

Review

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**Zawadzka, E. & Filipiak, S. (Eds.). (2022).
*Wielowymiarowość funkcji wykonawczych –
perspektywa rozwojowa i kliniczna*
[*Multidimensionality of Executive Functions –
A Developmental and Clinical Perspective*].
Wydawnictwo Uniwersytetu Marii
Curie-Skłodowskiej, 270 pp.**

This book, edited by Ewa Zawadzka and Sara Filipiak, presents a crucial view on executive functions among other neuropsychological books on this topic. Furthermore, it is one of the few new positions available in Poland, that discusses the complexity of the described functions from a multidimensional perspective, both developmental and clinical. Although knowledge of executive functions is increasing, many issues remain unresolved. Psychologists assume that these functions constitute an overarching system that mediates between the mind (i.e. the information processing system) and behaviour (i.e. the set of performed actions). The result is purposeful actions that are coordinated, controlled, and intentional.

The texts' authors represent Polish psychology and neuropsychology – clinicians and academics of, among others, the University of Warsaw, the University of Gdańsk, and the Maria Curie-Skłodowska University. The book consists of eleven chapters with an introduction. Five of them contain a theoretical analysis of executive functions, while the others show research results in both diagnostic and therapeutic contexts.

In the first chapter, *Regulacyjna rola funkcji wykonawczych w świetle wybranych dylematów teoretycznych i praktycznych* [*Regulatory Role of Executive*

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Functions in Light of the Selected Dilemmas of a Theoretical and Practical Nature], Krzysztof Jodzio updated the knowledge on the theoretical and practical meaning of the discussed construct. Additionally, he characterized the brain substrates of the analysed functions, suggesting that they are more dynamic and distributed rather than centralized. This approach is supported by the results of recent neuroimaging studies. The Author also discusses methods used for the diagnosis of described functions, with particular emphasis on the importance of the ecological validity of psychological measures. The researcher concludes that interest in executive functions is constantly increasing, which is mainly influenced by research of an interdisciplinary nature. However, this interdisciplinarity causes many controversies and inaccuracies, both terminological and theoretical.

In the text, *Wybrane poznawcze i temperamentalne korelaty zdolności planowania w średnim dzieciństwie* [*Selected Cognitive and Temperamental Correlatives of Planning Ability in Middle Childhood*], Sara Filipiak presented the results of an interesting study conducted with a group of children in middle childhood. She analysed the relationships between selected cognitive processes, temperamental traits, and planning ability. The results yielded several important conclusions, including the associations between planning and working memory, cognitive inhibition switching, surge/extraversion, and tensed control. Besides purely scientific value, these conclusions have important practical implications, especially in the context of children's functioning not only at home but also in school.

In the text, *Poziom rezerwy poznawczej a funkcje wykonawcze u dorosłych Polaków: badania pilotażowe* [*The Level of Cognitive Reserve and Executive Functions in Polish Adults: Preliminary Study*], Ewa Małgorzata Szepietowska focused on defining the role of cognitive reserve, i.e. a key individual ability playing a protective role in cognitive functioning. The results of the preliminary and importantly longitudinal study showed that individuals characterized by a higher level of education, and greater activity in different spheres of life and professional activity are characterized by an advantage in certain aspects of cognitive functioning. This seems to support the hypothesis of the cognitive reserve as a "protective factor". This study provides directions for future research, as the phenomenon of cognitive reserve is still not fully understood, especially in the context of executive functions.

