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THE EYSENCK PERSONALITY PROFILE IN SELECTED GROUPS OF OPHTHALMOLOGICAL PATIENTS

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ABSTRACT

Personality correlates in patients with eye diseases have bidirectional influence. It is possible that personality variables lead to behaviours that may influence the cause of eye problems, but the opposite is also possible, that eye problems could have a direct effect on personality.

The aim of this study was to evaluate personality traits in patients with glaucoma, diabetic retinopathy and cataract using the Eysenck Personality Questionnaire.

Obtained results showed similar personality profiles in patients with glaucoma, diabetic retinopathy and cataract. However, extraversion and neuroticism were higher in patients with diabetes, while the psychopathic traits are the highest in the group of cataract.

Age and gender of patients do not influence the scores obtained on the questionnaire confirmed with one way ANOVA. Not significant difference in parameters (tested with Student t-test) was obtained between groups.

It is proposed psychological evaluation to be included in the assessment of more serious eye diseases for helping patients to adjust and adapt to the condition and treatment.

Keywords: personality traits, glaucoma, cataract, diabetic retinopathy

INTRODUCTION

There is an extensive and growing literature about the associations between the psychological factors and general health outcomes (Atherton et al., 2014; Chapman et al., 2011; Matthews et al., 2009), but yet few studies have looked at the specific associations between psychological factors and eye conditions. Some of the earliest research treated the eyes as the proverbial windows to the soul, striving to connect eye patterns to personality traits. However, over time, scientists have achieved significant advances in understanding what the eyes can tell us about emotions, cognition, mood, and human health generally.

Personality factors are definitively related to health beliefs and behaviours which have long-term consequences. The fact is that personality correlates of eye problems have bidirectional influence. It is possible that personality variables lead to behaviours that may influence the cause of eye problems, but the opposite is also possible, that eye problems could have a direct effect on personality traits.

Perhaps, the first study in the area of personality and perception, done almost 70 years ago by Hibbeler (1947), was dedicated to helping glaucoma patients to deal with their affliction. In the study the author was found evidence that the male patients with glaucoma tended to be high on depression and hysteria and the women on paranoia traits. In this context, the personality characteristics happened to be important for any, but especially for serious eye diseases.

By definition, personality refers to individual differences in characteristic patterns of thinking, feeling and behaving. The study of personality focuses manly on two areas: the first one is understanding individual differences in particular personality characteristics, and the other is understanding how the various parts of a person come together as a whole.

Most theories of personality have their roots in the Greek philosophy. One of the most important figures people have used as a reference point is Hippocrates. He developed his theory of the four temperaments based on Empedocles' theory of the four elements. Empedocles thought that everything in nature was made up of four basic elements: air, earth, fire, and water. From there, Hippocrates connected those four elements to the fluids in our body. He thought there were four fluids that had specific characteristics, and a person's temperament depended on which ones they had more of.

In modern time, the Eysenck model is one of the most important pieces of research on personality that has ever been done [5]. The Eysenck model proposes a pyramid structure for how we create our personalities related to specific response, habitual responses, trait and dimension. In this model, personality is the outcome of the combination of three dimensions, for every dimension there's also a specific physiological and hormonal structure. These structures also line up differently depending on the dimension they're related to.

Extraversion goes along with the ascending reticular activating system (ARAS), based on the activation or inhibition of internal cortical systems. That's why someone with a high degree of extraversion has a strong, internal cortical inhibition. That is, they have a hard time seeing things as risks, which leads to external, uninhibited behavior.

Neuroticism goes along with activity in the limbic system (connected to the autonomic nervous system, or ANS). Its job is to regulate emotions. It's also made up of brain structures such as the amygdala and hippocampus, among others. A high degree of neuroticism means a lot of limbic activity.

Psychoticism is the least developed dimension, and there's no associated physiological system, yet. But there is some kind of relationship between it and serotonin production.

In the current research it was proven that there is some genetic basis for personality traits, as well as with some risks for development mental disorder.

Based on this knowledge the aim of this study is to explore the personality type in some serious ophthalmological diseases such as glaucoma, diabetic retinopathy and cataract.

