

## **Revisiting Susan Borel-Maisonny's Classification of Speech Disorders (1966): An Analytical Comparison Between the Classical Model and the Modern Classification Systems DSM-5 and ICD-11**

**Djalab Mohammed Salah<sup>1\*</sup>, Djari Bachir<sup>2\*</sup>**

<sup>1</sup> Laboratory of Cognitive and Social Neuropsychology, University of Eloued, (Algeria), [djalab-mohammedsalah@univ-eloued.dz](mailto:djalab-mohammedsalah@univ-eloued.dz)

<sup>2</sup> Laboratory of Cognitive and Social Neuropsychology, University of Eloued, (Algeria), [djari-bachir@univ-eloued.dz](mailto:djari-bachir@univ-eloued.dz)

**Received: 20/04/2024 ; Accepted: 24/06/2024 ; Published: 01/07/2024**

### **ABSTRACT:**

This study presents an updated analysis of the classical classification of speech disorders developed by Suzanne Borel-Maisonny in (1966), which is based on a tripartite division comprising: motor disorders, psycho-linguistic disorders, and disorders of psychological origin. The study highlights the clinical value of this classification in understanding oral language disorders in children, particularly in distinguishing between speech, language, and psychological impairments.

The analysis is enriched by a comparison with modern classifications, especially the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and the eleventh revision of the International Classification of Diseases (ICD-11), revealing an evolution of diagnostic criteria towards a neurodevelopmental approach that considers functional performance and social context.

The study also reviews the practical applications of this classification in the fields of speech therapy, special education, and child psychiatry, emphasizing how the model remains effective despite its age, especially when used in conjunction with modern assessment tools.

The study concludes by advocating for the adoption of an integrative, multidimensional approach that combines neurological, cognitive, psychological, and environmental assessments, in alignment with the requirements of early detection and effective intervention in the treatment of language disorders in children.

**Keywords:** Speech disorders, language disorders, Borel-Maisonny classification, DSM-5 classification, ICD-11 classification, integrative approach.

**INTRODUCTION:**

Speech is one of the most prominent manifestations of human communication. It does not merely express language as symbols and phonetics, but also reflects the complex interplay of cognitive, neurological, and psychological functions. Therefore, any disorder in the production or organization of speech—whether at the phonetic, structural, or psychological level—can have profound effects on social, emotional, and cognitive development, particularly in children during early learning stages (American Speech-Language-Hearing Association [ASHA], 2020).

Global statistics indicate that speech and language disorders are among the most common developmental difficulties, affecting approximately 8 to 10% of preschool-aged children (Law et al., 2000). Despite advancements in diagnostic and therapeutic tools, an accurate understanding of the nature and origins of these disorders remains a critical factor in ensuring effective and appropriate educational intervention.

In this context, the seminal article by Suzanne Borel-Maisonny, published in 1966 in *L'Année Psychologique*, stands out as one of the earliest systematic attempts to classify speech disorders in children. She categorized these disorders into three main groups: motor disorders, psycho-linguistic disorders, and disorders of psychological origin. Her model provided a simplified yet highly effective clinical framework that enabled the understanding of disordered speech patterns and their association with neurological, psychological, or environmental factors (Borel-Maisonny, 1966).

This model is particularly noted for its ability to distinguish between articulation and pronunciation errors resulting from organic or functional motor impairments, language disorders arising from structural or cognitive language development deficits, and difficulties caused by psychological factors, such as stuttering or selective mutism. Although these distinctions may appear straightforward, they have enabled educational specialists and speech-language pathologists to develop precise therapeutic and educational intervention plans.

More than fifty years after its publication, this classification continues to hold special significance in both academic and clinical contexts. This enduring relevance calls for a re-examination of the model and a comparison with contemporary frameworks, particularly in light of the new international standards such as DSM-5 and ICD-11.

**I. METHODOLOGY:**

This article adopts a comparative analytical approach aimed at reassessing the classical model for the classification of speech disorders proposed by Suzanne Borel-Maisonny in (1966), in light of the modern diagnostic criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and the International Classification of Diseases (ICD-11).

A conceptual analysis methodology was employed to deconstruct the theoretical structure of each model, with a focus on the philosophical, linguistic, and neurological foundations underpinning each classification.

The three models were selected based on their reference value in both clinical and research contexts, as they represent key milestones in the evolution of diagnostic thinking in speech and language disorders: from the traditional clinical classification (Borel-Maisonny) to the multidimensional normative classifications (DSM-5 and ICD-11).

