

Applications of the Bio-Functional Assessment in the management of self-injurious behavior

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As part of the development of the various behavioral functional analysis models (Sturmey, 1996; Ricci & Sturmey, 2017), different aspects were taken into consideration within the relationship between behavior and context. The latter is intended as an environment external to the person who manifests the behavior in accordance with the assumptions of the science of human behavior in the Skinnerian sense.

The Bio-Functional Assessment (BFA) is part of that tradition of studies and research that attempted to resort to the Skinnerian paradigm by referring, however, to an internal environment of the individual, represented by the so-called psychophysiological repertory. Since the 1970s, this orientation has given rise to methods such as psychophysiological assessment and Bio-Feedback Training, providing sufficient evidence-based documentation (Jarusiewicz, 2002; Schoenberg & David, 2014; Green, Archey, & Barton, 2018; Thabrew, Ruppeltdt, & Sollers, 2018). The BFA can be conceptualized as the integration between Physiological Assessment procedures and Functional Analysis of Behavior.

From a procedural perspective, the BFA relates the changes in biomedical parameters (e.g. heart rate, respiratory rate, peripheral temperature, etc.) correlating them to the behavior and variables present in the contingencies (as antecedent and consequent).

The intent is to identify, if any, psychophysiological indices more sensitive to behavioral changes, in order to be able to consider these indices

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as predictors of the emission of the behavior itself. The BFA therefore assumes that basic measurements (Baseline) are made in order to collect data on physiological parameters in a quiet state of the organism; the introduction of environmental variables capable of soliciting a psychophysiological response (stressor) followed by a second basic measure in order to be able to determine the recovery times for the return to the quiet condition with a good approximation.

The BFA provides various protocols depending on the use in clinical practice. A pilot study is currently underway on a BFA protocol addressed to a population of children diagnosed with Autism Spectrum and manifestation of self-injurious behaviors. The aim of the study is to identify possible predictors of self-injurious behavior in the variations of the psychophysiological indices. If this proves possible, appropriate assistive technologies could be used to provide an "alert" to the caregiver through a notification to a device like a smartphone; the caregiver would thus be informed in advance of the high probability that the person would issue a behavioral crisis. All this will allow the caregiver to manage the situation and reduce the inevitable stress condition to which the patient would be exposed with the behavioral crisis.

References

- Green, E. K., Archey, L. M., & Barton, R. O. (2018). Evaluating Biofeedback Training in Conjunction With a Cognitive-Behavioral Intervention for Adults With Impulse Control Deficits: A Pilot Study. *American Psychological Association*, 3 (2), 123-137.
- Jarusiewicz, B. (2002). Efficacy of Neurofeedback for Children in the Autistic Spectrum: A Pilot Study. *Journal of Neurotherapy: Investigations in Neuromodulation, Neurofeedback and Applied Neuroscience*, 6 (4), 39-49.
- Ricci, C., & Sturmey, P. (2017). I fondamenti teorici dell'analisi funzionale del comportamento. In G. Carradori & A. Sangiorgi (Eds.), *L'analisi funzionale del comportamento. Principi, metodi e tecniche*. Trento: Centro Studi Erickson.

Schoenberg, L. A., & David, S. A. (2014). Biofeedback for Psychiatric Disorders: A Systematic Review. *Applied Psychophysiology Biofeedback*, 39, 109-135.

Sturmey, P. (1996). *Functional analysis in clinical psychology*. London: Wiley [Tr. It. Analisi funzionale in psicologia clinica. Milano: McGraw-Hill, 2001].

Thabrew, H., Ruppeltdt, P., & Sollers, J. J. (2018). Systematic Review of Biofeedback Interventions for Addressing Anxiety and Depression in Children and Adolescents with Long-Term Physical Conditions. *Applied Psychophysiology and Biofeedback*, 43, 179-192.