In the next chapter, *Porównania poziomu funkcji wykonawczych u zdrowych seniorów i pacjentów z guzami płatów czołowych* [*Comparison of Executive Functioning Level in Healthy Elder Adults and Patients With Frontal Lobe Tumors*], Anna Skakovska and Aleksandra Bala showed a study verifying the hypothesis that executive abilities decline with age, which is related to changes in frontal lobes and subcortical structures of the brain forming functional networks. Noteworthy is the use of the Behavioural Assessment of the Dysexecutive Syndrome (BADS), an ecologically validated battery, less known in Poland. The study involved two additional clinical groups, namely older and younger people with a diagnosis of a tumour in the frontal lobes. In our country, the lack of research using ecological methods is noticeable. The results of the study

confirmed the diagnostic validity for several subtests of the BADS, also verified in other studies. Interestingly, the statistical analysis showed significant relationships between age and some indices of the BADS. Therefore, these results are important from both a scientific and practical perspective. They may indicate directions for future research on therapeutic interventions and cognitive training for older adults and patients with brain dysfunction.

The text, *Padaczka skroniowa a funkcje wykonawcze [Temporal Lobe Epilepsy and Executive Functions]*, by Agnieszka Olejnik and Aleksandra Bala, focuses on the executive functioning of individuals with epilepsy. The authors reported that temporal epilepsy (mainly localized in the temporal lobe) can negatively affect the overall functional network of the brain. Therefore, executive deficits may also arise as a result of pathology in networks (structures) not directly related to executive functions. In this study, a comprehensive set of methods was used to assess executive functions (Color Trails Test, CTT, Tower of London, TOL, Victoria Stroop Test, VST, Wisconsin Card Sorting Test, WCST) and Montreal Cognitive Assessment (MoCA). The authors obtained interesting results indicating that patients with epilepsy present various impairments of executive functions, e.g. in planning, cognitive flexibility, strategies to optimize action, and inhibition of impulsive reactions and reasoning. However, there were no differences in scores between patients with different locations of epileptic focus or in the effect of seizure frequency. These results are crucial for increasing awareness among the various professionals working with patients experiencing different cognitive problems.

The next chapter, *Dysfunkcje wykonawcze w chorobie afektywnej dwubiegunowej [Executive Dysfunction in Bipolar Disease]*, by Łucja Cyranek, provides a critical review of the cognitive functioning of individuals diagnosed with bipolar disorder. Although new knowledge of mental disorders is increasing and the postulates presented in neuropsychiatry indicate that these disorders are a consequence of abnormalities in brain functioning, still some researchers criticize the meaning of “brain”, pointing only to problems of a “psyche” or “mind”. Thus, the results of the literature review presented here are of particular cognitive and practical value. Many studies confirmed that patients with this disease have executive dysfunctions, not only during periods of symptom severity but also during periods of remission. Interestingly, some research showed that in these patients the abnormal activity of certain brain areas manifests itself in a kind of dissociation, i.e. “cold” or “hot” executive function impairments. The author concluded that the diagnosis of individuals with this mental disease should involve not only an interview and clinical observation but also a neuropsychological assessment.

Executive functions can be analysed in various contexts, and one of which is the accuracy of self-reported assessment, which has been the aim of the research presented in the text, *Funkcje wykonawcze w diagnozie samoopisowej [Executive Functions in Self-report Assessment]*. In this interesting study, Marta Zając and Aleksandra Bala used the Dysexecutive Questionnaire (DEX) to measure subjective feelings of executive difficulties and tasks from the BADS battery to assess objective executive functions in a group of older adults. The results showed

that groups with higher and lower levels of complaints about cognitive functioning manifested difficulties on the Rule Shift Cards subtest from the BADS and had higher levels of depressive symptoms. This study is preliminary, but the results obtained are of high empirical value and provide a good basis for formulating further hypotheses and conducting broader research.

The chapter, *Funkcje wykonawcze a prewencja i terapia chorób sercowo-naczyniowych i cukrzyca typu 2 [Executive Functions in the Context of Prevention and Treatment of Cardiovascular Disease and Type 2 Diabetes]*, by Alicja Dąbal and Paweł Obierzyński, was presented as a literature review. The authors analysed executive function impairments in the light of the medical neuropsychology paradigm. It considers the mediating mechanisms influencing the brain condition and the manifestations of cognitive dysfunctions. The researchers focused on a detailed analysis of the mechanisms leading to executive dysfunctions in diseases such as cardiovascular disease and type 2 diabetes. It turns out that executive difficulties are of key practical importance, as they are linked to non-compliance with medical recommendations, which is extremely important when working with patients and highlights the role of neuropsychologists, who should be involved in the diagnostic and therapeutic process of patients with the diseases described.

