Predictive assessment of the association of dermatoglyphic indicators with indicators of personality traits, established by factor analysis

Serebrennikova O.A., Gunas V.I., Klimas L.A., Ocheretna N.P., Shayuk A.V.*
National Pirogov Memorial Medical University, Vinnytsya, Ukraine
*Zhytomyr Ivan Franko State University, Zhytomyr, Ukraine

According to modern scientific literature, specific dermatoglyphic signs can be diagnostic markers of a person's mental state. The purpose of the work is to identify the association of dermatoglyphic indicators with personality characteristics of practically healthy men of Ukraine. From the data bank of the materials of the research center of National Pirogov Memorial Medical University, Vinnytsya were taken the primary dermatoglyphic and questionnaires indicators of personality characteristics of 92 practically healthy men in the third generation residents of Vinnitsya, Khmelnitky, part of Ternopil and Zhytomyr regions.

Processing of dermatoglyphs was performed according to the method of Cummins H. and Midlo Ch. (1961) in the statement by Gladkova T.D. (1966). For objective evaluation of personality traits of practically healthy men, a number of leading indicators were determined, which included a number of properties of temperament (according to Eysenck), anxiety (according to Spielberger), accentuated personality traits (according to Shmishek), motivational orientation of personality (by Rotter), as well as the peculiarities of psycho-emotional organization of personality, aggressiveness, the level of distribution of asthenic and depressive personality manifestations (by the color test of Luscher), which were determined on the basis of personal use personality questionnaires and test methods.

Factor analysis was performed in the "Statistica 6.1" license package. The main factors that indicate the association of personality traits of practically healthy men with some dermatoglyphic indicators are identified: "ridge count of fingers" (dispersion ratio - 13.22%) and "atd angle" (dispersion ratio - 10.66%). Analysis of the obtained relationships of the interdependence of indicators of personality characteristics with dermatoglyphic indicators showed that with increasing indicators of ridge counts of the fingers and the delta index the degree of probability of growth of indicators of neuroticism according to Eysenck, situational and personal anxiety according to Spielberger, the accentuation of the character of the emotional and arousing types by Shmishek, subjective control in the field of health and illness according to Rotter, black and gray color by Luscher decreases, and the indicators of the accentuation of the character of the anxious and demonstrative types by Shmishek, the overall internality of the level of subjective control in the field of educational (professional) relations according to Rotter, blue and blue-green color by Luscher - is decreasing. As the magnitude of the angle atd increases on both hands, the degree of likelihood of growth of neuroticism according to Eysenck, situational and personal anxiety according to Spielberger, accentuation of the character of the emotional, anxious and arousing types by Shmishek, blue color by Luscher increase, and indicators of accentuation of the character of the demonstrative type according to Shmishek, the general internality of the level of subjective control, in the field of educational (professional) relations and in the field of health and illness according to Rotter, blue-green, black and gray color according to Luscher - decrease. The use of factor analysis has allowed to determine the most significant correlation of indicators of personality characteristics with dermatoglyphic indicators.

Keywords: dermatoglyphic indices, indices of personality traits, practically healthy men, factor analysis.
Introduction

Separation of a particular branch of dermatoglyphics - psychodermatoglyphics was the result of numerous works devoted to finding a connection between the peculiarities of the skin pattern and the mental sphere of human life. This branch finds its application for professional profile selection of employees, students, pupils, revealing a tendency to mental illness, creating a psychological portrait for the needs of police, etc. [6, 15, 16].

In 2016, T. Ye. Afonichev, Yu. O. Tyshkovets, and M. V. Filippova [2] conducted an experiment aimed at determining the relationship between the features of skin patterns of finger and the level of student success. 60 students were selected for the study, which were divided into 4 groups according to mental development after passing the Eysenck test. Whorls (32.8 %) were found to be more prevalent in high-intelligence individuals, especially on the left hand. Students with low mental development tend to have loop patterns (65.0 %), and most of them were found on the third and fifth fingers of left and right hands.

210 people enrolled in Lagos (Nigeria) schools were screened to identify specific dermatoglyphic markers of giftedness to one or another type of learning [1]. The respondents belonged to the Yoruba, Igbo and Hausa ethnic groups. The most common among gifted schoolchildren were such elements of patterns as whorls and ulnar loops. Thus, 65 % of schoolchildren who have a gift for music education have a pattern type - whorl. At the same time, ulnar loops on the second finger of the left and right hands were the most characteristic among schoolchildren with a genius for the logical and mathematical sciences.

