

УНИВЕРЗИТЕТ „ГОЦЕ ДЕЛЧЕВ“ – ШТИП
ФАКУЛТЕТ ЗА ОБРАЗОВНИ НАУКИ
UNIVERSITY “GOCE DELCEV” SH TIP
FACULTY OF EDUCATIONAL SCIENCES



**ОБРАЗОВАНИЕТО ВО XXI ВЕК
– СОСТОЈБИ И ПЕРСПЕКТИВИ –**

**МЕЃУНАРОДНА
НАУЧНА КОНФЕРЕНЦИЈА
– ЗБОРНИК НА ТРУДОВИ –**

**EDUCATION IN XXI CENTURY
– CONDITIONS AND PERSPECTIVES –**

**INTERNATIONAL SCIENTIFIC
CONFERENCE
– PROCEEDING BOOK –**

Штип, 24 – 25 Септември, 2015
Shtip, September, 24-25, 2015

fesconference@ugd.edu.mk

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LADIES AND GENTLEMEN, DEAR GUESTS!

With great honor and pleasure I welcome You on behalf of all teachers, associates, employees and students of the Faculty of Educational Sciences at the University "Gotse Delchev" in Shtip and I wish You pleasant moments during this solemn event organized to mark 20 years of university education of teachers.

But in fact, the Faculty of Educational Sciences basis its twenty years of existence on 146 year continuous development of formal education of teachers and preschool teachers in the region. The achievements of the Pedagogical-Seminary school founded in 1869, the existence of which is linked to the name of the creator of the first primer and the first textbook for teachers - School Pedagogy - Josif Kovachev, and to the name of the great teacher Gotse Delchev, followed by the School for Teachers established in 1946, Higher Pedagogical School founded in 1959, and the Pedagogical Academy (1961) are woven into the tradition and development of our Faculty.



In 1995 the two-year formal education of teachers and preschool teachers developed into four-year university studies.

In 2007 the Pedagogical Faculty became part of the State University "Goce Delchev" in Shtip, said to be the fastest growing university in Macedonia.

Following the global trends in teacher education, modern trends in education policymaking in Europe and in the world, respecting the knowledge of the history of civilizations as an important intellectual resource for social development, as well as scientifically and experientially diagnosed educational challenges that have emerged as a result of deep changes of values in our society and globalization trends (scientific, educational, technological, and economic) the Faculty of Educational Sciences has designed study programs for I, II and III cycle of studies in accordance with the organizational - pedagogical quality standards in compliance with the principles of the Bologna Declaration and European credit-transfer system with a high level of recognition in the area of European Higher Education.

If 20 years ago our Faculty started to implement teaching with 5 PhDs and 3 masters as regular employees, today we can proudly say that our academic community is comprised of 20 PhDs and one master.

Today our students have the opportunity to educate themselves at the faculty which sees its future as a continuous development aimed at:

- Strengthening and expanding international partnerships
- Popularization of mobility of students and staff,
- Internationalization and improvement of scientific research work,
- Improvement of pedagogical approaches to teaching and links with practice, putting students at the center of the educational process.

Ladies and Gentlemen,

I take this opportunity to thank you for coming today to celebrate with us the teaching profession and our contribution to it.

We are quite aware that the road to success is long and winding and it is easier to travel with joint forces. That is why we wanted to mark this celebration by organizing a scientific conference dedicated to education in the 21st century. Let us share our knowledge, understanding and experiences regarding the situation and perspectives and suggest possible ways of modernization. 89 papers have been submitted and there are authors from 8 countries. This is really promising!

Once again, I wish you all a warm welcome and successful work.

Dean,
Prof. d-r Sonja Petrovska
24. 09. 2015., Stip

ПОЧИТУВАНИ ...

Со голема чест и задоволство, Ве поздравам во името на сите наставници, соработници, вработени и студенти на Факултетот за образовни науки при Универзитетот Гоце Делчев во Штип и Ви посакувам пријатни моменти во текот на оваа свечена манифестација организирана по повод 20 годишно факултетско образование на наставници и воспитувачи.