SAMPLE AND METHOD

For this study three groups of patients, of both genders, were examined: patients with glaucoma (N= 25) mean age 53, 57 ± 14 years; patients with diabetic retinopathy (N= 15) mean age 46 ± 19, 19 years and patients with cataract (N= 15) mean age 48, 53 ± 15, 52 years. Patients were selected by chance; the important was that patients have a diagnosis based on ICD 10 and not comorbid disorder.

The personality was assessed by the Eysenck Personality Questionnaire (EPQ) [6, 7]. In the Eysenck model there are three main dimensions: extraversion, neuroticism, and psychoticism. These three come together to form a specific personality type. They also give shape to a three-dimensional space where everyone fits in depending on how much of each of these dimensions they have in their personality. Our previous experience with this psychometric instrument is very positive [8].

Obtained results were statistically evaluated using Statistical package 10.

RESULTS

Obtained personality profiles for three groups of patients are presented in Fig. 1.

It is clear that the psychopathic traits are higher in a group of cataract; extraversion and neurotic tendencies are the highest in patients with diabetic retinopathy. Scores for honesty (lye scale) showed that the highest results are obtained by patients with glaucoma.

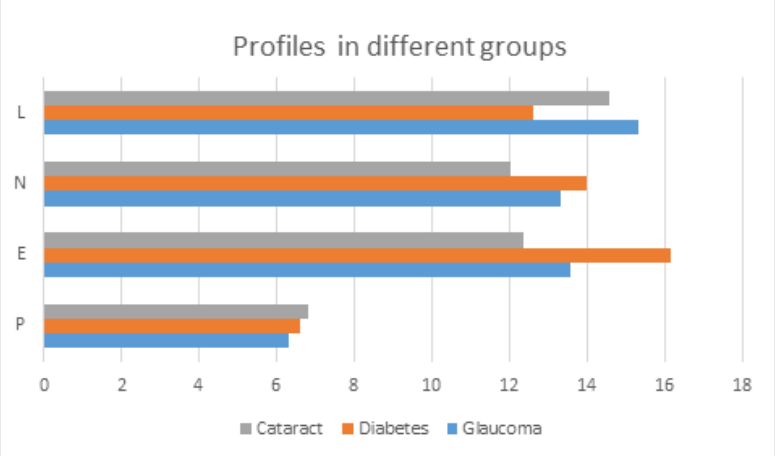

Figure 1. *Profiles obtained in different groups of patients*

Basic parameters for psychoticism, extraversion, neuroticism and lye scores are presented in Fig. 2, 3, 4, and 5.

