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Evidence-Based Practice in Fluency and Voice Disorders. The Bulgarian Experience

**Praktyka oparta na dowodach (EBP) w przypadkach zaburzeń
płynności mowy i zaburzeń głosu. Doświadczenia bułgarskie**

The main purpose of the present article is to examine in the theoretical plan the effectiveness of speech therapy interventions for clients with fluency and voice disorders regarding to the ICF classification. The author is describing the Bulgarian and world experience in the exanimate field.

RESEARCH ON EVIDENCE-BASED PRACTICE (EBP) IN FLUENCY AND VOICE DISORDERS IN BULGARIA – CURRENT SITUATION. ACTUALITY OF THE CONCEPT

The European Classificatory Eurostat, 1999 was officially accepted in Bulgaria from January 2008. In its methodological manual ISCED – 97: Field of Education and Training, area 72: Health and social sciences, professional direction 726 “Physiotherapy and rehabilitation” the Logopedics is treated as a health profession of paramedical character. In the last 60 years in Bulgaria the specialty was recognized as a pedagogical one. As a new EU member, Bulgaria will undoubtedly adhere to the new rules.

In August 2009 finished a procedure for accreditation of specialty “Logopedics” in professional direction “Public health” which in a final stage at the Permanent commission at the National agency for evaluation and accreditation.

In this context some researchers equate “*evidence-based*” with *research-based*, using the phrase to mean assessment and treatment choices in

health-related disciplines should be based on the evidence available in published research” (Bothe, 2004). Sackett et al. (1996) explain EBP as a concept coming from medicine:

Evidence-based medicine is the conscientious, explicit, and judicious use of the current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research...

The new paradigm Evidence-Based Practice (EBP) is unknown for the Bulgarian logopedists (Георгиева, 2002; Георгиева, 2005; Онслоу, 2004). EBP is very popular as a concept in European Union countries, England, USA, Australia, Canada, and is regarded as fundamental to logopedics practice (Sacket, Rosenberg, Muir-Gray, Haynes, & Richardson, 1996; Ingham, 2003; Ingham, & Cordes, 1997; Kent, 2006; Ramig, Verdolini, 1998). It is controversial and difficult problem regarding its appraising (Langevin & Kully, 2003; Kully & Langevin, 2005).

A new paradigm has emerged in health care emphasizing the importance of scientific evidence in guiding clinical decision making.

Despite of lack of EBP guidelines in Bulgaria without this kind of application we could not provide:

- a) potential benefits for the client,
- b) better clinical education and training for students in Logopedics and speech language pathologists in a practice,
- c) more cost-effective practice,
- d) knowledge about difficult or unusual cases in voice and fluency disorders,
- e) better treatment for each stuttering/dyspnonic individual.

In making clinical practice evidence-based, logopedists in Bulgaria are not qualified to:

- a) recognize the needs, abilities, values, preferences, and interests of individuals and their families to whom they provide clinical services,
- b) acquire and maintain the knowledge and skills that are necessary to provide high quality professional services, including knowledge and skills related to EBP,
- c) evaluate prevention, screening, diagnostic procedures, protocols, and measures to identify maximally informative and cost-effective diagnostic and screening tools,
- d) evaluate the efficacy, effectiveness, and efficiency of clinical protocols for prevention, treatment, and enhancement using criteria recognized in the EBP literature in the leading countries in that area.

The disputable problem of EBP is actual for the Bulgarian Speech Language pathology although it has not developed. Many publications and standards for clinical practice regarding EBP are now available in the countries from EU. At the moment in Bulgaria there are no any guidelines regulated the process of the effectiveness evaluation of the treatment process with different types of communicative disorders (Георгиева, 2005).

Although EBP has had a slow start in Logopedics, it is receiving increasing support from Speech Language Pathology organizations in the European Union countries.

The EBP understanding is related with the main author's vision regarding EBP in Logopedics and is based on the following ideas for applying in clinical practice.

- Approbation and validity of diagnostics and therapeutic approaches applied in a clinical practice for voice and fluency disorders.

- Develop interpretation and use of scientific achievement in EBP. The speech language pathologists must ask adequate clinical questions and find proper clinical decisions.