Факултетот за образовни науки своето постоење го темели на 146 годишниот континуиран развој на формалното образование на наставници и воспитувачи на овие простори. Во традицијата и развојот на нашиот факултет се вткаени достигнувањата на Педагошко-богословското училиште основано во 1869 год. Со чие постоење се врзува името на творецот на првиот буквар и првиот учебник за наставници – Школска педагогија – Јосиф Ковачев, и името на големиот учител Гоце Делчев, па Учителската школа основана во 1946 год, Вишата педагошка школа формирана во 1959 год, Педагошката академија (1961 год.).

Во 1995 година формалното двегодишно образование на наставници и воспитувачи прераснува во четиригодишно факултетско образование.

Во 2007 година Педагошкиот факултет стана дел на државниот Универзитет „Гоце Делчев“ во Штип, кој го носи епитетот најбрзорастечки Универзитет во Р Македонија.

Следејќи ги глобалните тенденции во образованието на наставници, современите тенденции во креирањето на образовните политики во Европа и во Светот, респектирајќи ги знаењата за историјата на цивилизациите како значаен интелектуален ресурс за општествениот развој, како и научно и искусствено дијагностицираните воспитни предизвици кои се појавија како резултат на длабоките вредносни промени во нашето општество и глобализациските тенденции (научни, образовни, техничко-технолошки, економски) ФОН дизајнираше студиски програми за I, II и III циклус на студии согласно организациско –

педагошки стандарди за квалитет, согласно принципите на Болоњската декларација и Европскиот кредит-трансфер систем, со високо ниво на препознатливост во Европскиот високообразовен простор.

Ако пред 20 години нашиот факултет започна да ја реализира наставата и вежбите со 5 доктори на науки и 3 магистри, како редовно вработени, денес со гордост можеме да кажеме дека оваа академска заедница ја сочинуваат 20 доктори на науки и 1 магистер.

Денес нашите студенти имаат можност да се образуваат на факултет кој својата иднина ја гледа како континуиран развој во насока на:

- зајакнување и проширување на меѓународните партнерства,
- омасовување на мобилноста на студентите и на вработените,
- интернационализација и подобрување на научно-истражувачката работа,
- унапредување на педагошките пристапи во наставата и врските со практиката, поставувајќи ги студентите во центарот на образовниот процес.

Почитувани присутни,

Ја користам оваа прилика, да ви се заблагодарам што дојдовте денес заеднички да го чествуваме учителското дело и нашиот придонес во него.

Ние сме сосема свесни дека патот до успехот е долг и кривулест но и дека полесно се патува со заеднички сили. Затоа ова наше празнување сакавме да го одбележиме со Научна конференција посветена на образованието во 21 век, да ги споделиме нашите знаења, разбирања и искуства во врска со состојбите и перспективите како и да предложиме можни начини за негово осовременување.

Уште еднаш, На сите Ви посакувам топло добредојде и успешна работа!

Декан,

Проф. д-р Соња Петровска

24. 09. 2015. година Штип

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INFLUENCE OF MEDICINES ON THE COGNITIVE SKILLS OF CHILDREN WITH CHRONIC DISEASES

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Abstract

The report aims to indicate the impact of chronic diseases and medical treatment of these diseases on the cognitive skills and the life of children with chronic diseases. Taking drugs for some chronic diseases may significantly affect the learning process of children suffering from that disease. In some cases of children with certain chronic diseases it is possible to observe a deficit in cognitive skills. In most cases, these disorders are caused not only by medical indications but by complex factors.

Key words: *chronic disease, cognitive disorders, drugs.*

Chronic diseases (CD) cover a wide range of people, including children of any age. In medical literature, chronic disease (CD) is considered to be a permanent condition, which can be influenced by drugs, but cannot be cured. The CD accompanies the individual throughout his or her life, with certain periods of activity and remission. Among the most common CD (Chronic diseases) are: diabetes, chronic kidney failure, systemic lupus erythematosus, asthma, AIDS, cancer, epilepsy and others.

