

# Comparison of Holistic Approach with Progressive Dysarthria according to Clinical Experience: a Multi-Institutional Survey in Korea

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## Abstract

Recently a more holistic approach that includes impairment, activation, and participation is recommended. This study investigated the difference between speech language pathologists (SLPs) ' awareness and preference of the assessment according to the clinical experience after adjustment of the medical center by regional groups. Sixty-two SLPs who work in 51 medical centers have completed the survey, and the data was analyzed via Cochran-Mantel-Haenszel Test. As a result, there is a significant difference between the SLPs surveyed who have less than 5 years experience and SLP's who have more than 5 years experience ( $p < 0.05$ ). Particularly in the preferences of assessment methods such as observation of intelligibility in conversation with SLPs, observation of AAC ability in the both technical ability and interaction, hierarchy of difficult communication situations, observation of interaction in conversation with others, and recording of communication in non-clinical situations. In the awareness of assessment, there are noticeable differences between the two aforementioned groups concerning the importance of assessing a communication partner's abilities ( $p < 0.05$ ). The results showed that the two groups of SLPs have different views regarding the awareness and preferences of assessment with progressive dysarthria according to their related clinical experience. Thus, it is necessary to develop and nurture guidelines with a more holistic approach to progressive dysarthria.

**Keywords:** Dysarthria, Clinical Experience, Holistic Approach, Speech language pathologists, Intervention, Assessment

## 1. Introduction

Progressive dysarthria is a generic term used to describe neurological bi-Parkinsonism, multiple sclerosis, motor neuron disease, and other neurological conditions that result in brain damage that is both progressive and exhibits irreversible symptoms that reduce speech intelligibility and can cause communication difficulties [1].

These conditions present inherent difficulties for the patient, most notably in their communication and interaction with other people, which leads to a reduction of their quality of life, owing to the decrease of social activity. Therefore, it is desirable for the clinical estimation of progressive dysarthria to take into account the patient's individual and environmental factors.

Nevertheless, the evaluation of dysarthria has been traditionally mandated by both the acoustic and physiological aspects of its diagnosis [2]. In 1980, the World Health

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Organization (WHO), published the International Classification of Impairments, Disabilities, and Handicaps (ICIDH), which exhorted that disability leads to the impairment of personal skills, and indeed leads to social disadvantages [3]. But such a classification system tends to consider that individuals who have a disability only endure functional problems. People who suffer from neurological disorders are generally quite aware of not only their physical disadvantages, but also their social disadvantages when comparing themselves to the general population. One criticism of the ICIDH is that it does not take into account the social disadvantages to which patients are subjected, and the links between causality and diagnosis [4].

The World Health Organization announced the new International Classification of Functioning, Disability, and Health (ICF), in 2001. The new health classification system integrated both the social model and the individual model, but again failed to acknowledge impairment to the structure and physical functions that can be experienced in association with living conditions. Limitations on social interaction, coupled with physical impairment, greatly restrict the quality of life, employment prospects, and participation in social activities of individuals suffering from neurological conditions [5]. Consequently, it means that SLPs are required to interact with situational factors (such as environmental factors), personal factors, and contextual factors in order to provide a thorough clinical assessment. Based on these classifications, the evaluation of progressive dysarthria has recently developed a more holistic approach, emphasizing the taking of the participation and activity of the patient into account. However, the testing tools that have been formulated, such as the Assessment of Intelligibility of Dysarthric Speech and the Frenchay Dysarthria Assessment [6], which are currently used during clinical diagnosis of dysarthria are based mainly on impairment [7]. In addition to this, when reviewing the method of informal evaluation, oral movement is widely used as an indicator for progressive dysarthria and/or impairment, and is based entirely on the impairment, whereas unspoken language such as body language, facial gestures, etc. are overlooked. These non-verbal forms of communication are also susceptible to disruption by neurological conditions along with verbal communication. This leads to substantial limitations on the available data when comparing historical evaluations of progressive dysarthria [8–9]. Jessica and Steven (2012) surveyed the actual evaluation activities and methodology of SLPs, and came to the consideration that due to the lack of holistic evaluation and necessary assessment tools, a majority of less experienced SLPs operating in a formalized hospital setting were adhering to the use of impairment-based assessments [10].

Consequently, less-experienced SLPs stringently conformed to the status quo of best practice, but failed in clinical reality. Accordingly, an obligation exists for the re-evaluation of participation, activities, and impairment approaches [10].

In this instance, in order to establish guidelines for the evaluation of the disorders referred to in this study, and in consideration of both disorders and activities based on clinical guidelines recommended by the ICF, SLPs must understand that there is a difference between evaluation and recognition, based on the clinical experience of speech language pathologists in Korea.