A similar study that had the same purpose was conducted in 2014 by Kumari K.L., Babu P.V. and Kumar S.V. [18]. This study found only an increase in the number of ulnar loops and a significant prevalence of whorls when examining students studying medical specialties.

The features of skin pattern in depressed individuals have been identified by a group of Chinese scientists [19]. V.O. Tikholaz and Yu.J. Guminsky established the features of dermatoglyphics in patients with paranoid form of schizophrenia depending on the duration of inpatient treatment. When comparing dermatoglyphics data between healthy and diseased individuals, significant differences in both quantitative indexes of palmar and finger dermatoglyphics were revealed [25]. A team of scientists analyzed 22 studies in the period 1968-2012, on the topic of the relationship between indicators of skin pattern and schizophrenia. It has been found that the most frequently mentioned in articles statistically significant indicators were total finger ridge score and the palmar ridge score on the line connecting the tri-radii a-b [12]. A similar study was conducted by a group of Bulgarian researchers, who also point to the priority importance of the index of the palmar ridge score on the line connecting the tri-radii a-b in this disease [3].

The purpose of the work is to identify the association of dermatoglyphic indicators with personality characteristics of practically healthy men of Ukraine.

Materials and methods

From the data bank of the materials of the research center of National Pirogov Memorial Medical University, Vinnytsia were taken primary dermatoglyphic indices and personality indicators of 92 practically healthy men (selected after psychophysiological and psycho-hygienic questionnaire and detailed clinical examination) of the first mature age in the third generation residents of Vinnytsiya, Khmelnytsky region, parts of Ternopil and Zhytomyr regions (Podillia region).

Figure 1. Select the number of factors with the help of "scree plot".
Predictive assessment of the association of dermatoglyphic indicators with indicators of personality traits, established...

Table 1. The results of primary data processing using factor analysis.

| Eigenval | % total Variance | Cumul. Eigenval | Cumul. % |
|----------|------------------|-----------------|---------|
| 1        | 13.31            | 11.78           | 13.31   |
| 2        | 10.57            | 9.35            | 23.88   |
| 3        | 6.24             | 5.53            | 30.12   |

Notes: Eigenval - eigenvalues; % total Variance - % of total variance; Cumul. Eigenval - sum of eigenvalues; Cumul. % - accumulated percentage of variance.

As a result of the use of factor analysis for 3 factors, we have established the following main characteristics (Table 1).

Since the eigenvalues of all factors are greater than 1, they have the right to exist by the first criterion for the selection of factors. The total amount of variance is 30.1%, but the third "part" of the variance is different from the previous one, so it can be abandoned (see Table 1).

Then we calculated the load (correlation coefficients between the original variables and the values of the factors), which allowed us to allocate the most significant load for each factor (Table 2).

Table 2 shows that the first factor includes the quantitative indexes of finger dermatoglyphics, and the second - the magnitude of the angles on the palms.

To maximize the scatter of load squares, we used the Varimax method for each factor (Table 3). When comparing the results with the data in Table 2, we can see that the magnitude of the loadings in the first factor remained practically unchanged. In the second factor, only the magnitude of the atd angle on the right and left palms remained among the most significant loads (see Tables 2, 3).

Taking into account the results obtained, the first factor can be defined as the "ridge count of the fingers" and the second factor - the "angle atd".

The obtained results allow in practically healthy men of Ukraine to define and formalize the interdependence of indicators of personality characteristics with dermatoglyphic indicators in the form of the following relationships: $y_{AZ_{E}} = 0.363f_{1} + 0.111f_{2} + 0.185f_{1} + 0.116f_{1} + 0.016f_{2} + 0.057f_{1} + 0.353f_{2}$; $y_{SH_{EM}} = -0.284f_{1} - 0.077f_{2} + 0.169f_{1} + 0.06f_{2} + 0.173f_{1} + 0.073f_{2}$; $y_{LUS_{5}} = -0.056f_{1} - 0.058f_{2}$; $y_{FRC_{R1}} = -0.621f_{1} - 0.613f_{2}$.