The comparison covered the following axes:

- The nature of the classification (descriptive vs. normative)
- Diagnostic criteria and conditions for diagnosis
- The comprehensiveness of the model (handling of mixed/borderline cases)
- Contextual dimensions (environmental, social, neurological)
- Potential for composite or overlapping diagnoses (co-diagnosis)

No quantitative or qualitative experimental data were used. Rather, the analysis was based on the official content of the reference models issued by authoritative bodies, as well as supporting scientific literature (critical reviews and analytical studies), which are listed in the references section.

This methodology aims to provide a coherent theoretical understanding of the development of speech disorder classifications and to identify the strengths and limitations of each model, thereby opening prospects for future advancement in diagnostic and clinical practices.

## II. Analysis of the Classification of Speech Disorders According to Suzanne Borel-Maisonny (1966):

Suzanne Borel-Maisonny was among the first to propose a systematic classification of speech disorders, based on precise clinical data and extensive experience in observing and working with children with language difficulties. In her study published in (1966), she categorized speech disorders into three major groups: motor disorders, psycho-linguistic disorders, and disorders of psychological origin (Borel-Maisonny, 1966).

### 1. Motor Disorders (Articulation, Dysarthria...)

This category includes difficulties directly related to the motor performance of the speech organs, commonly referred to as phonetic or articulation disorders, and encompasses:

- **Articulation disorders:** Often resulting from a motor deficit in producing certain sounds (e.g., lispings, *zozotement*, *zézaïement*), with preserved comprehension and language abilities (Borel-Maisonny, 1966, p. 168).
- **Speech disorders caused by organic or neurological deficits**, such as **dysarthria**, which results from lesions in the central or peripheral nervous system and leads to unclear, slow, or rhythmically disturbed speech (Enderby & Emerson, 1995).

- **Disorders linked to structural abnormalities** (e.g., cleft lip or cleft palate), which affect sound quality and articulation (Borel-Maisonny, 1966, p. 170).

These disorders are, for the most part, treatable through speech and occupational therapy, particularly when addressed early.

## 2. Psycho-Linguistic Disorders:

This category focuses on delays or disturbances in language development, often reflecting underlying perceptual or cognitive difficulties. The most prominent forms include:

- **Speech delay:** Characterized by an unusually slow acquisition of spoken language compared to peers, despite intact auditory and neurological systems. It is often associated with deficits in auditory memory or temporal processing (Ajuriaguerra et al., 1958).
- **Agrammatism:** Evident in the omission of grammatical connectors or incorrect word order within sentences. This results from a disruption in organizing linguistic messages rather than articulation deficits (Borel-Maisonny, 1966, p. 172).
- **Semantic and syntactic confusion:** Manifested in the construction of sentences with individually understandable elements that are grammatically or semantically incoherent, such as: “Dog ate rabbit” instead of “The dog ate the rabbit.” These disorders are important diagnostic indicators that require careful assessment to avoid confusion with intellectual disability or autism, as some cases may be transient and can be successfully treated through early intervention programs.

## 3. Disorders of Psychological Origin:

In this classification, Borel-Maisonny included disorders that stem from internal psychological conflicts or disturbances, which affect expressive language use despite intact articulation and linguistic structure. The most significant conditions include:

- **Selective mutism:** The child refrains from speaking in specific social situations despite being able to speak in other environments. This is often the result of social anxiety or previous psychological trauma (DSM-5; American Psychiatric Association, 2013).
- **Stuttering:** A fluency disorder characterized by repetitions, prolongations, or involuntary pauses during speech. Borel-Maisonny argued that stuttering cannot be reduced solely to psychological causes, but is also linked to poor coordination between linguistic thought and motor production (Borel-Maisonny, 1966, p. 175).
- **Disorders associated with psychosis or childhood psychotic states:** In these cases, language output becomes entirely disorganized or non-directed toward the interlocutor, and may be accompanied by **logorrhea** (excessive speech) or a loss of communicative interaction (Ajuriaguerra et al., 1958).

This category underscores the need to view language as a psychosocial medium that can be profoundly influenced by emotional experience and family context, rather than merely a cognitive skill.

### **III. Comparison of Suzanne Borel-Maisonny's Classification with Modern Taxonomic Models (DSM-5 and ICD-11)**

Suzanne Borel-Maisonny (1966) introduced a pioneering classification of speech disorders, distinguishing between motor, psycho-linguistic, and psychologically-based disorders at a time when developmental and language disorder classifications were not yet standardized internationally. Her model laid the groundwork for more precise diagnostic and classification approaches in the latter half of the 20th century.