- Integration of the best scientific proofs from clinical experience and client's data. The main object concerns person with speech disorders.

We have to postulate that the logopedists have to have special knowledge and skills.

A. To offer an appropriate diagnostic/treatment for fluency and voice disorders with relevant instrumentation.

B. To elaborate the therapy's effectiveness measuring for fluency and voice disorders from (i) the clinician's judgments and perspectives, and (ii) from the perspective of the person who stutters/or suffers from voice pathology (suggested model by Yaruss, 1998; Yaruss, 2005 for stuttering, and Ma, Yiu, & Verdolini, (2007) for voice disorders in the frame of the ICF).

C. To develop and apply in the practice clinical documentation in Medical Speech-Language Pathology related with fluency and voice disorders (diagnostic reports, treatment plans, progress/discharge reports, progress notes for each session).

THE THERAPY'S EFFECTIVENESS MEASURING FROM THE CLINICIAN'S PERSPECTIVE

We strongly recommend different methods for measurement of the stuttering/voice treatment outcomes in children and adults (see tab. 2, 3).

Tab. 1. EBP in Bulgaria and other countries form EU, USA, Canada, and Australia

Parameters for comparison	Bulgaria	Europe, USA, Canada, Australia
Officially published guidelines for treatment's outcomes measurement of communicative disorders	No	<p>www.asha.org/members/deskref-journals/deskref/default</p> <p>www.asha.org/members/ebp</p> <p>www.nelh.nhs.uk</p> <p>www.ciap.health.nsw.gov.au</p> <p>www.cplol.org</p> <p>www.cebm.net</p> <p>www.ebmn.nl</p> <p>www.nettingtheevidence.or.com</p> <p>Literature searches, using specified key words, were carried out on the following databases: Cochrane Collaboration, Medline, CINAHL, PsychInfo, British Nursing Index, BIDS, Web of Science, CHILDES, ERIC and DARE</p>
Research in the area of EBP, related with fluency and voice disorders	<p>Few</p> <p>1. Georgieva, D. (2005). The Treatment of Fluency Disorders: Experience in Bulgaria. VIIIth Oxford Dysfluency Conference.</p> <p>2. Georgieva, D. (2006). Evidence-Based Practice in Stuttering in Bulgaria: First Steps. In: <i>Bulgarian Journal of Communication Disorders</i>, vol. 1, N. 1, p. 55-65</p> <p>3. Георгиева, Д. (2005). Ефективност на логопедичната работа: проблеми на оценяването ѝ. В сп. <i>Югозападни листи</i>, № 2, стр. 1-16</p> <p>4. Georgieva (2003a)</p> <p>5. Georgieva (2003b)</p>	<p>Leading research of: Георгиева (2002); Онслоу (2004); Yaruss (2005), Craig (1998); Craig (2000); Yaruss, & Quesal, (2004); Ingham (2003); Cordes (1998); Crowe, Di Lollo, & Crowe (2000). Ramig, & Verdolini, (1998); Langevin, Kully, (2003); Riley (1994); Rosen, Lee, Osborne, Zullo, & Murry (2004)</p> <p>Publications in <i>Journal of Fluency Disorders</i>, 2003</p> <p>Publications in Australian journal: <i>Advances in Speech Language Pathology</i>, 2004</p>
Experience in the practice	No	Yes
Training of the speech language pathologists in this area (university training programs or courses for continuing education)	<p>Several courses in Fluency and Voice Disorders</p> <p>No developed guidelines by the Bulgarian Society of Logopedists</p>	Many university courses, including guidelines of the professional associations
Scientific forums treated the EBP topics	No	<p>1.The IVth European CPLOL congress "Language: Quality and efficacy in speech and language therapy", Paris, 2000</p> <p>2.The Vth European CPLOL congress, Edinburgh, 2003</p> <p>3.Japan speech therapists national congress, 2005</p> <p>4.ASHA annual conventions</p>

Tab. 2. Components providing comprehensive view of fluency disorder and guiding the documentation of treatment outcomes (Yaruss, 2005a; Yaruss, 2005b)