| Table 2. The value of factor loadings indicators of personality characteristics and dermatoglyphics. |
|--------------------------------------------------------|--------------------------------------------------------|
| Indicators | Factor Loadings (Varimax raw) | Factor Loadings (Varimax raw) |
| Factor 1 | Factor Loadings (Varimax raw) | Factor Loadings (Varimax raw) |
|--------------------------------------------------------|--------------------------------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| AZ_E | 0.035 | 0.012 | ATD_R | 0.010 | 0.851 |
| AZ_N | -0.103 | 0.451 | AD_R | 0.244 | 0.496 |
| AZ_L | -0.084 | -0.189 | CT_R | 0.226 | -0.617 |
| SP_ST | -0.116 | 0.011 | AB_R | 0.050 | 0.482 |
| SP_LT | -0.071 | 0.350 | BC_R | 0.095 | 0.334 |
| SH_G | 0.092 | -0.086 | CTD_R | 0.032 | 0.568 |
| SH_Z | -0.117 | 0.403 | ATB_R | -0.025 | 0.687 |
| SH_EM | -0.006 | 0.091 | BTC_R | -0.007 | 0.482 |
| SH_P | -0.107 | 0.090 | CD_R | 0.195 | 0.229 |
| SH_T | 0.058 | 0.118 | DAT_R | -0.018 | -0.607 |
| SH_C | -0.119 | 0.381 | ATD_L | 0.160 | 0.834 |
| SH_DM | 0.045 | -0.023 | AD_L | 0.209 | 0.515 |
| SH_V | -0.139 | 0.284 | CT_L | -0.008 | -0.678 |
| SH_DC | -0.081 | 0.141 | AB_L | 0.074 | 0.461 |
| SH_EK | 0.040 | 0.372 | BC_L | -0.030 | 0.460 |
| USK_1 | 0.060 | -0.362 | CTD_L | 0.177 | 0.507 |
| USK_2 | 0.070 | -0.308 | ATB_L | 0.171 | 0.703 |
| USK_3 | 0.149 | -0.297 | BTC_L | -0.122 | 0.523 |
| USK_4 | 0.054 | -0.289 | CD_L | 0.195 | 0.236 |
| USK_5 | 0.104 | -0.116 | DAT_L | -0.169 | -0.613 |
| USK_6 | 0.096 | -0.268 | IK_R | 0.214 | -0.156 |
| USK_7 | -0.061 | -0.125 | IK_L | 0.101 | -0.170 |
| LUS_1 | 0.101 | 0.080 | HIP_R | -0.153 | 0.079 |
| LUS_2 | 0.133 | -0.002 | TEN_R | 0.015 | -0.291 |
| LUS_3 | 0.034 | 0.059 | I_R | -0.057 | -0.182 |
| LUS_4 | -0.056 | -0.060 | II_R | -0.072 | 0.192 |
| LUS_5 | -0.058 | -0.040 | II_L | -0.216 | 0.186 |
| LUS_6 | 0.133 | 0.022 | IV_R | 0.196 | -0.061 |
| LUS_7 | -0.042 | -0.014 | T1_R | 0.030 | 0.684 |
| LUS_8 | -0.284 | -0.061 | T2_R | 0.020 | -0.635 |
| TF_R1 | 0.199 | 0.079 | T3_R | 0.023 | -0.128 |
| FRC_R1 | 0.697 | -0.001 | TT_R | -0.076 | 0.290 |
| TF_R2 | 0.100 | -0.136 | HIP_L | 0.003 | 0.173 |
| FRC_R2 | 0.815 | -0.077 | TEN_L | -0.012 | -0.199 |
| TF_R3 | -0.024 | 0.009 | I_L | -0.126 | -0.083 |
| FRC_R3 | 0.828 | -0.073 | II_L | -0.121 | 0.289 |
| TF_R4 | 0.004 | -0.388 | III_L | -0.091 | 0.118 |
| FRC_R4 | 0.774 | 0.061 | IV_L | -0.009 | -0.173 |
| TF_R5 | 0.230 | -0.018 | T1_L | 0.094 | 0.643 |
| FRC_R5 | 0.800 | 0.041 | T2_L | -0.043 | -0.621 |
Continuation table 2.