With advancements in neuroscience and linguistics, modern classifications such as the DSM-5 and ICD-11 have emerged, offering standardized frameworks that integrate neurological, psychological, and linguistic dimensions.

#### **1. Comparison with DSM-5:**

In the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), speech disorders fall under the category of Communication Disorders, which includes:

- Language Disorder
- Speech Sound Disorder
- Fluency Disorder (e.g., stuttering)
- Social (Pragmatic) Communication Disorder
- Unspecified Communication Disorder

The DSM-5 adopts a neurodevelopmental approach, framing these disorders as resulting from impairments in brain development or cognitive functioning. In contrast, Suzanne Borel-Maisonny classified them based on the source of the impairment—whether motor, cognitive/perceptual, or psychological.

Notably, the DSM-5 clearly distinguishes between Language Disorder—which affects grammar, sentence structure, and semantic comprehension—and Speech Sound Disorder, which closely aligns with Borel-Maisonny's articulation disorders. This differentiation contributes to greater diagnostic precision (American Psychiatric Association, 2013).

#### **2. Comparison with ICD-11:**

In the International Classification of Diseases, 11th Revision (ICD-11), the scope of developmental language and speech disorders has been expanded to include:

- Developmental Speech Sound Disorder
- Developmental Language Disorder (expressive or receptive)
- Childhood-Onset Fluency Disorder
- Language disorders due to acquired or neurological causes

What distinguishes the ICD-11 is its emphasis on the interaction between function and environment, as disorders are described not only in terms of symptoms but also in relation to their impact on daily functioning and social integration (World Health Organization, 2019).

Additionally, Selective Mutism is explicitly recognized in ICD-11, whereas it was not formally classified in Borel-Maisoigny's system but was instead discussed within the broader context of psychological influences on speech.

#### **IV. Comparison of Diagnostic Criteria: Borel-Maisoigny vs. Modern Models (DSM-5 and ICD-11)**

Modern classifications of speech disorders, such as DSM-5 and ICD-11, rely on precise criteria that go beyond the traditional descriptive classification proposed by Borel-Maisoigny (1966). While her tripartite categorization (motor, psycho-linguistic, and psychological) holds value in initial clinical assessments, DSM-5 and ICD-11 offer more standardized frameworks for diagnosing disorders based on neurological functioning, linguistic performance, and social context (American Psychiatric Association, 2013; World Health Organization, 2019).

##### **1. Diagnostic Criteria in DSM-5:**

DSM-5 classifies communication disorders into five specific categories, each with detailed diagnostic criteria, including:

- The presence of persistent language symptoms affecting communication (e.g., limited vocabulary, difficulties in sentence structure).
- Symptom onset during the early developmental period.
- Negative impact of symptoms on academic, occupational, or social performance.
- Exclusion of other causes such as sensory, neurological, or organic impairments.

DSM-5 requires that all of these conditions be met to confirm a diagnosis, ensuring a high level of clinical precision. In contrast, Borel-Maisoigny's classification does not include exclusionary conditions or severity indicators, but instead relies on direct clinical observation and descriptive categorization (Borel-Maisoigny, 1966).

##### **2. Diagnostic Criteria in ICD-11:**

ICD-11 provides a flexible structure that integrates clinical description with functional assessment.

For example, Developmental Speech Sound Disorder is diagnosed based on performance relative to

age, the level of impact on daily life, and a detailed symptom profile (e.g., omission, substitution, distortion) (World Health Organization, 2019). Additionally, ICD-11 allows for dual classifications to address mixed cases, making it more comprehensive than DSM-5. It also includes extension codes to account for contributing environmental or psychological factors.

### 3. Handling Mixed or Borderline Cases:

In Borel-Maisonny’s classical classification, it is difficult to categorize cases that combine, for instance, a language disorder and a fluency disorder, because her model is based on rigid tripartite categories. By contrast:

- **DSM-5** allows for **co-diagnosis**, such as Language Disorder + Fluency Disorder (American Psychiatric Association, 2013).
- **ICD-11** encourages **multidimensional descriptors**, such as: “Developmental speech disorder with limited social communication features in a non-stimulating environment” (World Health Organization, 2019).