## **2. Methods**

### **2.1. Study Subjects**

We studied the SLPs that deal with dysarthria in the General Hospitals of Korea. In this study, we attempted to prevent selection bias by choosing 89 SLPs who work in medical institutions in the seven major cities of South Korea as our primary targets.

The questionnaire tool, translated into Korean with the consent of the author, was the same questionnaire that was used in the survey conducted by Jessica and Steven (2012).

Jessica and Steven (2012) surveyed the actual condition of the assessment and treatment by SLPs for speech impediments resulting from progressive dysarthria [10]. After verification of the translation and amendments to the questionnaire tool to reflect the conditions of treatment in Korea, and clinical studies of the subjects throughout their employment at their respective hospitals dealing with speech impediments that result from progressive dysarthria, the process resulted in three SLPs with experience of more than five years. Of the targeted total of 89 SLPs surveyed from March 20th to May 28th, 2014, there was a 72% participation rate of 62 SLPs from 51 hospitals located across the country whose results were analyzed.

### **2.1. Data Analysis**

The general characteristics of subjects based on their clinical experience were presented in the form of means, standard deviations, and percentages. The difference between groups after the adjustment of the medical center was analyzed with a Cochran-Mantel-Haenszel (CMH) test. SPSS version 20.0 (IBM Inc., Chicago, Illinois) was used for all analyses and the significance level was 0.05 in two-sided tests.

## **3. Results**

### **3.1. General Characteristics of Subjects**

The results of descriptive analysis, surveyed average months of clinical experience were 92 months (range: 2–260 months, Standard deviation: 66.6), 46 were female (74.2%), 38 were tertiary hospital workers(61.3%), and 60 were full time employees (96.8%).

### **3.2. Progressive Dysarthria Assessment Tools and Preferences based on Clinical Experience**

The characteristics of progressive dysarthria based on clinical experience assessment tools are shown in Table 1. Interaction for the evaluation of articulation results of the CMH test, and augmentative and alternative communication means in the context of conversation, indicated that the group of SLPs with more than five years of experience showed a significant difference between themselves and the group of SLPs with less than five years of experience. The most noticeable variants were the contrasts in observational skills of conversational ability, observation of technical ability to use augmentative and alternative means of communication, difficult communication situations identified and ranked lists, interactions with others, and written communication skills ( $p < 0.05$ ). Additionally, therapists made observations in interactive situations, in which they listed observed interactions using complementary and alternative communication methods, and the subject's technical ability in communication. In interactive situations with others, experience was higher in the group of more than five years of experience in the contexts of interaction observation and care. The frequency of technical observation was higher in the group of less than five years of experience in their evaluation in the context of interactive therapy.

**Table 1. Frequency of Using Evaluation Tools with Progressive Dysarthria based on Clinical Experience, n (%)**

	Less than 5 years (n=28)				More than 5 years (n=34)				<i>p</i>
	None	Low	Medium	High	None	Low	Medium	High	
<b>Formal tools</b>									
FDA	18 (64.3)	6 (21.4)	0	4 (14.2)	12 (35.2)	16 (47.1)	2 (5.9)	4 (11.8)	0.073
AIDS	14 (50.1)	6 (21.4)	2 (7.1)	6 (21.4)	16 (47.1)	14 (50.0)	4 (11.9)	0	0.081
U-TAP	2 (7.1)	6 (21.4)	2 (7.1)	18 (64.4)	2 (5.9)	0	4 (11.8)	28 (82.3)	0.121
<b>Informal tools</b>									
Oro-motor	0	0	2 (7.1)	26 (92.9)	0	0	0	34 (100)	0.279
Respiration	0	2 (7.1)	4 (14.3)	22 (78.6)	4 (11.8)	2 (5.9)	0	28 (82.3)	0.069
MDVP	16 (57.1)	4 (14.3)	4 (14.3)	4 (14.3)	14 (41.2)	14 (41.2)	4 (11.8)	2 (5.8)	0.179
Articulation	4 (14.3)	6 (21.4)	8 (28.6)	10 (35.7)	8 (23.5)	4 (11.8)	4 (11.8)	18 (52.9)	0.224
Reading	6 (21.4)	0	6 (21.4)	16 (57.2)	8 (23.5)	2 (5.9)	4 (11.8)	20 (58.8)	0.187
Intelligibility	0	0	6 (21.4)	22 (78.6)	0	6 (17.6)	4 (11.8)	24 (70.6)	0.044
Interaction /SLP	4 (14.3)	2 (7.1)	6 (21.4)	16 (57.2)	2 (5.9)	6 (17.6)	6 (17.6)	20 (58.9)	0.065
AAC -Interaction	16 (57.1)	10 (35.7)	0	2 (7.2)	10 (29.4)	12 (35.2)	12 (35.3)	0	<0.001
AAC -Technical	14 (50.0)	12 (42.8)	0	2 (7.2)	10 (29.4)	16 (47.1)	8 (23.5)	0	0.029
Participation	14 (50.0)	4 (14.3)	4 (14.3)	6 (21.4)	12 (35.2)	16 (47.1)	4 (11.8)	2 (5.9)	0.061
Hierarchy	16 (57.1)	4 (14.3)	4 (14.3)	4 (14.3)	12 (35.3)	16 (47.1)	0	6 (17.6)	0.005
Interaction /Others	14 (50.0)	2 (7.1)	8 (28.6)	4 (14.3)	6 (17.6)	14 (41.2)	6 (17.6)	8 (23.6)	0.006
Communication	10 (35.7)	2 (7.1)	8 (28.6)	8 (28.6)	8 (23.5)	16 (47.1)	8 (23.5)	2 (5.9)	0.003