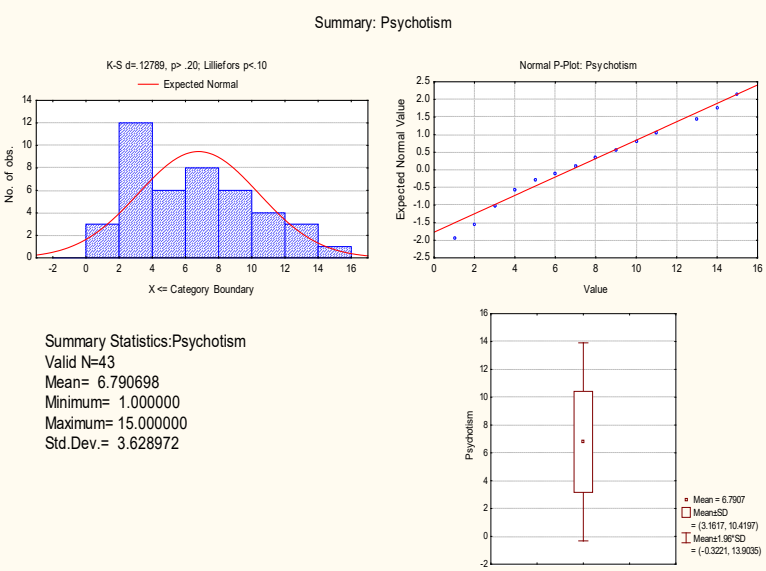

Figure 2. *Summary results for psychotismus scores*

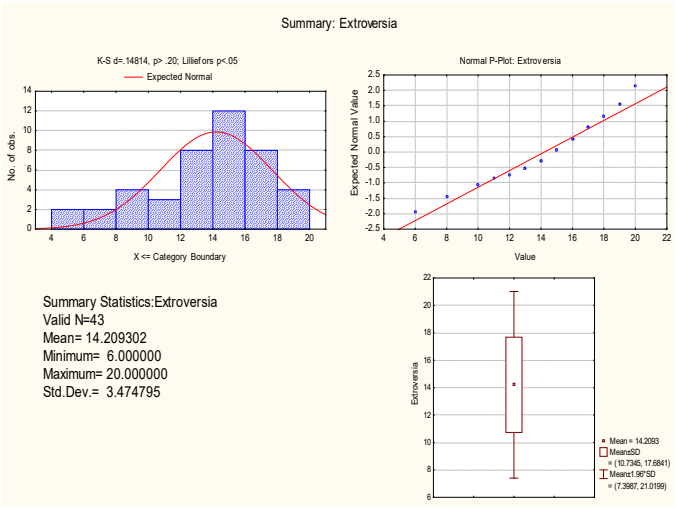

Figure 3. *Summary results for extraversion scores*

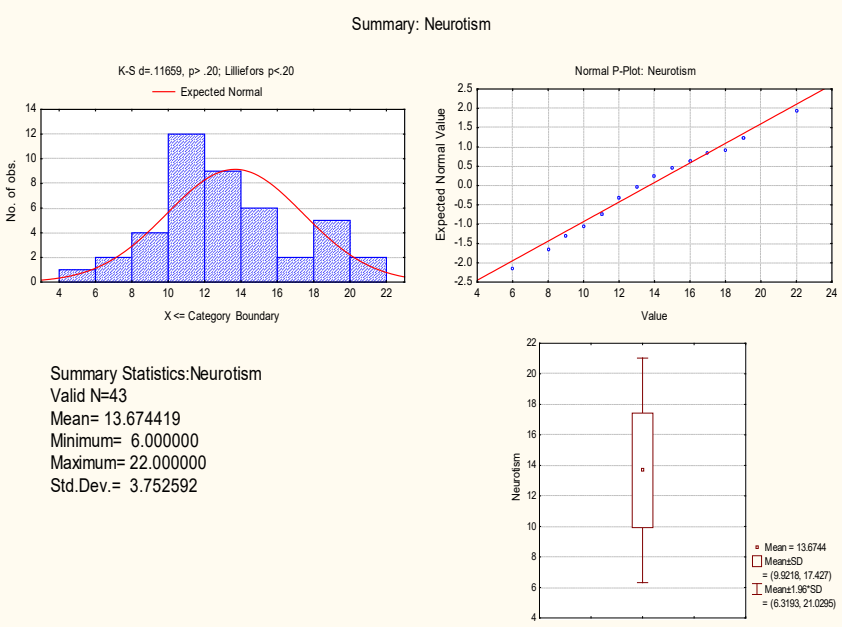

Figure 4. *Summary results for neuroticism scores*

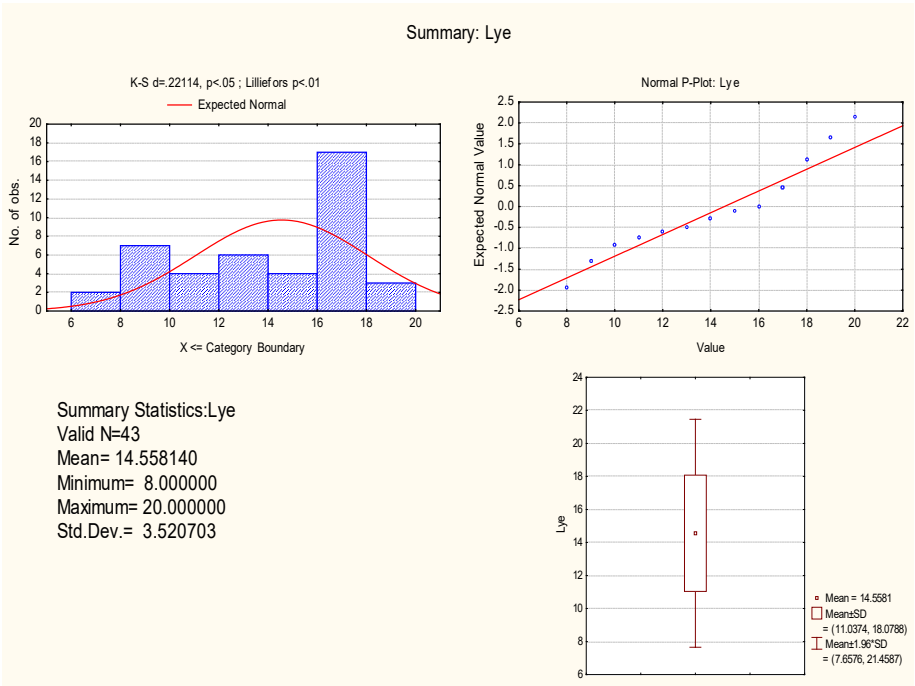

Figure 5. *Summary results for lye scores*

Calculated Student t-test (for differences between mean values and standard deviations) between groups showed statistically non-significant results for all scales (psychoticism, extraversion and neuroticism) (see Table 1).

Table 1. *Student t-test between groups*

Scales	*t-test*	*p*
Psychoticism	6.35	0.099
Extraversion	0.09	0.87
Neuroticism	0.88	0.47

Calculated correlation between age and scores obtained for psychoticism, extraversion and neuroticisms showed different negative correlations (Figure 6, 7 and 8).

