоционального состояния человека. Во время написания статьи были определены общие теоретико-методологические основы для исследования показателей ГРВ-грамм, подобран комплекс методик, адекватных цели исследования, продиагностировано и проанализировано психоэмоциональное состояние респондентов. Проанализированы перспективы внедрения метода ГРВ-анализа в диагностику психических состояний и пути дальнейших биоэлектрографических исследований в психологии.

Ключевые слова: биоэлектрография, метод газоразрядной визуализации (ГРВ-анализ), стресс, фрустрация, самочувствие, активность, настроение.