In conclusion, DSM-5 and ICD-11 represent a natural evolution in the understanding of speech disorders, shifting from Borel-Maisonny’s descriptive clinical taxonomy to standardized classifications grounded in extensive clinical and research data. While the classical model remains simple and practical, modern diagnostic and intervention effectiveness now rely on frameworks that support flexible, composite diagnoses, especially in multidimensional cases (Tremblay & Dick, 2016).

**Table (01): Comparison Between the Classification of Borel-Maisonny (1966), DSM-5 (2013), and ICD-11 (2019)**

Criterion	Borel-Maisonny Classification (1966)	DSM-5 (2013)	ICD-11 (2019)
<b>General Perspective</b>	Tripartite clinical classification (mechanical, linguistic, psychological)	Neurodevelopmental-functional classification	Comprehensive environmental-functional classification
<b>Types of Disorders</b>	Mechanical, psycho-linguistic, and psychological disorders	Language, speech sound, fluency, social communication	Speech sounds, language, fluency (developmental/acquired)
<b>Neurological Dimension</b>	Absence of neurological dimension	Explicitly included	Present and linked to social functioning
<b>Standards</b>	Descriptive and non-standardized	Clinical definitions and clear diagnostic criteria	Functional measures and impact on daily life

<b>Application</b>	Oriented toward field practitioners	Used in both clinical and academic settings	Used in public health and health policy contexts
--------------------	-------------------------------------	---	--

## V. Clinical and Educational Applications: The Impact of Borel-Maisonny’s Classification in Speech Therapy, Special Education, and Child Psychiatry

Suzanne Borel-Maisonny’s (1966) classification of speech disorders was not merely a descriptive approach; rather, it served as a practical reference in shaping diagnostic and rehabilitative methods across several fields speech therapy, specialized education, and child psychiatry. Her division of disorders into motor, psycho-linguistic, and psychological categories helped practitioners identify the nature of the impairment, plan appropriate interventions, and predict recovery outcomes.

### 1. In the Field of Special Education:

Borel-Maisonny’s classification introduced clear conceptual tools that allow specialized educators to distinguish between children who present with:

- **Rehabilitable articulation disorders** (articulation)
- **Language disorders** affecting sentence construction and comprehension
- **Psychological disorders** requiring deeper educational environment adaptations

For instance, a child experiencing speech delay but with intact comprehension can be integrated into a language-enriched classroom, whereas a child exhibiting non-functional communication with disorientation in time and space understanding may require **individualized educational intervention** (Borel-Maisonny, 1966).

Modern specialized education programs build upon such distinctions and operate under frameworks like the **Response to Intervention (RTI)** model, which assesses a child’s developmental progress based on their responsiveness to tiered educational interventions (Fuchs & Fuchs, 2006).

### 2. In Speech-Language Pathology (Orthophonie / Speech-Language Therapy):

Speech-language pathologists have adopted Borel-Maisonny’s framework to identify the nature of the impairment (mechanical vs. linguistic) from the earliest stages of assessment, which in turn guides the selection of therapeutic strategies. For example:

- In **articulation disorders**, therapy involves **muscle training** and **sound imitation exercises**.
- In **language disorders**, strategies focus on **vocabulary development** and **sentence construction**.
- In **psychological cases**, speech therapy is embedded within a broader approach that includes **emotional and behavioral support** (Prizant & Wetherby, 2005).

Furthermore, Borel-Maisonny's classification has contributed to establishing a clear distinction between primary developmental stuttering and stuttering of psychological origin, which fundamentally alters the intervention strategy (Packman & Attanasio, 2004).

### **3. In Child Psychiatry:**

Borel-Maisonny's classification provided a conceptual tool that helps child psychiatrists understand the broad spectrum of language disorders as potential indicators of deeper psychological conditions, such as:

- Attachment disorders
- Childhood withdrawal or selective mutism
- Early-onset psychotic states

Determining whether a language impairment is a reflection of a cognitive deficit, the result of psychological repression, or due to an organic dysfunction plays a crucial role in guiding psychiatric diagnosis and treatment.

This perspective aligns with the principle of multidimensional assessment currently adopted in multidisciplinary centers (ICD-11; World Health Organization, 2019).

## **VI. Integration of Modern Models with the Classical Approach**

Despite having been published over half a century ago, Suzanne Borel-Maisonny's classification continues to serve as a foundational reference in the construction of modern diagnostic frameworks. It is now commonly integrated with standardized diagnostic tools such as CELF-5, ELO, or L2MA in French-speaking contexts, which precisely assess phonological, lexical, and grammatical dimensions.