Component for measurement	Recommended effectiveness instrument by Yaruss
Body function: Evaluation and assessment of the fluency disorders	1. Stuttering Severity Instrument SSI, elaborated by Riley, 1994
Assessment of the reactions related to stuttering	1. S-24 Andrews & Cutler (1974) 2. Erickson S scale (1969) 3. Self-Efficacy Scale for Adults Who Stutter (Ornstein & Manning, 1985)
Evaluation of the self-examination of stuturer	1. Write & Ayer Stuttering Self Rating Profile (2000)
Activities and Participation: Complete diagnostic of the speaker's experience as a stuturer	1. Overall Assessment of the Speaker's Experience of Stuttering (Yaruss and Quesal, 2004)

One of the essential scientific purposes of the EBP related to fluency disorders/voice disorders is to determine the main factors of the speech/voice effectiveness.

- a. To determine if the therapy is generating a clinically important fluency/voice changes.
- b. To specify that the changes are generalized in the different speech situations.
- c. To prove that the changes are maintaining in the post treatment period.

Factor **a** includes measurement of:

- stuttering/voice disorder – severity degree,
- average speech rate,
- speech naturalness/voice characteristics.

Speech situations and self-analysis are components related to **b** factor.

Factor **c** describes the evidence that the speech changes are maintained after the treatment process (3, 6 months, year/s).

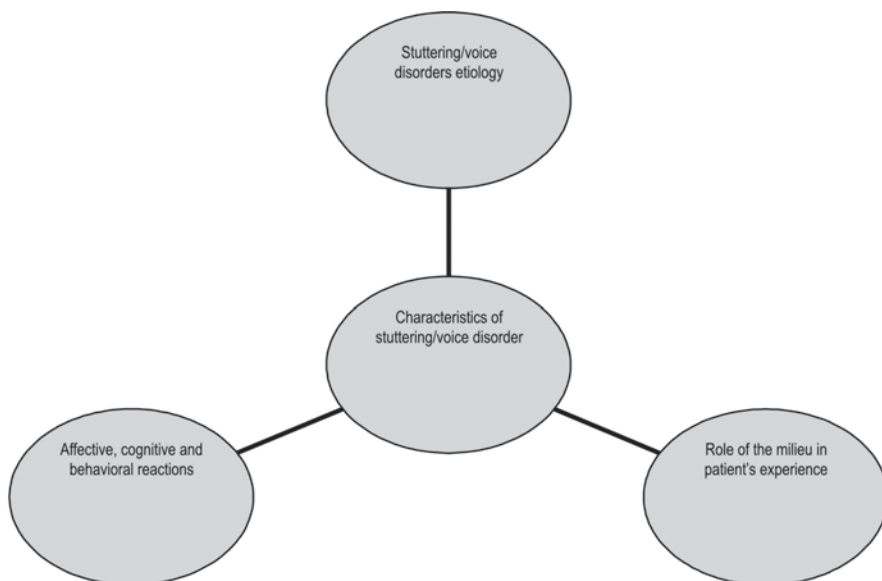
MEASUREMENT FROM THE CLIENT PERSPECTIVE

It is well known that Yaruss and Quesal (2004) adapted the ICF framework to the study of stuttering, with the explicit goal of developing a model that could be used to support the measurement of stuttering treatment outcomes. Respectively Ma, Yiu, & Verdolini, (2007) adapted ICF to the voice disorders. This adaptation describes how the stuttering/or voice disorder can be viewed in terms of several interacting components:

Tab. 3. ICF Codes Relevant to Voice Disorders (according to Ma, Yiu, & Verdolini Abbott, 2007) ICF Components Codes and Description

Body Structures	s110 Structure of brain s1106 Structure of cranial nerves s340 Structure of larynx s3400 Vocal folds
Body Functions	b126 Temperament and personality functions b152 Emotional functions b310 Voice functions b3100 Production of voice b3101 Quality of voice
Activities and Participation	d330 Speaking d350 Conversation d360 Using communication devices and techniques d3600 Using telecommunication devices d845 Acquiring, keeping, and terminating a job d850 Remunerative employment d920 Recreation and leisure d9204 Hobbies d9205 Socializing
Environmental Factors	e125 Products and technology for communication e225 Climate e2250 Temperature e2251 Humidity e250 Sound e2500 Sound intensity e2501 Sound quality e260 Air quality e310-e399 Support and relationships e410-e499 Attitudes e515 Architecture and construction services, systems, and policies e580 Health services, systems, and policies

- the *etiology* of disorder,
- the resulting *impairment* in body function,
- the speaker's affective, behavioral, and cognitive *reactions* to disorder,
- the role of the *environment* in the speaking situations,



Scheme 1. Components for effectiveness of speech therapy

- the impact of the disorder on the speaker's quality of life (Yaruss, 2005).