Almost three out of ten families have a child who will be diagnosed with a chronic disease (defined as a condition lasting more than three months, according to the National Centre for Health Statistics in the US). This is the beginning of a long and difficult time for any family and a test for any educational system. The presence of a chronic disease (CD) suggests regular visits to the hospital, a need to "stick" to complex medical regimes and changes in diet, as well as a demand for new treatment options. Immediate and ongoing medical research can be aggressive, unpleasant or painful, with treatment regimens, treatments (injections, systems, infusions, etc.), blood tests and others. One in ten children will have a chronic disease (CD), which is severe enough to significantly limit its life and create the need for greater care and supervision (Yeo & Sawyer, 2005). Any disease causes a number of physical, emotional, social, psychological, economic, educational and other consequences. The presence of a chronically ill child in the family leads to a complete change in the everyday life of the family unit.

When families begin to build a new world, which includes the presence of the disease, they do physical and emotional adjustments and constantly review their ideas about the world. Lowes and others (2005) found that for families living with diabetes, the longer the time after the diagnosis has been established, the much better they are able to adapt to "normal" life. However, parents who have participated in the survey stated that they never quite "accepted" completely the diagnosis. Although they adapt to the management of diabetes, they still describe episodes of sadness, seven years after the diagnosis has been established. The reaction is caused by changes in the diet and their life, the injections, the hospitalization, the discussions about how to control the diabetes, anxiety about possible complications, clinic visits and meetings with new medical teams - anything that reminds them that their child is different (Bowes and others, 2008).

The parameters of the disease for people with a disease include the diagnosis, the duration of the illness, the severity, the acuteness and the long-term complications, the impact on the brain function and the cognitive function. Many CD can have lasting cognitive effects on the adolescents. In children with sickle cell anaemia small deficits in the cognitive function have been found (Schatz et al., 2002). Children with diabetes are particularly vulnerable to reduced speed of information processing, impaired memory, (Hershey et al., 2004), difficulties with keeping the attention (Rovet & Alvarez, 1997) and a reduction of the verbal intelligence (Northam et al., 1998). Epilepsy can have a number of effects, depending on the type of anti-epileptic therapy (Lagae, 2006). Children with epilepsy are prone to learning disabilities (Fastenau al., 2008), a deficit in the working memory and the speed of information processing (Whigham & Burns, 2008). Studies have shown that

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children who have survived cancer may have lower IQ with various cognitive effects depending on the age when the diagnosis was established, the type of treatment and the duration of the disease (Christie et al., 1994).

Many diseases which have occurred during childhood and adolescence and which were previously life-threatening are now successfully treated and managed as CD. While survival and overall quality of life improved significantly in these conditions, critical attention should be given to their impact on the cognitive function and the school performance of children (Frank Zelko & Lisa Sorensen, 2006).

In the so described picture, we will accept as appropriate the term "cognitive difficulties" as one of the major effects in CD. Cognitive difficulties can occur as a stable constant, and vice versa - periodically, without having established a direct proportion to the period of the disease, i.e., regardless of whether the person is in an active phase of the disease or in remission. Typically, the term "cognitive difficulties" also includes experiences of the person of various short-term or long-term emotional states. There have also been described typical cognitive difficulties, based on the functions of memory, the ability to absorb new information, a number of properties of the attention span (concentration, distribution, volume). As a particularly characteristic difficulty associated with cognitive function, the inadequacy of the ability to make decisions that affect the daily lives of persons with CD has been indicated. Many cognitive problems were detected in the absorption and achieving of adequate language-speech use. In some children with CD, difficulties in the visual, spatial and the visual-motor skills have been observed. The cognitive executive functions, which include skills such as the abilities for organization, planning, problem solving, multi-tasking and self-regulation, have attracted a particular interest concerning children with certain diseases on the part of Frank Zelko & Lisa Sorensen, 2006. In a study, they reported the following results with the different diagnoses:

Diabetes. Type 1 sugar diabetes in childhood is associated with a deficiency of visual and motor skills, attention, memory and executive functions. These deficiencies tend to be most pronounced in children at an early age of the onset of the disease, recurrent hypoglycaemia and longer duration of the disease. There is evidence to suggest that preschool age is a period of vulnerability for cognitive deficits in type 1 sugar diabetes.