Successful clinical application today relies on combining the technical precision of modern models with the clinical simplicity of Borel-Maisonny's classification, allowing therapeutic plans to be tailored to the specific context be it educational, speech therapy, or psychological support.

## **CONCLUSION AND RECOMMENDATIONS**

Suzanne Borel-Maisonny's (1966) classification of speech disorders laid one of the earliest foundations for diagnosing language and speech impairments in children, establishing a conceptual basis for special education, speech-language therapy, and child psychiatry. However, advances in neuroscience, psychology, and linguistics have revealed several limitations of this classical model.

### **Limitations of the Classical Model:**

Despite its richness in clinical description and clarity in categorizing types of disorders, the model presents several constraints:

- **Lack of neurobiological articulation:** Borel-Maisonny did not have access to current technological tools (e.g., functional MRI) to correlate disorders with specific brain structures (Tremblay & Dick, 2016).
- **Overlap in classifications:** Clinical reality often reflects hybrid cases where motor, psychological, and cognitive dimensions intersect—going beyond the model’s rigid tripartite structure.
- **Absence of quantitative standards:** The model lacks standardized measurement tools to assess the severity of the disorder or its progression over time, unlike modern manuals such as DSM-5 or ICD-11.
- **Limited predictive value for treatment:** The classification does not provide clear indicators for treatment responsiveness or long-term outcomes.

### **Towards a Modern and Integrative Diagnostic Approach**

In light of these limitations, there emerges a clear need for adopting a **multidimensional diagnostic approach** that integrates the following components:

- **Neurological determinants:** Utilizing tools such as EEG, fMRI, and executive function tests to analyze the neurological basis of the disorder.
- **Modern linguistic standards:** Applying standardized measures (e.g., *CELF-5*, *GFTA-3*) to assess phonological, grammatical, and semantic performance.
- **Psycho-emotional evaluation:** Incorporating questionnaires and tests related to emotional regulation, family relationships, and anxiety-related disorders.
- **Environmental-functional model:** Emphasizing the impact of social, educational, and environmental factors on the disorder, as adopted in the ICD-11 (WHO, 2019).

Based on this perspective, we propose the adoption of a **three-axis integrative model**:

1. **Neuro-linguistic diagnosis:** To determine the nature and severity of the disorder.
2. **Psychological and behavioral assessment:** To analyze contributing emotional and psychological factors.
3. **Individualized intervention plan:** That considers the family and educational context, and integrates speech therapy, emotional support, and academic accommodations.

This modern model allows for a more comprehensive understanding of the child, enhances the effectiveness of therapeutic interventions, and improves prospects for academic and social inclusion.

### **REFERENCES:**

- Ajuriaguerra, J. de, Borel-Maisonny, S., Diatkine, R., & Stambak, M. (1958). The Group of Audimutities. *Child Psychiatry*, 1, 1–58.

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- American Speech-Language-Hearing Association. (2020). *Speech and language disorders in children*. <https://www.asha.org>
- Borel-Maisonny, S. (1966). Les troubles de la parole. *The Psychological Year*, 66(1), 167–179. <https://doi.org/10.3406/psy.1966.27883>
- Enderby, P., & Emerson, J. (1995). *Clinical management of dysarthric speakers*. Singular Publishing Group.
- Fuchs, D., & Fuchs, L. S. (2006). Introduction to response to intervention: What, why, and how valid is it? *Reading Research Quarterly*, 41(1), 93–99. <https://doi.org/10.1598/RRQ.41.1.4>
- Law, J., Boyle, J., Harris, F., Harkness, A., & Nye, C. (2000). Prevalence and natural history of primary speech and language delay: Findings from a systematic review of the literature. *International Journal of Language & Communication Disorders*, 35(2), 165–188. <https://doi.org/10.1080/136828200247133>
- Packman, A., & Attanasio, J. S. (2004). *Theoretical issues in stuttering*. Psychology Press.
- Prizant, B. M., & Wetherby, A. M. (2005). Critical issues in enhancing communication abilities for children with autism spectrum disorders. In F. Volkmar (Ed.), *Handbook of autism and pervasive developmental disorders* (3rd ed., Vol. 2, pp. 925–945). Wiley.
- Tremblay, P., & Dick, A. S. (2016). Broca and Wernicke are dead, or moving past the classic model of language neurobiology. *Brain and Language*, 162, 60–71. <https://doi.org/10.1016/j.bandl.2016.08.004>
- World Health Organization. (2019). *International classification of diseases for mortality and morbidity statistics (11th Revision)*. <https://icd.who.int/>