The new stuttering interpretation in the frame of the ICF was examined in 2004 by Yaruss and Quesal. Emphasis in the published article in *Journal of Communication Disorders* is placed on the fact that stuttering involves more than just observable behaviors. Typically, the logopedists examine the observable dysfluency behaviors' effectiveness. Specifically, the speaker's experience of stuttering can involve negative affective, behavioral, and cognitive reactions (both from the speaker and the environment), as well as significant limitations in the speaker's ability to participate in daily activities and a negative impact on the speaker's overall quality of life. Table 2 shows the main components providing comprehensive view of the fluency disorders defined by Yaruss.

The second part of this article is presenting how the World Health Organization's International Classification of Functioning, Disability and Health (ICF) can be adapted to describe the consequences of voice disorders (Ma, Yiu, & Verdolini Abbott, 2007). It first describes voice disorders under the four key components of the ICF: Body Functions, Body Structures, Activities and Participation, and Contextual (Environmental and Personal) Factors. It then describes the assessment and treatment tools

for voice disorders using the ICF framework (World Health Organization, 1999; 2001).

The ICF provides an excellent framework for extending voice assessment from merely an impairment approach to a more holistic approach by taking all the four mentioned above ICF components. The table 4 describes the tools available for assessing dominantly body function (2) and (3) activities and participation.

The application of the ICF in the different voice impairments as well fluency disorders in the assessments and treatments process is essential to achieve the ultimate goal of enhancing the quality of life of the individual – it is one of the first goals of the Logopedics as a profession located in the Public health area.

The evidence-based practice must be widely adopted as the basis for stuttering/voice disorders assessment and treatment. The described

Tab. 4. Components providing comprehensive view of voice disorders and guiding the documentation of treatment outcomes

Component for measurement	Recommended effectiveness instrument
Body Function Evaluation and assessment of the voice disorder	Boone voice protocols (Boone, 1993; Boone, & McFarlane, 1994) Pindzola, (1987) voice protocols GRBAS scale (Hirano, 1981) CAPE-V (Consensus Auditory-Perceptual Evaluation of Voice)
Body Function Acoustic measurement by CSL (MDVP, Visi-Pitch II)	1. Sustained vowel protocol – Fundamental frequency (Hz) 2. Comfort pitch – Jitter (% , msec) 3. High pitch – shimmer (db) 4. Low pitch – harmonic-to-noise ratio 5. Soft to loud voice – lowest intensity (db); highest intensity (db) 6. Recite passage – speaking fundamental frequency; habitual intensity (db) 7. Conversation – speaking fundamental frequency
Activities and participation	ASHA Quality of Communicative Life Scale (Paul-Brown, Frattali, Holland, Thompson, 2004)
	Voice Disability Index (VDI) (Индекс за гласово нарушение) – Koschke (1993)
	Voice Handicap Index (VHI) (индекс за гласово нарушение) – Jacobson, Johnson, Grywalski, et al. (1997)
	Voice Related Quality of Life (V-RQOL), (качество на живота, свързано с гласа) – Hogikyan, Sethuraman, (1999)
	Voice Outcomes Survey (преглед на гласовите резултати) – Benninger, Gardner, Jacobson, & Grywalski (1997)
	Voice Activity and Participation Profile (профил за гласова активност и участие) – Benninger, Gardner, Jacobson & Grywalski (1997)

procedures above have to be developed (translated, approbated and validated) and distributed that will allow students and logopedists to critically appraise treatment research reports. The EBP is intended to be such an instrument: it is consistent with and complements existing recommendations in evidence-based medicine and in the broader science of treatment outcome evaluation (Sacket, Rosenberg, Muir-Gray, Haynes, & Richardson, 1996).