|    | 1      | 2      | 3      | 4      | 5      | 6      |
|----|--------|--------|--------|--------|--------|--------|
| 0.840 | T3_L   | 0.070  | -0.138 |
| 0.955 | TT_L   | -0.052 | 0.327  |
| 0.492 | RL_TF1 | 0.270  | -0.146 |
| 0.712 | RL_TF2 | 0.082  | -0.106 |
| 0.022 | RL_TF3 | 0.170  | -0.021 |
| 0.846 | RL_TF4 | 0.275  | 0.119  |
| 0.051 | RL_TF5 | 0.120  | 0.035  |
| 0.852 | RL_HP  | 0.055  | 0.434  |
| 0.388 | RL_TEN | 0.035  | 0.077  |
| 0.813 | RL_I   | 0.071  | 0.010  |
| 0.283 | RL_II  | 0.161  | -0.047 |
| 0.739 | RL_II  | 0.267  | 0.192  |
| 0.828 | RL_IV  | 0.199  | 0.064  |
| 0.879 | RL_T1  | -0.172 | 0.185  |
| 0.954 | RL_T2  | -0.259 | 0.077  |
| 0.981 | RL_T3  | -0.208 | -0.042 |
| 0.031 | RL_TT  | 0.057  | -0.019 |
| 13.17 | Expl.Var | 10.71  |        |
| 0.117 | Prp.Totl | 0.095  |        |

Notes: here and in the future, Factor Loadings - factor loadings; Extraction: Principal components - extraction: principal components; Marked loadings are > .700 - marked loadings are > .700; Factor 1 - factor 1; Factor 2 - factor 2; Expl.Var - the total variance of the factor; Prp.Totl - share of total variance; the most significant loads are highlighted in red; AZ_ - indicators by Eysenck scale (E - extraversion-introversion, N - neuroticism, L - insincerity); SP_ - Spielberger anxiety indicators (ST - situational (reactive) anxiety, LT - personal anxiety); SH_G - indicators of accentuation character by Shmishek (G - hyperthymic type; Z - jamming type; EM - emotional type; P - pedantic type; T - throttling type; C - cyclothymic type; DM - demonstrative type; V - excitable type; DC - dysthymic type; EK - excitable type); USK_- indicators of the scale of subjective control by Rotter (1 - general internality, 2 - in the field of achievement, 3 - in the field of failure, 4 - in the field of family relations, 5 - in the field of educational (professional) relations, 6 - in the field of interpersonal relations, 7 - in the field of health and illness); LUS_ - indicators of colors by Luscher (1 - blue, 2 - blue-green, 3 - orange-red, 4 - light yellow, 5 - purple, 6 - brown, 7 - black, 8 - gray); RL_ - corresponding fingers of the left hand; L1_ - L5_ - corresponding fingers of the left hand; TF_ - the pattern type of the corresponding finger; FRC_ - a local ridge count on each finger; DTR_ - delta index; SRC_ - summary five-finger ridge count; TRC_ - total ridge score; AD_ - the distance between the tri-radii a-d; CT_ - the distance between the tri-radii c-t; AB_ - palm ridge count on line connecting tri-radii a-b; BC_ - palm ridge count on line connecting tri-radii b-c; CTD_ - the size of the angle ctd; AB_ - the size of the angle atb; BTC_ - the size of the angle bct; CD_ - palm ridge count on line connecting tri-radii c-d; DAT_ - the size of the angle dat; IK_ - index value of major palm lines (Cummins index); HIP_ - the presence of a pattern on the hypotenar; TEN_ - the presence of a pattern on the tenor; I_ - IV_ - the presence of a pattern on the corresponding inter- finger pads; T1_ - the presence of a carpal palm tri-radii; T2_ - the presence of an intermediate palm tri-radii; T3_ - the presence of a central palm tri-radii; TT_ - the presence of several palm tri-radii; RL_ - asymmetry of relevant indicators.

Table 3. The value of factor loadings of indicators of personality characteristics and dermatoglyphics after factor rotation by the Varimax method.