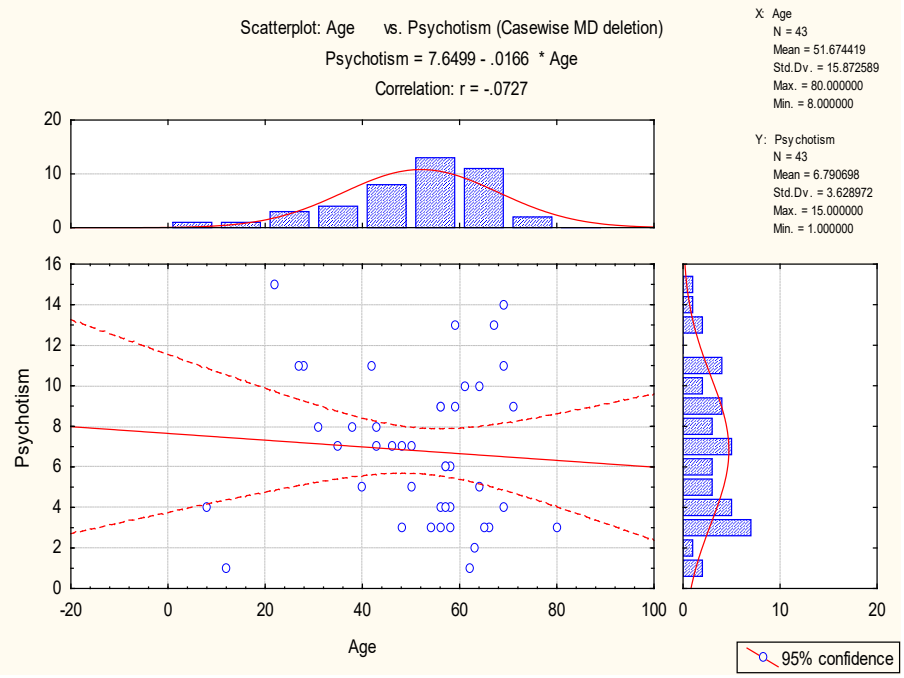

Figure 6. *Correlation between age and psychoticism scores*

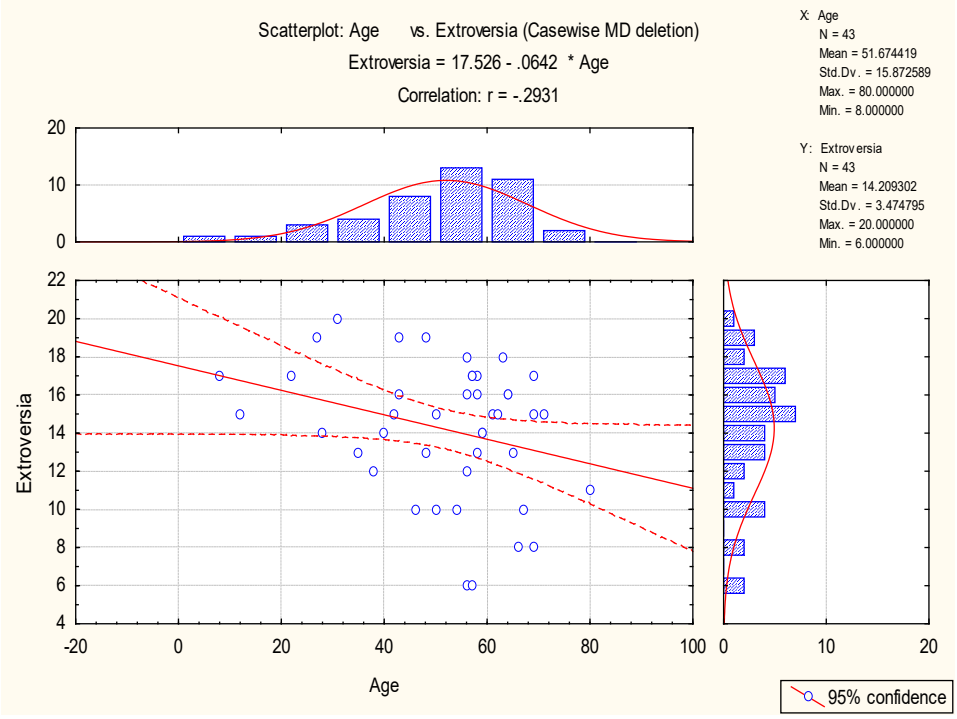

Figure 7. *Correlation between age and extraversion scores*

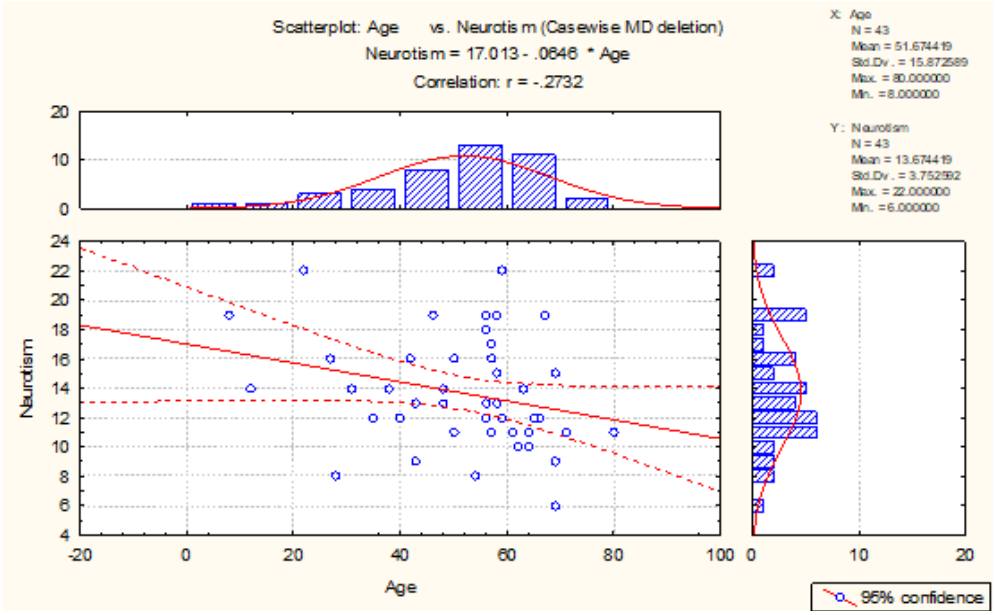

Figure 8. *Correlation between age and neuroticism scores*

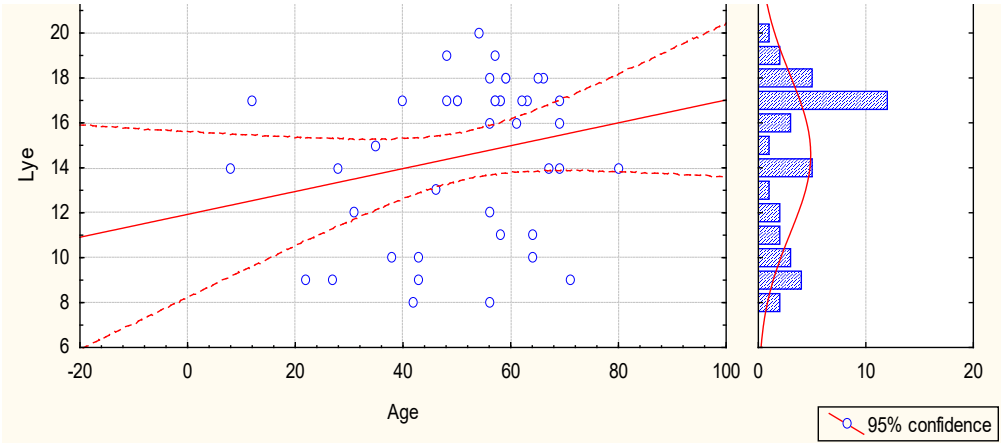

Figure 9. *Correlation between age and lye scores*

For lye scale we obtained positive correlation with age (Fig. 9), which means that aging people are not sincere in their answers.

Calculated one way ANOVA showed non-significant variance of results obtained in all scales (P, E, N and L) for different age and gender.

DISCUSSION

Obtained results in this study showed similar personality profiles in the evaluated groups of ophthalmological patients (glaucoma, diabetic retinopathy and cataract). However, extraversion and neuroticism were higher in patients with diabetes, while psychopathic traits are the highest in a group of cataract. This finding must be taken into account in the treatment and support of this group. Another interesting finding is the increasing insincerity in more aged patients, which also must be taken into account when treating patients.

In many researches it was confirmed that stress is a trigger factor for serious chorioretinitis. Additionally, some personality traits, related to specific behavior could be related to eye disease. In this context, personality could influence the progression of the disease, but especially with the treatment outcome [9, 10].

Costa and McCrae (1992) found that the visual function questionnaire score of patients with glaucoma was related to their Neuroticism, Extraversion and Conscientiousness tested by NEO-PI-R.