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STRESZCZENIE

Praktyka oparta na dowodach (EBP) w przypadkach zaburzeń płynności mowy i zaburzeń głosu. Doświadczenia bułgarskie

Logopedia była traktowana w Bułgarii przez ostatnie 60 lat jako specjalność pedagogiczna, dopiero od 2008 roku uznawana jest jako zawód związany ze zdrowiem o charakterze paramedycznym.

EBP (*evidence-based practice*) to praktyka oparta na dowodach, w obecnym rozumieniu praktyka oparta na dostępnych badaniach naukowych, oznacza zintegrowanie fachowej wiedzy klinicznej z wynikami najnowszych badań klinicznych i eksponowanie znaczenia badań naukowych w praktyce klinicznej. Paradygmat EBP nie jest zbyt znany w Bułgarii, natomiast jest popularny w UE, USA, Kanadzie czy Australii i stanowi zasadniczy element terapii logopedycznej. Ten nowy paradygmat w opiece zdrowotnej akcentuje znaczenie badań naukowych przy podejmowaniu decyzji klinicznych. Tabela 1 przedstawia porównanie EBP w Bułgarii i krajach zachodnich w kategoriach badań nad EBP, omawiania jej na forach naukowych, oficjalnych wytycznych dotyczących efektywności leczenia zaburzeń komunikacyjnych oraz kształcenia i szkoleń logopedów w tej dziedzinie.

Bez wytycznych dotyczących praktyki EBP w Bułgarii nie można było zapewnić świadczeń dla pacjentów (autorka używa słowa klient), lepszego praktycznego, klinicznego kształcenia i szkolenia studentów logopedii i logopedów, bardziej wydajnej praktyki, wiedzy o trudnych bądź wyjątkowych przypadkach zaburzeń głosu i zaburzeń płynności mowy, i lepszego leczenia każdej jednostki jękającej się lub z zaburzeniem głosu.

Przy podejmowaniu praktyki klinicznej typu EBP logopedom bułgarskim brak kwalifikacji w dziedzinie:

a) identyfikowania potrzeb, zdolności, wartości i zainteresowań jednostek i ich rodzin, którym świadczą usługi kliniczne,

b) nabywania i utrzymywania wiedzy i umiejętności niezbędnych, aby dostarczać wysokiej jakości usług, w tym wiedzy i umiejętności dotyczących EBP,

c) oceniania profilaktyki, badań przesiewowych, procedur diagnostycznych, protokołowania, środków identyfikowania maksymalnie informacyjnych oraz wydajnych narzędzi diagnostycznych,

d) oceny skuteczności, efektywności i sprawności klinicznych protokołów dla celów profilaktyki, leczenia i poprawy jakości życia przy zastosowaniu kryteriów uznanych w literaturze nt. EBP w krajach wiodących w tej dziedzinie.

Autorka stwierdza, że w Bułgarii brak wytycznych dotyczących EBP – prowadzono niewiele badań, słabe jest wykształcenie logopedów/terapeutów, nie dyskutowano tej metody na forum naukowym w kraju.

Wedle autorki, wykorzystanie EBP w logopedii opiera się na zaakceptowaniu i zasadności diagnostyki i metod terapii zaburzeń płynności mowy i zaburzeń głosu w praktyce klinicznej, opracowaniu interpretacji i zastosowania EBP – logopeda musi zadawać właściwe pytania kliniczne i podejmować właściwe decyzje kliniczne. Konieczne jest zebranie jak najlepszych dowodów doświadczeń klinicznych i danych od pacjenta (klienta). Autorka postuluje, by logopedzi wykazywali się specjalistyczną wiedzą i umiejętnościami w celu zapewnienia odpowiednich diagnostyk i terapii za pomocą właściwych narzędzi, opracowali sposoby mierzenia skuteczności terapii w zakresie płynności mowy i zaburzeń głosu zarówno z punktu widzenia klinicysty, jak i osoby dotkniętej jękaniem czy zaburzeniami głosu, a także by opracowali i stosowali w praktyce dokumentację logopedyczną w terapii zaburzeń płynności mowy i głosu.