| Indicators | Factor Loadings (Varimax normalized) | Indicators | Factor Loadings (Varimax normalized) |
|------------|--------------------------------------|------------|--------------------------------------|
|            | Extraction: Principal components      |            | Extraction: Principal components      |
|            | Marked loadings are > .700            |            | Marked loadings are > .700            |
|            | Factor 1                             | Factor 2   | Factor 1                             |
|            |                                      |            |                                      |
| 0.036 | ATD_R | 0.045 | 0.050 | 0.454 | 0.485 |
| -0.084 | AD_R | 0.264 | 0.485 | 0.092 | 0.626 |
| -0.092 | CT_R | 0.201 | 0.626 | 0.070 | 0.480 |
| -0.057 | BC_R | 0.109 | 0.330 | 0.089 | 0.566 |
| 0.089 | CTD_R | 0.055 | 0.566 | 0.101 | 0.480 |
| 0.070 | ATB_R | 0.003 | 0.687 | 0.002 | 0.481 |
| -0.103 | CD_R | 0.204 | 0.220 | 0.115 | 0.606 |
| -0.043 | DAT_R | 0.043 | 0.486 | 0.037 | 0.461 |
| 0.035 | AD_L | 0.194 | 0.827 | 0.364 | 0.500 |
| 0.057 | ABT_L | 0.200 | 0.696 | 0.137 | 0.527 |
| 0.044 | BTC_L | 0.230 | 0.506 | 0.042 | 0.228 |
| 0.099 | CD_L | 0.204 | 0.228 | 0.012 | 0.195 |
| 0.085 | BC_L | 0.207 | 0.165 | 0.066 | 0.174 |
| 0.076 | HIP_R | -0.150 | 0.085 | 0.133 | 0.292 |
| 0.137 | TEN_R | 0.003 | 0.292 | 0.036 | 0.179 |
| -0.059 | III_R | 0.064 | 0.095 | -0.025 | -0.017 |
| -0.060 | III_R | 0.208 | -0.195 | 0.135 | 0.177 |
| 0.012 | I_R | 0.193 | -0.069 | 0.084 | 0.168 |
| -0.012 | T1_R | 0.058 | 0.682 | -0.028 | -0.049 |
| -0.020 | T2_R | 0.006 | -0.635 | 0.202 | 0.129 |
| 0.094 | HIP_L | 0.010 | 0.173 | 0.697 | 0.239 |
| 0.600 | TEN_L | 0.020 | -0.198 | -0.020 | -0.129 |
| 0.024 | I_L | -0.129 | -0.077 | 0.107 | 0.293 |
| -0.012 | II_L | -0.109 | 0.121 | 0.025 | 0.239 |
| -0.038 | III_L | -0.087 | 0.121 | 0.775 | 0.173 |
| 0.029 | V_L | -0.016 | -0.173 | 0.229 | 0.639 |
| 0.008 | T2_L | -0.069 | -0.618 | 0.081 | 0.141 |
| 0.064 | T3_L | 0.064 | 0.141 | 0.838 | -0.074 |

Vol. 25, №1, Page 12-18
Predictive assessment of the association of dermatoglyphic indicators with indicators of personality traits, established...

Continuation table 3.

|    | 1    | 2     | 3     | 4     | 5     | 6     |
|----|------|-------|-------|-------|-------|-------|
| SRC_R | 0.954 | -0.058 | TT_L  | -0.039 | 0.329 |       |
| TF_L1 | 0.489 | -0.083 | RL_TF1 | 0.264 | -0.157 |       |
| FRC_L1 | 0.710 | -0.069 | RL_TF2 | 0.077 | -0.109 |       |
| TF_L2 | 0.023 | 0.028  | RL_TF3 | 0.169 | -0.028 |       |
| FRC_L2 | 0.849 | 0.059  | RL_TF4 | 0.280 | 0.107  |       |
| TF_L3 | 0.060 | 0.212  | RL_TF5 | 0.121 | 0.030  |       |
| FRC_L3 | 0.853 | -0.003 | RL_HIP | 0.056 | 0.040  |       |
| TF_L4 | 0.390 | 0.043  | RL_TEN | 0.038 | 0.075  |       |
| FRC_L4 | 0.817 | 0.079  | RL_I   | 0.071 | 0.007  |       |
| TF_L5 | 0.285 | 0.040  | RL_II  | 0.159 | -0.054 |       |
| FRC_L5 | 0.744 | 0.124  | RL_III | 0.275 | 0.181  |       |
| DTR_L | 0.829 | -0.005 | RL_IV  | 0.201 | 0.056  |       |
| DTR_10 | 0.878 | -0.035 | RL_T1  | -0.165 | 0.192  |       |
| SRC_L | 0.957 | 0.040  | RL_T2  | -0.255 | 0.087  |       |
| TRC_10 | 0.961 | -0.009 | RL_T3  | -0.210 | -0.033 |       |
| RL_TT |       |       |       | 0.057  | -0.021 |       |
| Expl.Var | 13.22 | 10.66  |       |       |       |       |
| Prp.Tot | 0.117  | 0.094  |       |       |       |       |

comb finger count (except for the I right finger) as well as the summary, total ridge count and delta index; factor f2 - should be defined as "the magnitude of the angle atd" (proportion of variance - 10.66 %) and includes in its structure only the magnitude of the angle atd of the right and left palms.

