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Need and Perspectives of Internet-based interventions for common specific language disorders and connected specific learning disabilities in childhood and Youth

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Abstract

In the last century medical progress has substantially reduced the morbidity and mortality in somatic diseases. However there is a "new morbidity" with an increase of psychomotor developmental, learning, behavioral and mental disorders often with an initial onset in about 20% of childhood. A social gradient in terms of health inequalities is known. Reducing this new morbidity of child and adolescent health problems is a major public health priority. In this context alternative, complementary strategies for prevention or treatment are needed.
At the example of expressive language disorder and consecutive risks in developing a specific reading and writing disability we would like to discuss in this survey potential future preventional perspectives.

Keywords: Internet-based interventions; language disorder; diagnosis; reading disability; writing disability; literacy

1. Introduction

The term New Morbidity refers to the increase of specific chronic diseases like obesity and diabetes but also for psychomotor developmental, behavior and learning disorders or – disabilities in childhood and adolescence like reading and writing disability. Many diseases and developmental problems were also influenced by unhealthy lifestyles and unhealthy socioecological environments occurring especially in families living in poverty, mostly associated with lower educational status. This social gradient for health and education has been also described as social health inequality as the result of many various effects like limited access to health services and educational institutions, sedentary life style etc. [15]. For children living in poverty it is known that early adverse circumstances were strongly associated with lower cognitive ability in childhood and adolescence. These were detectable on measures of verbal ability, memory, speed and concentration in midlife. There is empirical evidence that these long term intergenerational effects were mostly explained by the effects of adversity on childhood or adolescent cognitive development or by differences in educational attainment and adult social class [29]. The complex confounding etiology of biological and non-biological effects on child`s health and development refers to corresponding individual and structural partially new strategies for prevention [9].

1.1. Relevance of educational system on child health and psychomotor development

With respect to the early onset of behavioral and psychomotor developmental disorders in childhood the educational system like kindergarten or school are important elements of activities aimed to promote childhood

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mental and neurocognitive health especially concerning language, speech as well as literacy development in general but especially for families living in poverty [30].

Probably due to their often associated migrational background [38] the native language competence in the respective descendants especially those living in poverty is often limited whereas simultaneously the prevalence of language disorders often connected with specific learning disabilities in this subgroup is increased.

1.2. Connectivity of Language disorder and Specific Reading and Writing Learning Disability

Research indicates developmental interactions between language impairments and difficulties acquiring literacy skills, the development of memory skills and more general nonverbal abilities throughout middle childhood, adolescence and beyond [633]. Still more broadly, children with language difficulties are at risk of less successful developmental and educational outcomes. There is evidence that children growing up with language impairment experience greater difficulties in social interaction than do typical children and adolescents [12]. These children are more vulnerable to academic failure, social exclusion, behavioral and emotional difficulties, and to being bullied [833, 15].

Learning language is thus one of the key developmental tasks facing children in the preschool years [16]. Preschool children who develop specific language impairment (SLI) are usually characterized by having language difficulties from the outset of the language-learning process. Instead of reaching developmental language milestones on schedule (first words around a child's first birthday, word combinations around the child's second birthday), children with SLI are slow from the beginning.

Children with expressive SLI have more difficulty with talking (producing words, also referred to as expressive language) than with understanding what is said to them (comprehending language, also referred to as receptive language).

SLI is much more prevalent than other developmental functions, estimates vary between 3 % and 7 % depending on definitions and statistical criteria employed [31]. Males appear to be more affected than females. There is strong evidence that SLI runs in families. The majority of children with SLI have a family history of language difficulties, with a first degree relative usually affected. The contribution of genetic factors is most clearly indicated in twin studies, where identical twins have a much higher concordance for SLI than non-identical twins [2].

Until recently, SLI was thought to be a disorder of childhood. Follow-up studies into later childhood and adolescence have revealed that although some appear to "grow out of it", for a significant proportion of children this disorder is persistent (approximately 3 % of adolescents experience SLI) [38]. Those children who appear to "grow out of it" tend to have good comprehension abilities, but even this group of "resolved" children can experience language-related and other information processing difficulties like reading and writing in later childhood [8]. Children with SLI have a high risk to develop a variant of specific learning disability e.g. reading and writing disability which in turn affects negatively academic achievement [20]. Prevalence is between 5-15% in school children. SLI forms one of the largest groups of young people with special needs that professionals are likely to encounter.

Early language intervention with preschool children has the potential to change the developmental course of their language difficulties and improve long-term language but also reading and writing outcomes.

There are both theoretical and practical issues to bear in mind here. Language use, for the most part and certainly in the preschool years, involves interacting with others: hence, it is a joint product, not a solely individual one [36]. The quantity and quality of a child's language performances will vary according to interactional contexts depending on level of familiarity, mood and the environment. This may be particularly pertinent when assessing children from socially disadvantaged backgrounds or shy children, whose language performance may be especially inhibited in unfamiliar settings. Another important consideration facing assessors in many communities is that the child (and/or his or her linguistic environment) may not be monolingual [10]. Comprehensive assessment and contextualized interpretation is needed; a model that takes a sociocultural perspective. This approach provides a more sensitive framework for taking into consideration cultural and linguistic diversity by encompassing not only norm-referenced and criterion- reference measures but also dynamic assessment.

1.3. Need for Assessing Different Dimensions of the Language System

Language is a complex system comprised of a number of dimensions or components that enable an individual to communicate effectively. These include phonology (the sound system), the lexicon (vocabulary), semantics (meaning), grammar (structure), pragmatics (communicative functions and conventions for language use), and discourse (the integration of utterances into longer stretches of conversation or narrative). Language is also a dynamic system whereby different components work together and change throughout development. There is evidence, for example, that early lexical development and grammatical development are highly correlated in