Kidney disease. Children with chronic kidney failure are more likely to experience a delay of their intellectual developments, compared to their unaffected peers, and are at risk of damages to their verbal memory and learning, the visual-motor skills, their visual spatial ability, attention span and the speed of their mental functions. The final stage of the kidney disease can transmit a particular risk for cognitive impairment, which can show improvement after transplantation.

Liver disease. Chronic liver disease in childhood is associated with delays in the intellectual abilities, the development of language, the visual and spatial skills and learning achievement (especially in mathematics). Results varied, in some children the functioning was within the average range or even much better, compared to others who were significantly delayed. The early stage of the disease is most clearly associated with low intellectual performance. Smaller parameters of growth also forecast lower functioning, especially in younger children, because of a disease related with nutrient deficiency.

Immune disease. The preliminary studies of the paediatric systemic lupus erythematosus suggest connection with an intellectual deficits, difficulties in learning, visual memory and executive skills. However, studies have not been fully controlled for demographic factors that could contribute to these findings. Cognitive results have not yet been addressed in other immune diseases such as juvenile rheumatoid arthritis and juvenile dermatomyositis.

Heart Disease. Studies of cognitive performance in children with congenital heart disease (CHD) are associated with a deficiency of intelligence, attention, visual and motor skills, academic achievement and executive functions. The average IQ scores of paediatric samples of children with CHD often fall within the normal range, although they are generally below the average for the general population. Large lesions have been reported in children with cyanosis, unlike noncyanotic heart lesions.

In their studies, Frank Zelko & Lisa Sorensen did not state the reasons for such violations; they simply ascertain their availability in different diseases. Their studies do not prove the existence of these violations in 100% of the cases.

Other typical deviations in cognitive functions include the disease itself or the trauma, stress or anxiety because of having to live with the disease or as a result of the drugs used to treat the symptoms.

Special research attention has been placed on patient population in which the drugs themselves, used in the clinical picture of CD, cause adverse side effects that affect the learning, including: sedation, anxiety, irritability, lethargy, fatigue, difficulty in focusing, pain, nausea, emotional problems, tremors and poorly coordinated muscle movements. In addition to the educational difficulties for students with CD, the way of life of students with CD is characterized with anti-intellectual, social and emotional problems that affect their education and can lead to difficulty in engaging in social life or to maintain relations (Brandy Hainault, 2013).

As for the side effects and the undesired effects of the treatment of some CD, the scientific literature indicates the following:

Epilepsy. There is a great diversity of the forms of epilepsy, as well as the means used for their treatment. Epilepsy is a chronic disease with an unknown etymology (75%) or with known reasons (severe head trauma, hypoxia, meningococcal-encephalitis, brain tumours and the like - 25%). Accidental convulsions can occur under the influence of hyperthermia, convulsion-causing poisons, drugs and so on.

Antiepileptic drugs (APD) are used for the prevention and treatment of the symptoms of epilepsy, but in a wider context, they belong to the anticonvulsant (anticonvulsive) means which are able to copy the convulsions of the most diverse origin.

In some cases, medications are used which are administered orally. When using them, there are no significant drug interactions, but side effects such as nausea, anorexia, somnolence, dizziness, headache, allergic skin manifestations, can occur. Insomnia, somnolence, dizziness and headache are conditions that can significantly affect the cognitive abilities of a child with epilepsy.

When using another type of drug for the treatment of epilepsy, the following side-effects can be experienced: nausea, vomiting, cramps, tremors, liver damage and haematopoiesis.

Bronchial asthma. It manifests itself with attacks of dyspnoea, caused by a spasm of the smooth muscle of the bronchioles and increased mucus secretion, which can be the cause of obstruction of the airways. As a result, bronchial hyper reactivity, accompanied by coughing, is exhibited.