Discussion

Uzbek researchers have identified the relationship between the features of dermatoglyphics and personality traits. The results of the data processing showed a relationship between boys' bravery indices and the end of the main palmar line D on the left arm [4].

P. M. Polushkin et al. [21] created a system that allows an accurate portrait of a person to be portrayed with an accuracy of 85 % based on the fingerprints. In the work, boys and girls were divided into groups by temperament, accuracy of 85 % based on the fingerprints. In the work, factors such as "ridge count" (13.22% dispersion angle) and "atd angle" (10.66% dispersion ratio) are most often associated with personality traits.

In recent years, factor analysis has become very popular in biomedical research, which allows us to quantify, for most of the traits under study, a relatively narrow set of properties that characterize associations between these traits and certain generalized factors [5].

When using factor analysis, it was found that, in practically healthy men of Ukraine, factors such as "ridge finger count" (13.22% dispersion angle) and "atd angle" (10.66% dispersion ratio) are most often associated with personality traits.

Analyzing the relationships obtained by the interdependence of personality traits (which have the highest predictive value in terms of human personality formation - AZ_N, SP_ST, SP_LT, SH_EM, SH_T, SH_DM, SH_V, USK_1, USK_5, USK_7, LUS_1, LUS_2, LUS_7 and LUS_8) with dermatoglyphic indicators by factor analysis, it should be noted:

with increasing the indexes of the ridge count of the fingers (except for the I finger of the right hand), as well as the summary, total ridge counts (characterize the capacity of the patterns - normal, the more complex the pattern, the higher the ridge count[14]) and delta index (characterize the intensity of the ridge formation [14]) the degree of probability of growth of indicators Z_N, SP_ST, SP_LT, SH_EM, SH_V, USK_7, LUS_7 and LUS_8 decreases and SH_T, SH_DM, USK_1, USK_5, LUS_1, and LUS_2 - increases;

with increasing the magnitude of the angle atd (depends on the localization of the tri-radii a and d at the base of the fingers II and V and axial tri-radii t; consider that the decrease in the palmar angle reflects a decrease in viability and is associated with a number of diseases that exclude longevity [7]) on both palms the degree of probability of growth of indicators AZ_N, SP_ST, SP_LT, SH_EM, SH_T, SH_V, and LUS_1 increases, while SH_DM, USK_1, USK_5, USK_7, LUS_2, LUS_7, and LUS_8 - decreases.

Thus, the use of factor analysis made it possible to determine the most significant relationship between personality traits and dermatoglyphic indices.

Conclusions

1. When conducting factor analysis identified the main factors that have a significant impact on the characteristics of personality traits of practically healthy men - "ridge count of fingers" (proportion of variance - 13.22 %) and "the magnitude of the angle atd" (proportion of variance - 10.66 %).

2. Analysis of the obtained relationships of interdependence of indices of personality characteristics that have the most predictive value in terms of personality formation of a person with dermatoglyphic indices showed that with increasing indexes of ridge counts of fingers and delta index the degree of probability of increase in indices of neuroticism by the Eysenck, situational (reactive) and personal anxiety by Spielberger, accentuation of the character of the emotional and arousing types according to Shmishek, subjective control in the field of health and diseases by Rotter's, black and gray color according to Luscher decreases, and indicators of accentuation of the character of alarming and demonstrative types according to Shmishek, general internality of the level of subjective control and in the field of educational (professional) relations according to Rotter, blue and blue-green colors by Luscher - increases; as the magnitude of the angle atd increases on both palms, the degree of probability of growth of indicators of neuroticism according to Eysenck, situational (reactive) and personal anxiety according to Spielberger, accentuation of the character of the emotional, anxious and arousing types by Shmishek, blue color by Luscher increase, and indicators of accentuation of the
character of the demonstrative type by Shmishe, the general internality of the level of subjective control, in the field of educational (professional) relations and in the field of health and illness according to Rotter, blue-green, black and gray color according to Luscher - reduced.