FDA=frenchay dysarthria assessment; AIDS=assessment of intelligibility of dysarthric Speech; U-TAP=urimal test of articulation and phonation; Oro-motor=oro-motor examination; Respiration=observing respiration and phonation; Articulation=screening test of articulation; Reading=reading standard passage; Intelligibility=observation intelligibility in conversation with speech language pathologists; Interaction=observation interaction in conversation with speech language pathologists; AAC-interaction=observation interaction ability with AAC; AAC-technical=observation technical ability with AAC; Participation=observation social participation; Hierarchy=hierarchy of difficult communication situations; Interaction=observation interaction with others; Communication=observation communication in non-clinical situations

### 3.3. Recognition of Evaluation with Progressive Dysarthria based on Clinical Experience

The characteristics of the recognition of evaluation are shown in Table 2. As a result of the CMH test, there was a significant difference in the effect that the subject matter had on communication (e.g. interacting with a spouse) and its importance in evaluating communication performance ( $p < 0.05$ ). 52.9% of surveyed respondents with more than

five years clinical experience indicated that they agreed. Meanwhile, only 28.6% of SLPs with less than five years clinical experience agreed that the focus of the patient's attention affects the ability of the patient to communicate.

**Table 2. Recognition of Evaluation of Progressive Dysarthria based on Clinical Experience**

	Less than 5 years (n=28)			More than 5 years (n=34)			<i>p</i>
	Disagree	Neither agree	Agree	Disagree	Neither agree	Agree	
Nonverbal exercise	0	0	28 (100)	0	2 (5.9)	32 (94.1)	0.380
Speech subsystems intelligibility	0	2 (7.1)	26 (92.9)	0	0	34 (100)	0.085
Chief complaint	0	4 (14.3)	24 (85.7)	0	2 (5.9)	32 (94.1)	0.483
interaction	0	12 (42.9)	16 (57.1)	4 (11.8)	10 (29.4)	20 (58.8)	0.239
Communication partner's abilities	2 (7.1)	18 (64.3)	8 (28.6)	4 (11.8)	12 (35.3)	18 (52.9)	0.045
Functional communication	2 (7.1)	6 (21.4)	20 (71.4)	2 (5.9)	6 (17.6)	26 (76.5)	0.242
Social participation	2 (7.1)	4 (14.3)	22 (78.6)	2 (5.9)	6 (17.6)	26 (76.5)	0.366
Preference of Informal test	2 (7.1)	14 (50.0)	12 (42.9)	2 (5.9)	18 (52.9)	14 (41.2)	0.986

#### 4. Discussion

In regards to the understanding and recognition of evaluation for progressive dysarthria based on the clinical experience of SLPs in Korea, this study has provided the basic data for the development of a cross-referencing tool that could be used in future clinical evaluations.

There was no difference in the clinical experience of the formal evaluation tool in the evaluation assessment. However, there was a discrepancy in the results for the informal evaluation method and in understanding the observations, due to a lack of linguistic clarity, observation of the technical ability to use augmentative and alternative means of communication, the status of written communication in the context of the conversation with the therapist according to their clinical experience, ranking displayed, and the difference of what is observed in interactive situations with others, and their recording of their communication skills in the context of alternate treatments. Of these, with the exception of the assessment of the clarity of speech in the context of a conversation with the therapist, their frequency of use was higher in the group with more than five years of clinical experience.

The speech intelligibility means how accurately a listener is able to interpret the acoustic signal of the speech sounds from the speaker [11]. This is in situations where various factors such as articulation, resonance, prosody, respiration, phonation, and the surrounding environment affect the results of assessment [12]. In other words, the acoustic aspects of speech sound disorders may be an area on which to focus.