In the treatment of asthma with one of the medications, the following side effects are experienced: frequent nausea, headache, insomnia and dyspeptic events that accompany the anti-asthmatic effect shown by the therapeutic concentrations.

Those occur rarely and consist of urticaria, angioedema, rash, oropharyngeal oedema, headache, nausea and dry mouth. Like other medications, they could worsen the narrow-angle glaucoma and prostate hypertrophy, as well as a dry mouth or coughing and very rarely - paradoxical bronchospasm.

All these side effects of treatment affect the overall learning process.

Diabetes. Insulin is a means of treating certain types of diabetes and is administered parenterally (subcutaneously and in case of emergency - intravenously). Side effects of the treatment with insulin are expressed in the development of hypoglycaemic events, which sometimes can lead up to coma. The initial manifestations are physical weakness, dizziness, lowering of the blood pressure, sweating. Concomitant hypokalaemia can lead to heart failure. Insulin treatment may be followed by the development of allergic reactions. These are most often expressed with skin manifestations.

Cognitive outcomes could be mediated with the duration of illness, and the fact that the longer a child has had an activity with the disease, the higher the risk of adverse events or the possibility for the cumulative impact of the disease to lead to irreversible brain dysfunction. The severity of the disease may also affect the cognitive performance. Although this is not a universal finding, increased severity of the disease tends to be associated with a greater cognitive deficit (e.g., the final stage of the organ disease and signs of encephalopathy) Frank Zelko & Lisa Sorensen, 2006.

The experts have formulated the concept of "raising a child in deficit". An illustration of this concept is a child who, despite its main vulnerability under the indicators for speed and efficiency of cognitive functions, is able to progress adequately in elementary school, where it is able to function adequately in the first years of school, when learning is externally structured and largely on the basis of repeated training. Such children sometimes do not show obvious difficulties until reaching high school and are faced with increased expectations for speed, efficiency and productivity, although the status of their disease has not changed.

In such cases, cognitive difficulties reflect the fact that the child has reached the age at which the new educational requirements begin to reach areas of knowledge which have always been a deficit, Frank Zelko & Lisa Sorensen also state out.

THE PROBLEM OF THE NEED FOR ADEQUATE EDUCATIONAL STRATEGIES FOR CHILDREN WITH LEARNING DIFFICULTIES ACCOMPANYING CD:

- a. Many of the systematic CD put children at risk of cognitive deficits, which may adversely affect the functioning of the educational and extracurricular performance. The nature of the cognitive risk varies depending on the type of the disease, the chronicity, the severity, the duration, and the age at which the child was at its onset.
- b. Proven good indicators of cognitive difficulties are the performances of tasks requiring attention, memory, mental speed and efficiency. The paediatric clinical history is an appropriate starting point for the identification of cognitive difficulties, which usually initially are spotted in the school environment (studies of the Children's Hospital of Chicago, 2006).
- c. Data from studies of the Children's Hospital of Chicago from 2006 show that often the first signs of paediatric diseases associated with cognitive dysfunction are marked by parents and educators. However, the possibility of a connection between CD in the child and the cognitive dysfunction may be overlooked by educators who are familiar with the medical condition and the treatment of the child. Parents should be consulted by the teachers to discuss their concerns about the functioning of their child and its medical history. It is important for parents and educators to track these changes in the child, so as to ensure the effectiveness of the training and treatment.
- d. The impact of the diagnosis of CD on families, children and young people, and the changes they make in order to overcome the future challenges are dependent on many interrelated factors. For this reason, in the training of this specific group of children there should be a complex approach and the specificities and characteristics of children with CD should be taken into account, arising both from the very diagnosis, the treatment and also from several other factors.
- e. The pedagogical perspective which is worth considering is associated with the discovery of the potential resources of both the child and its family environment. These resources should be identified as strengths and abilities. Thus, the projection shifts from an ineffective strategy of combating cognitive dysfunction to a support on the compensatory functions.

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