References

[1] Adekoya, K. O., Ahmed, R. A., Oboh, B. O., & Alimba, C. G. (2013). Relationships between Dermatoglyphics and Multiple Intelligence among Selected Secondary School Students in Lagos State, Nigeria. Nigeria, Lagos: Nigerian Society for Experimental Biology, research, 3(17), 53-60.

[2] Afonchev, T. E., Tishkovets, Iu. O., & Filippova, M. V. (2016). Investigation of dermatoglyphic phenotypes in students. Young scientist, 6, 280-284.

[3] Ahmed-Popova, F. M., Mantarkov, M. J., Sivkov, S. T., & Akabaliev, V. H. (2014). Dermatoglyphics - a possible biomarker in the neurodevelopmental model for the origin of mental disorders. Folia medica, 56(1), 5-10. doi: 10.2478/folmed-2014-0001

[4] Akbarova, S. N. (2018). Dermatoglyphics can be as method of behavior genetics. Education Sciences & Psychology, 50(4), 26-37.

[5] Antomonov, M. Iu. (2018). Mathematical processing and analysis of biomedical data. K.: MIC "Medinform".

[6] Badikov, K. N. (2013). Psychodermatoglyphic profile. Legal research, 5, 247-267. doi: 10.7256/2305-9899.2013.5.505

[7] Berdyshev, G. D., & Zagaria, A. M. (1990). Dermatoglyphics and longevity. Nature, 12, 66-70.

[8] Cummins, H. & Midlo, Ch. (1961). Dermatoglyphics and neurodevelopment. Baltimore: Williams & Wilkins.

[9] Dubrovina I. V. (1995). Guide practical psychologist: the mental health of children and adolescents in the context of psychological services. Moscow: Academy.

[10] Eliseev, O. P. (2010). Workshop on psychology. St. Petersburg: Peter.

[11] Gladkova, T. D. (1966). Skin patterns of the hand and foot of monkeys and humans. M.: Science.

[12] Golembo-Smith, S., Walder, D. J., Daly, M. P., Mittal, V. A., Kline, E., Reeves, G., & Schiffman, J. (2012). The presentation of dermatoglyphic abnormalities in schizophrenia: a meta-analytic review. Schizophrenia research, 142(1-3), 1-11. https://doi.org/10.1016/j.schres.2012.10.002

[13] Golovei L. A., & Rybalko E. F. (2002). Dermatoglyphics of the Depressed Patients. Acta Anthropologica Sinica, 2, 202-206.

[14] Lu, G. F., Li, S. N., Gao, L. R., Shi, F., Zheng, K. M., & Huang, Z. C. (2012). Research on Characteristics of Dermatoglyphics. Bulletin of Dnipropetrovsk University. Series: Biology. Medicine, 3(1), 91-97.

[15] Miroshnikov, S. A., Kravets, O. Iu., Filippova, M. G., & Chernov, R. V. (2006). Appendix to the methodological materials of the expert system of individual support "Longitude": description of the additions to the extended version "Longitu+". St. Petersburg.

[16] Polushkin, P. M., Alsibai, O. V., Nerovna K. V., & Shevchenko, V. A. (2012). Current status and prospects of dermatoglyphics research in the practice of medical and psychological examination of students and young people. Bulletin of Dnipropetrovsk University. Series: Biology. Medicine, 3(1), 91-97.

[17] Raigordskii, D. Ia. (2004). Practical psychodiagnoses. Methods and tests. Samara: Publishing House "Bahrain-M".

[18] Rogov, E. I. (1996). Handbook of practical psychologist in education. M.: "Vlados".

[19] Solomin, I. L. (2000). On the other side of the test Luscher. Psychological newspaper, 2/53, 43-44.

[20] Tykhonol, V. O., & Huminskyl, Iu. Yo. (2010). Features of quantitative dermatoglyphic parameters in patients with paranoid form of schizophrenia in the conditions of long-term hospital treatment. Tauride Medical-Biological Herald, 13(1), 188-192.
характеру емотивного й збудливого типів за Шмішеком, суб'єктивного контролю в галузі здоров'я та хвороби за Роттером, чорного і сірого кольору за Люшером зменшується, а показників акцентуації характеру привожого і демонстративного типів за Шмішеком, загальної інтернальності рівня суб'єктивного контролю і в галузі навчальних (професійних) відносин за Роттером, синього і синьо-зеленого кольору за Люшером збільшується. За збільшення величини кута atd на обох долоннях зростають ймовірності зростання показників нейротизма за Айзенком, ситуаційної і особистісної привізованості за Спілбергером, акцентуації характеру емотивного, привожого і збудливого типів за Шмішеком, синього кольору за Люшером збільшується, а показників акцентуації характеру демонстративного типу за Шмішеком, загальної інтернальності рівня суб'єктивного контролю, в галузі навчальних (професійних) відносин і в галузі здоров'я та хвороби за Роттером, синього і синьо-зеленого, чорного і сірого кольору за Люшером - зменшується. Застосування факторного аналізу дало можливість визначити найбільш значущі взаємозв'язки показників особистості з дерматогліфічними показниками.