On the other hand, many collective clinical experiences actually look at a high ratio of the items in common use, not at the full particulars of all disabled patients with progressive dysarthria. This can be interpreted as meaning that the difficulties involved may include both activities and participation.

In recent years, if an evaluation with a focus on areas such as articulation, speech rate, prosody, phonation, and resonance is carried out, then the position of the listener has had to be considered by adjusting the environmental context of the surrounding focus to be able to understand the patient's speech patterns. A holistic approach enables maximum communication by using both the contextually adjusted speech patterns and

the parallel of gestures, as well as considerations for everyday life and the recognition of the patient's social skills [13]. The efficiency of iconic gestures that are related to the content of a word or phrase is particularly emphasized. Gestures are complementary to mainstream communication, and are a means of augmentative and alternative communication that can overcome communication difficulties and supplement the number of ways to communicate, thereby enabling eventual mutual understanding between a subject (SLP), and patient [14].

These results often indicate that the group with more than five years of clinical experience has a high technical ability to use complementary and alternative means of communication and conversational interaction, as it appears that the more clinical experience a person has, the more their communication finally shows indirectly that the evaluation performed is based on the holistic approach, with a focus on capacity.

Furthermore, to understand the difficulties in communication, list the rank, not the therapist, and observe the interaction in the context of their conversation with others, not the treatment chamber, and in the context of other treatment chamber interactions and communications with patients who suffer from dysarthria of their communication skills that they have recorded. When taking into consideration the difficulties encountered in social and daily interactions, what is actually shown is that, the more clinical experience a person has, the more their assessments are based on a holistic approach.

The evaluation of the recognition of items showed only one difference, based on clinical experience, which is the importance of understanding the communication skills of the subject. This consideration shows that clinical experience is about what to take into account regarding the communication skills of the patient that is relevant to their progressive dysarthria. It is interesting to note that SLPs with more than five years clinical experience regarded communication skills as more important than SLPs with less than five years of experience. Not limited to progressive dysarthria, this takes into account both the social participation and activities of the patient. Efforts to listen to a speaker with progressive dysarthria have a meaningful influence on communication [15–17]. Thus, the ability to communicate the subject's grasp of their speech disorder and communication difficulties lies in the possibility that all the elements are always necessary in evaluating patients with progressive dysarthria, so that it may become a key that can be implemented harmoniously.

The limitations of this study are as follows: First, our analysis was only based on five years of clinical experience. Second, we only investigated the awareness and evaluation of the holistic approaches. The difference between interventions in accordance with the clinical experience is required for future investigations.

## **5. Conclusion**

In this study, a difference was found in the use of the evaluation methods, generally based on clinical experience. Based on the results of this study, the development of guidelines for overall assessment tools is required to diagnose progressive dysarthria effectively in the future.

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## Appendix:

# Survey About Assessment of Progressive Dysarthria

## I. Information about you

### 1. Please indicate your gender

- 1) Male
- 2) Female

### 2. Please indicate your type of hospital

- 1) General practitioner
- 2) Semi hospital
- 3) General hospital

### 3. Please indicate your hospital location

- 1) Seoul
- 2) Gyeonggi-do
- 3) Chungcheong-do
- 4) Gangwon-do
- 5) Gyeongsang-do

- 6) Cheola-do
- 7) Jeju-do

**4. Please indicate your employment status**

- 1) Part time
- 2) Full time

**5. Please indicate your experience**

\_\_\_\_\_years \_\_\_\_\_months

**II. Your assessment**

**6. Please rate how much you use the following assessment tools**

	None	Low	Medium	High
Frenchay dysarthria Assessment				
Assessment of Intelligibility of Dysarthric speech				
Urimal Test of Articulation and Phonation				

**7. Please rate how much you use the following descriptive assessments and informal tools**

	None	Low	Medium	High
Oro-motor examination				
Observing respiration and phonation				
Using the Multi-Dimensional Voice Program				
Screening test of articulation				
Reading standard passage				
Observing intelligibility in conversation with SLP				
Observing interaction in conversation with SLP				
Observing interaction ability with AAC				
Observing technical ability with AAC				
Observing social participation				
Hierarchy of difficult communication situations				
Observing interaction with others				
Observing communication in non-clinical situations				

**8. Please rate how much you agree or disagree with the following statements**

	Disagree	Neither agree or disagree	Agree
Nonverbal exercise is important			
Assessment of speech subsystems is important			
Assessment of speech intelligibility is important			
Assessment based on the chief complaint is important			
Assessment of interaction is important			
Assessment of communication partner's abilities is important			
Assessment of functional communication in every activities is important			
Assessment participation in society is important			
Informal interaction with client gives more information than formal assessments			



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