In the study of Çakmak H. et all. (2015) it was confirmed that glaucoma patients had a different personality profile, compared to healthy

individuals. This may affect treatment compliance and is also important when coping with maladaptive patient attitudes.

Cooke et al. (2003) compared keratoconic and myopic patients in terms of their personality, finding that myopes scored higher than keratoconics only on the Psychoticism scale, measuring tough-mindedness.

Sight loss from glaucoma can have a significant impact on functioning and performing everyday activities, but this varies between patients. In this context, the early diagnosis, therapy and support must be organized. Certain coping strategies were linked to time since diagnosis and location of vision loss. The type and quality of information received during clinical appointments, and the potential benefits of communication with other patients, emerged as other important themes.

In glaucoma patients, pharmacological adherence was influenced by their attitude towards drugs; in this context, an association might exist between drug attitude and underlying personality traits (Hong S , et al 2010).

An important finding in the recent study of Moon JY. et all (2018) supposed that patients diagnosed with open angle glaucoma have a higher risk of developing Altzhaimer disorder, but not Parkinson disease, and the risk differed according to age and sex.

Na et al. (2015) looked at correlates of women suffering from dry eye disease. Controlling for age, lifestyle and medical factors, they found patients were much more likely to have experienced severe psychological distress, depressive moods, anxiety problems and a history of psychological counselling, despite the fact that the study was unable to examine whether these were causes or consequences of the problems.

There is limited information on prevalence of Diabetic Retinopathy (DR) among diabetic subjects and its associated factors, especially in developing countries. Knowledge about the influence of diabetes mellitus on the eyes accentuates that it is essential to consider the clinical assessment of psychological aspects in patients with diabetes mellitus, in order to prevent potentially adverse self-management care behaviors leading to diabetes-related complications, including declining levels of Quality of Life (QoL) and negative metabolic control. Conti C. et all (2017) concluded in their study that clinical interventions aiming to improve medication adherence in patients with T2DM should include the psychological evaluation of Type D Personality traits, by focusing especially on its component of negative affectivity as a significant risk factor leading to negative health outcomes, especially on the eye state. Shao Y et al (2017) in his study provides new evidence linking Type D personality with self-efficacy, social support, and poor glycemic control, highlighting the special need for care among T2DM patients with Type D personality.

Some studies demonstrated the negative associations between intelligence and a number of health outcomes, for example, between childhood cognitive function and Type 2 Diabetes and its complications (Olsson et al., 2008).