Ключові слова: дерматогліфічні показники, показники особистості особистості, практично здорові чоловіки, факторний аналіз.

ПРОГНОСТИЧНА ОЦІНКА АСОЦІЙОВАНОСТІ ДЕРМАТОГЛІФІЧНИХ ПОКАЗАТЕЛІВ С ПОКАЗАТЕЛЯМИ ОСОБЕННОСТЕЙ ЛІЧНОСТІ, УСТАНОВЛЕННА ФАКТОРНИМ АНАлІЗОМ

Серебренникова О.А., Гунас В.И., Климас Л.А., Очеретная Н.П., Шаюк А.В.

Резюме. Согласно данным современной научной литературы специфические дерматоглифические признаки могут быть диагностическими маркерами психического состояния человека. Цель работы - выявить ассоциированность дерматоглифических показателей с показателями особенностей личности практически здоровых мужчин Украины. Из банка данных материалов научно-исследовательского центра Винницкого национального медицинского университета им. Н.И. Пирогова взяты первичные дерматоглифические показатели и данные анкет особенностей личности 92 практически здоровых мужчин в третьем поколении жителей Винницкой, Хмельницкой, части Тернопольской и Житомирской областей. Обработку дерматоглифов проводили по методике Cummins H. и Midlo Ch. (1961) в изложении Гладковой Т.Д. (1966). Для объективной оценки особенностей личности практически здоровых мужчин был определен ряд ведущих показателей, в состав которых отнесли целый ряд свойств темперамента (по Айзенку), тревожности (по Спилбергеру), акцентуированных черт личности (по Шмишеку), мотивационной направленности личности (по Роттеру), а также особенностей психоэмоциональной организации личности, агрессивности, уровня распространения астенических и депрессивных личностных проявлений (по цветовому тесту Люшера), которые определяли на основе использования личностных опросников и тестовых методик. Факторный анализ проведен в лицензионном пакете "Statistica 6.1". Определены главные факторы, которые свидетельствуют об ассоциированности особенностей личности практически здоровых мужчин с некоторыми дерматоглифическими показателями: "гребешковый счет пальцев кистей" (доля дисперсии - 13,22 %) и "величина угла atd" (доля дисперсии - 10,66 %). Анализ полученных взаимоотношений взаимозависимости показателей особенностей личности с дерматоглифическими показателями показал, что при увеличении показателей гребешковых счетов пальцев кистей и дельтового индекса степень вероятности роста показателей нейротизма по Айзенку, ситуативной и личностной тревожности по Спилбергеру, акцентуации характера эмотивного и возбуждающего типов по Шмишеку, субъективного контроля в области здоровья и болезни по Роттеру, черного и серого цвета по Люшеру уменьшается, а показателей акцентуации характера тревожного и демонстративного типов по Шмишеку, общей интернальности урежения уровня субъективного контроля и в области учебных (профессиональных) отношений по Роттеру, синего и сине-зеленого цвета по Люшеру увеличивается. При увеличении величины угла atd на обоих ладонях степень вероятности роста показателей нейротизма по Айзенку, ситуативной и личностной тревожности по Спилбергеру, акцентуации характера эмотивного, тревожного и возбуждающего типов по Шмишеку, синего цвета по Люшеру увеличивается, а показателей акцентуации характера демонстративного типа по Шмишеку, обшей интернальности уровня субъективного контроля, в области учебных (профессиональных) отношений и в области здоровья и болезни за Роттеру, сине-зеленого, черного и серого цвета по Люшеру - уменьшается. Применение факторного анализа позволило определить наиболее значимые взаимосвязи показателей особенностей личности с дерматоглифическими показателями.

Ключевые слова: дерматогліфічні показники, показники особистості особистості, практично здорові чоловіки, факторний аналіз.