Tabele 2 i 3 pokazują metody mierzenia skuteczności terapii w jękaniu się i zaburzeniach głosu u dzieci i dorosłych. Jednym z zasadniczych celów EBP w zaburzeniach płynności mowy i głosu jest określenie głównych czynników skuteczności terapii głosu i mowy, aby: a) ustalić, czy terapia powoduje klinicznie ważne zmiany płynności mowy i głosu, b) uogólnić zmiany w / na różne sytuacje komunikacyjne, c) udowodnić, że zmiany utrzymują się w okresie po leczeniu. Czynniki (a) obejmuje stopień jękania się, średnie tempo i naturalność mowy oraz charakterystykę głosu. Czynniki (b) obejmuje sytuacje komunikacyjne i autoanalizę. Czynniki (c) – dowody, że zmiany utrzymują się po zakończeniu procesu leczenia (trzy, sześć miesięcy, rok, lata).

Mierzenie skuteczności z perspektywy klienta (=pacjenta)

System ICF (Międzynarodowa Klasyfikacja Funkcjonowania, Nieprawności i Zdrowia) został także dostosowany do badań nad jękaniem i zaburzeniami głosu. Można te zaburzenia rozpatrywać w kategoriach wzajemnie oddziałujących na siebie składników: etiologii, upośledzenia funkcji organizmu, reakcji dotyczących emocji i zachowania oraz reakcji poznawczych osoby dotkniętej zaburzeniem, roli otoczenia w sytuacjach komunikacyjnych, wpływu zaburzenia na jakość życia tej osoby. Autorka opiera się tu na pracach takich badaczy, jak Yaruss i Quesal (2004), Ma, Yiu, Verdolini (2007), które podkreślają negatywne reakcje na zaburzenia ze strony samego pacjenta i otoczenia, ograniczenia w jego codziennym funkcjonowaniu oraz negatywny wpływ na jakość jego życia. W tabeli 2 podane są składniki zapewniające całościową ocenę zaburzeń płynności mowy oraz dokumentacja (instrumenty) oceny skuteczności terapii. Są to: funkcje organizmu w ocenie zaburzeń płynności mowy, ocena reakcji na jękanie się, ocena samego siebie przez jękającego się, aktywność i uczestnictwo – własne doświadczenie jękającego się.

W dalszej części artykułu autorka pokazuje, jak system ICF może być zastosowany do opisu skutków zaburzeń głosu. Najpierw prezentuje je w kategoriach czterech kluczowych składników ICF, jakimi są: funkcje organizmu, struktury organizmu, aktywność i uczestnictwo oraz czynniki kontekstualne (środowiskowe i osobowe). Tabela 3 pokazuje odpowiednie kody ICF odnoszące się do zaburzeń głosu w wymienionych kategoriach. System ICF jest również doskonałym narzędziem do oceny głosu, pozwalającym na bardziej całościową (holistyczną) ocenę nie tylko w kategoriach upośledzeń głosu. Te same składniki wykorzystane są także do całościowej oceny zaburzeń głosu, jak pokazano w tabeli 4, która również wymienia zalecane instrumenty (kwestionariusze) do mierzenia skuteczności terapii w tychże kategoriach. Zastosowanie systemu ICF w opisie i ocenie upośledzeń głosu i zaburzeniach płynności mowy jest rzeczą zasadniczą w dążeniu do osiągnięcia ostatecznego celu, jakim jest poprawa jakości życia jednostki. Jest to jeden z głównych celów logopedii jako profesji w dziedzinie zdrowia publicznego.

Autorka kończy tekst konstatacją, że praktyka oparta na dowodach (EBP) powinna być szeroko stosowana. Należy rozwijać i rozpowszechniać opisane procedury, co pozwoli studentom i logopedom krytycznie podchodzić do dokumentacji badań i terapii. EBP ma być w założeniu takim instrumentem – jest zgodna i uzupełnia istniejące zalecenia w medycynie opartej na dowodach naukowych i w szerszym sensie w nauce w ocenie wyników terapii.