Psycho-immunology is an emerging branch of science which studies the interaction between the brain and the immune system. Kawali A. et all (2018) showed an association between organized personality type and uveitis and calm personality and HLA-B27-related uveitis warrants and proposed further studies to understand the complex mechanism of psycho-immunology in uveitis.

Although psychological influences on the subjective symptoms have been reported, little is known about the influence of personality traits on dry eyes disease. In a study of Ichinohe S .et al (2016) the Big Five personality traits model analysis was used and the correlations between the objective signs, subjective symptoms, and personality traits were analyzed. However, the results of this study suggest that the personality of the patient, which appears to be the basis of various psychological factors, can have some impact on the subjective symptoms.

Fatigue is an often mentioned symptom by patients with irreversible visual impairment. Fatigue had the greatest impact on the ability to carry out social roles and participation, emotional functioning and cognitive functioning. The most common coping strategies were relaxation, external support, socialising and physical exercise and the acceptance of fatigue. Some results indicate that low vision-related fatigue is mainly caused by population specific determinants that seem different from the fatigue experience described in studies with other patient populations. Fatigue may be central to the way patients react, adapt and compensate to the consequences of vision loss (Schakel W. et al 2017).

As it was shown, psychological characteristics of patients with eye diseases are important

and doctors must be aware of this. Sometime, psychological support or treatment is needed for better outcome.

As a new trend in medicine, Artificial Intelligence offend a possibility, based on many collected data, to correlate some psychological traits with common ophthalmological diseases.

Artificial intelligence is a general term that means to accomplish a task mainly by a computer, with the least human beings participation, and it is widely accepted as the invention of robots. With the development of this new technology, artificial intelligence has been one of the most influential information technology revolutions. The application of artificial intelligence in ophthalmology mainly concentrates on the diseases with a high incidence, such as diabetic retinopathy, age-related macular degeneration, glaucoma, retinopathy of prematurity, age-related or congenital cataract and few with retinal vein occlusion [22]. The application of this technology of AI mainly depends on machine learning, which is represented by mathematical algorithms and models formed through lots of input experience. In this way, personality characteristics can help doctors to be more precautious with the diagnostic.

CONCLUSION

Personality correlates in eye diseases have bidirectional influence. It is possible that personality variables lead to behaviours that may influence the cause of eye problems, but the opposite is also possible, that eye problems could have a direct effect on personality.

The personality profile in this study was evaluated by the Eysenck Personality Questionnaire showing the four main traits: psychoticism, extraversion, neuroticism and sincerity.

The obtained results showed similar personality profiles in patients with glaucoma, diabetic retinopathy and cataract. However, extraversion and neuroticism were higher in patients with diabetes. This finding must be taken into account in the treatment and support of this group.

Age and gender of patients do not influence the scores of the questionnaire confirmed with one way ANOVA.

Not significant difference in parameters (tested with Student t-test) was obtained between groups.

However, psychological evaluation should be included in the assessment of more serious eye diseases for helping patients to adjust and adapt to the condition.

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Резиме

АЈЗЕНКОВ ИНВЕНТОР НА ЛИЧНОСТА КАЈ СЕЛЕКТИРАНИ ГРУПИ ОФТАЛМОЛОШКИ ПАЦИЕНТИ

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Корелатите на личност кај очните заболувања имаат бидирекционално влијание. Можно е психолошките корелати преку одредено поведение да причинат очни проблеми, но можно е и обратното, очните заболувања да влијаат на психолошките особености кај личноста.

Целта на оваа студија беше да се испитаат личните карактеристики кај пациентите со дијабетична ретинопатија, глауком и катаракт со помош на Ајзенковиот инвентар на личноста.

Добиените резултати покажаа слични профили кај пациентите со глауком, дијабетична ретинопатија и катаракт. Сепак, екстраверзијата и невротизмот беа највисоки кај пациентите со дијабет, додека психопатолошките црти беа највисоки кај групата со катаракт. Возраста и полот не влијаат на добиените скорови, што е потврдено со тестот АНОВА. Студентовиот тест не покажа значајни разлики меѓу параметрите кај испитуваните групи.

Препорачуваме да се воведе психолошка евалуација, кога се работи за сериозни очни заболувања, со цел на пациентите да им се помогне за подобра адаптација и прифаќање на состојбата во текот на лекувањето.

Клучни зборови: личен профил, глауком, катаракт, дијабетична ретинопатија