The next text, *Zespół dysfunkcji wykonawczych w neuropsychologicznych oddziaływaniach terapeutycznych [Dysexecutive Syndrome in Neuropsychological Therapeutic Interventions]*, by Łucja Domańska and Ewa Zawadzka introduces the reader to the second part of the book, which is aimed at the improvement of executive functions. Data from the literature directly suggest that executive dysfunctions result not only in a reduced ability to manage one's activities but also in limitation of independence and productivity, which affects the daily activities of sufferers. The authors precisely described the different theoretical approaches and principles of neuropsychological therapy for executive dysfunctions. There are several confirmed predictors and mediators of the effectiveness of therapy for patients with executive dysfunctions (including procedures of therapy and patient characteristics), and knowledge of these can be useful in clinical practice. A strength of this part of the book under review is the description of new technologies used in therapy and the potential limitations in their application.

The text, *Znaczenie treningów prowadzonych w schemacie podwójnego lub pojedynczego zadania dla funkcji wykonawczych u zdrowych seniorów [The Impact of Dual Versus Single Task Training Scheme on Executive Functions in Healthy Older Adults]*, presents an empirical analysis of the use of executive function therapy based on dual (cognitive-motor) or single (cognitive) task schemes in older adults. Justyna Wiśniowska, Emilia Łojek, and Anna Chabuda conducted a study that was well designed; three groups of subjects were included – two criterion groups divided by the type of training (single or dual scheme) and a control group. In the pretest and posttest, the authors used several psychological measures (including Mini-Mental State Examination, MMSE, WCST, Verbal Fluency Tests, VFT). The study lasted four weeks and included three training sessions per week. Professional training software was used. The

results of the study are very interesting because, after controlling for practice effects, it became apparent that each type of training affected a different aspect of executive functions. The data obtained are of particular practical importance and suggest the specific direction in supporting older adults in improving their cognitive functioning.

The book closes with a chapter, *Trening poznawczy jako forma usprawniania pacjentów z zaburzeniami kognitywnymi w przebiegu choroby nowotworowej* [*Cognitive Training as a Form of Rehabilitation for Patients With Cognitive Disorders in the Course of Neoplastic Disease*], by Magdalena Bury-Kamińska. It contains a detailed description of the therapeutic intervention proposed by Robert Ferguson (Memory and Attention Adaptation Training). The training program is extensive as it allows for the improvement of memory, attention, and thinking and has been designed for cancer patients. The Author presents the theoretical background of the program in a precise way and gives practical examples of the application in the training with cancer patients. The chapter provides a ready-made proposal of tools for therapy. An interesting question for clinical practice is the possibility of using the MAAT program to work with individuals with other diseases. In my opinion, questions about the use of diagnostic and therapeutic methods for disorders and diseases other than those described here may encourage the authors to work at another publication entirely devoted to executive functions in the context of neuropsychological therapy.

In conclusion, this book constitutes a comprehensive and up-to-date compendium of knowledge on executive functions. It contains theoretical descriptions, detailed literature reviews, and the results of Polish research about the nature of executive functions and the specificity of their impairments in different patient groups. In addition, the reader can find practical suggestions on how to work with patients and descriptions of specific training. In my opinion, the book should be an obligatory position in the libraries of psychologists and specialists in various fields who work with individuals with both neurological and psychological disorders, as well as those suffering from somatic diseases. It is also an inspiring source of knowledge about executive functions, not only from a theoretical perspective but also from a practical one, which will be useful for academics and students of psychology and other disciplines, e.g. health sciences.